



Learning from the land: Indigenous pedagogy as curriculum praxis in the Bihar School Examination Board curriculum at the secondary school stage

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Abstract

Educational discourse in India has increasingly emphasized the need for culturally responsive and contextually grounded curricula, particularly following the adoption of the National Education Policy (NEP) 2020. Indigenous pedagogy, rooted in local knowledge systems, lived experience, and ecological relationships, offers a powerful framework for reimagining curriculum praxis at the secondary school stage. This paper examines how Indigenous pedagogy can be integrated across subject areas within the Bihar School Examination Board (BSEB) curriculum without altering prescribed syllabi. Drawing on curriculum analysis and classroom-based reflections, the study provides a subject-wise elaboration of Indigenous pedagogical applications in Social Science, Science, Mathematics, Language Education, and Vocational Studies. The paper argues that Indigenous pedagogy strengthens curriculum implementation by enhancing relevance, engagement, and conceptual understanding while also affirming learners' cultural identities. The study enhances curriculum studies by showing how learning from land and community can serve as a valid and rigorous pedagogical approach, while also outlining the challenges encountered in its application.

Keywords: Indigenous pedagogy, curriculum praxis, secondary education, BSEB, Indigenous Knowledge Systems

Introduction

Secondary education occupies a pivotal position in shaping learners' intellectual development, social awareness, and future aspirations. At this stage, students are expected to move from memorization toward conceptual understanding and critical engagement with knowledge. However, classroom practices within many Indian school systems, including those under the Bihar School Examination Board (BSEB), remain largely examination-driven and textbook-oriented. Such practices often marginalize learners' lived experiences and local knowledge, resulting in a disconnect between schooling and everyday life.

Bihar's socio-cultural context is characterized by deep engagement with land, agriculture, community networks, oral traditions, and Indigenous livelihood practices. Yet, these knowledge systems rarely find systematic representation within formal schooling. Indigenous pedagogy, which foregrounds learning through land, community, and lived experience, offers a framework for bridging this gap. This paper conceptualizes Indigenous pedagogy as curriculum praxis, a reflective and action-oriented approach to curriculum enactment—and explores its subject-wise integration within the BSEB secondary curriculum.

Indigenous Pedagogy: Theoretical Foundations

Indigenous pedagogy is based on the epistemological understanding that knowledge is relational, contextual, and ethically grounded. Rather than viewing knowledge as abstract and universal, Indigenous knowledge systems emphasize place-based learning, intergenerational transmission, and experiential engagement (Battiste, 2013) [5]. Learning is understood as a holistic process involving cognitive, emotional, social, and ecological dimensions.

Indigenous pedagogy challenges dominant Eurocentric models of education by validating multiple ways of knowing and recognizing community knowledge as legitimate (Smith, 2012) [57]. In school contexts, Indigenous pedagogy does not reject formal knowledge but seeks to situate it within learners' cultural and environmental realities.

Curriculum Praxis: From Prescription to Practice

Curriculum praxis refers to the lived enactment of curriculum in classrooms through reflective teaching practices (Carr & Kemmis, 1986) [11]. It highlights the role of teachers as active interpreters of curriculum rather than passive transmitters of content. Praxis involves critical reflection, contextual adaptation, and ethical engagement with learners' realities.

When Indigenous pedagogy informs curriculum praxis, teachers draw focus upon local environments, community practices, and students' lived experiences as pedagogical resources. Within the BSEB framework, this approach allows teachers to meet curricular objectives while enriching learning processes.

The BSEB Secondary Curriculum: Context and Possibilities

The BSEB secondary curriculum includes Social Science, Science, Mathematics, Languages, and Vocational Education. The curriculum emphasizes conceptual clarity, skill development, and value education, aligned broadly with national curricular goals (Bhardwaj, 2024 [38]; Sharma, 2025). While textbooks and assessments are standardized, pedagogy is not strictly prescribed, offering scope for contextualization (Gupta, 2021; Jamil, 2024; Masalimova, 2024) [22, 28, 38]. However, examination pressures often limit

pedagogical innovation (Masalimova, 2024 ^[38]; Jamil, 2021) ^[29]. Indigenous pedagogy provides a structured yet flexible approach for utilizing this pedagogical space meaningfully (Jaiswal, 2025; Prabhakar, 2023; Da Silva, 2023) ^[14, 27]. The BSEB Secondary Curriculum serves as a comprehensive framework designed to guide students through their educational journey during the critical years of secondary education. At its core, this curriculum aims to foster a holistic development approach, equipping students with essential knowledge and skills that are vital for higher education and beyond (Sharma, 2025; Sposab, 2024; Gonzalez-Perez, 2022) ^[3, 23, 58]. In the context of today’s rapidly evolving educational landscape, the BSEB Secondary Curriculum recognizes the importance of adapting to contemporary challenges and educational needs (Gonzalez-Perez,2022) ^[16]. It emphasizes not only academic excellence but also the cultivation of critical thinking, creativity, and problem-solving abilities, all of which are essential in a globalized world (Bhardwaj, 2024; Jamil, 2024; Sposab, 2024 ^[28, 58]; Gonzalez-Perez,2022). Within this curriculum, diverse subjects are offered, ranging from traditional disciplines such as mathematics and science to more modern fields like information technology and environmental studies. This variety supports personalized and multidisciplinary learning paths (Prabhakar, 2023; Gonzalez-Perez, 2022; Yim, 2024) ^[64]. Additionally, the BSEB Secondary Curriculum is designed to incorporate practical experiences through projects, experiments, and community engagement, helping students apply theoretical knowledge in real-world situations (Sharma, 2025; Jamil, 2024; Harkishan, 2025; Garcia-Olp et. al., 2022) ^[16, 23, 28]. This hands-on approach deepens understanding and builds collaboration and communication skills (Gupta, 2021;Pedroso, 2023 ^[22, 47]; Gonzalez-Perez & Ramirez-Montoya, 2022) ^[19]

Subject-Wise Elaboration of Indigenous Pedagogy at the Secondary Level

Social Science- Social Science offers extensive opportunities for Indigenous pedagogical integration due to its focus on society, environment, and economy. Topics such as agriculture, rural livelihoods, local governance, and environmental resources can be directly linked to students’ lived experiences. For example, geography lessons on agriculture can be enriched through students’ engagement with local farming practices, irrigation systems, and seasonal cycles. History teaching can incorporate oral histories, folk narratives, and local movements, allowing students to view historical processes as lived realities rather than distant events. Civics lessons on democracy and governance can be contextualized through village institutions and community decision-making practices. Such approaches align with constructivist learning

principles and enable students to engage with social realities critically (NCERT, 2005; Kumar, 2005) ^[34].

Science: Science education at the secondary level often becomes abstract and decontextualized. Indigenous ecological knowledge offers meaningful contexts for teaching scientific concepts related to biodiversity, conservation, soil, water, and energy. Topics such as natural resources and the environment can be taught through observation of local ecosystems, traditional water conservation methods, and Indigenous agricultural practices. Household knowledge of medicinal plants and food preservation provides entry points for discussing scientific principles related to biology and chemistry. Integrating Indigenous knowledge with scientific explanations encourages inquiry and fosters environmental responsibility (Aikenhead & Ogawa, 2007) ^[1].

Mathematics: Although often viewed as culturally neutral, mathematics is deeply embedded in everyday practices. Indigenous pedagogy reveals mathematical reasoning in land measurement, agricultural planning, market transactions, and craft production. Teachers can contextualize concepts such as ratio, proportion, geometry, and estimation using examples from farming layouts, traditional architecture, or local trade practices. Such contextualization demystifies mathematics and supports conceptual understanding, particularly for first-generation learners (Bishop, 1988) ^[7].

Language Education: Language education plays a critical role in shaping identity and communication. Indigenous pedagogy enriches language learning by incorporating oral traditions, folk literature, proverbs, and storytelling practices. In Hindi and regional language classrooms, students can analyze community narratives alongside prescribed texts, developing reading, writing, listening, and speaking skills. This approach validates students’ linguistic backgrounds and supports inclusive pedagogy (Mohanty, 2006). It also aligns with NEP 2020 ^[41, 49]’s emphasis on multilingualism and mother-tongue-based education.

Vocational Education: Vocational education aligns naturally with Indigenous pedagogy due to its emphasis on experiential learning and skill development. Traditional crafts, agriculture-based skills, food processing, and local entrepreneurship can be integrated into vocational curricula. Learning from local artisans and practitioners’ enables students to acquire practical skills while understanding the cultural and economic significance of these occupations. This approach dignifies Indigenous livelihoods and supports sustainable development goals (Government of India, 2020) ^[21].

Table 1: Mapping Indigenous Pedagogical Strategies with Secondary School Subjects (BSEB)

Subject	Core Curriculum Themes	Indigenous Pedagogical Strategies	Sources of Indigenous Knowledge	Example of Classroom Integration
Social Science	Agriculture, society, governance, economy, environment	Place-based learning, oral history, community mapping	Farmers, elders, local leaders	Students document local farming practices while studying agricultural geography
Science	Ecology, natural resources, life processes	Observation, experiential learning, ecological knowledge	Traditional practices, local biodiversity	Observation of local water sources during lessons on conservation
Mathematics	Measurement, geometry, ratio,	Contextual problem-solving,	Markets, agriculture,	Using local market transactions to teach

	data handling	everyday mathematics	crafts	percentages and profit-loss
Language (Hindi/Regional)	Literature, grammar, comprehension	Storytelling, folk literature, oral narratives	Folk tales, songs, proverbs	Students collect and analyze folk stories as part of language assignments
Vocational Education	Skills, work education, livelihood	Apprenticeship, learning-by- doing	Artisans, vocational practitioners	Interaction with local artisans to learn craft-based skills

Pedagogical and Institutional Implications

Effective integration of Indigenous pedagogy necessitates systemic support across educational frameworks (Chang & Viesca, 2022; Harkishan, 2025; Jaiswal, 2025; Shabalala, 2025) ^[12, 23, 27, 55]. To adequately prepare teachers, teacher education programs must ensure that future teachers engage with local Indigenous knowledge in ways that are both ethical and pedagogically sound (Howe *et al.*, 2021; Nganga & Kambutu, 2024; Persaud *et al.*, 2025; Yip & Chakma, 2024) ^[25, 43, 48, 65].

This preparation should include coursework that emphasizes cultural sensitivity, local histories, and community values, thereby equipping teachers to create inclusive learning environments that honor Indigenous perspectives (Amuthenu, 2023; Howe *et al.*, 2021; Persaud *et al.*, 2025; Thorpe *et al.*, 2021) ^[2, 25, 48, 59].

Moreover, schools should actively recognize community engagement and field-based learning as legitimate and integral to the educational experience (Jaiswal, 2025; Persaud *et al.*, 2025; Ramli *et al.*, 2025; Thorpe *et al.*, 2021) ^[27, 48, 51, 59]. By fostering partnerships with local Indigenous communities, schools can create culturally relevant learning opportunities that extend beyond the classroom (Boakye-Yiadom *et al.*, 2025; Harkishan, 2025; Nganga & Kambutu, 2024) ^[23, 43]. This collaboration not only enriches the curriculum but also reinforces the importance of place-based education, in which students learn from and with their community (Howe *et al.*, 2021; Kadonsi *et al.*, 2023; Thorpe *et al.*, 2021) ^[25, 32, 59].

Furthermore, assessment systems must evolve to incorporate project-based and experiential components, which align evaluation with contemporary pedagogical innovations (Amuthenu, 2023; Brown, 2017; Persaud *et al.*, 2025; Ramli *et al.*, 2025) ^[2, 8, 48, 51]. Traditional assessment models often fail to capture the depth of understanding that can arise from experiential learning (Amuthenu, 2023) ^[2]. Thus, a shift toward more holistic assessment frameworks is essential (Jaiswal, 2025; Persaud *et al.*, 2025; Riley *et al.*, 2024) ^[27, 48, 52].

Such reforms not only strengthen curriculum praxis but also underscore the value of diverse learning modalities, further supporting inclusive education (Brown, 2017; Chang & Viesca, 2022; Jaiswal, 2025; Ogegbo & Ramnarain, 2024) ^[8, 12, 27, 44].

These changes are vital to fostering an educational environment that respects, values, and uplifts Indigenous voices and knowledge systems, ultimately leading to a more equitable and just educational landscape.

Challenges and Ethical Considerations

Integrating Indigenous knowledge into academic curricula involves a complex set of challenges that need careful consideration and thoughtful approaches. One major hurdle is the intense pressure students face from standardized testing and traditional assessment metrics, which often overshadow holistic learning experiences that include Indigenous knowledge systems (Jacob *et al.*, 2018; Preston & Claypool, 2021) ^[26, 50]. This emphasis can unintentionally

marginalize Indigenous perspectives, making them secondary to dominant educational frameworks (Jacob *et al.*, 2018; Schoelen *et al.*, 2023) ^[26, 53].

Another significant issue is the inadequate preparation of teachers to effectively teach Indigenous knowledge. Many teachers do not have sufficient training or resources needed to present this content in a respectful, accurate, and meaningful way (Gorecki & Doyle-Jones, 2021; Milne, 2017 ^[20, 40]; Webb & Mashford-Pringle, 2022) ^[62]. This gap can result in the superficial or tokenistic inclusion of Indigenous perspectives, where these teachings are presented without the necessary depth and authenticity, often reduced to mere footnotes within broader narratives (Brunette-Debassige *et al.*, 2022; Murray & Campton, 2023; Williams & Morris, 2022) ^[9, 42, 63].

Furthermore, ethical engagement with Indigenous communities is crucial for successfully integrating Indigenous knowledge into curricula (Kwaymullina, 2016; Oropilla *et al.*, 2026) ^[35, 45]. This approach requires a commitment to respecting the expertise of community knowledge holders and fostering genuine partnerships that encourage mutual understanding and collaboration (Janke, 2024; Kennedy & Lacznaiak, 2014) ^[30, 33]. It is also essential to acknowledge the intellectual property rights to prevent misrepresentation or appropriation of their cultural knowledge (Janke, 2024; Kennedy & Lacznaiak, 2014; Melber *et al.*, 2023) ^[2, 30, 33].

To effectively address these concerns, robust policy support is necessary (Anthony-Stevens *et al.*, 2020; Milne, 2017 ^[21, 40]; Webb & Mashford-Pringle, 2022) ^[62]. Educational systems must prioritize funding and resources to train teachers in culturally responsive pedagogies and in incorporating Indigenous knowledge (Burns *et al.*, 2026; Sexton, 2024) ^[10, 54]. Policies should also encourage the formation of community partnerships, where Indigenous knowledge holders are actively involved in curriculum design and implementation (Anthony-Stevens *et al.*, 2020 ^[6]; Webb & Mashford-Pringle, 2022) ^[62].

Reflective practice is another critical component in this process, enabling teachers to continually assess their teaching methods and the materials they use (Hogarth, 2022; Oskineegish, 2019) ^[24, 46]. Regular reflection allows teachers to recognize their biases, challenge preconceived notions, and adapt their approaches to honor Indigenous ways of knowing (Gollert, 2026; Lucas & Hains-Wesson, 2025) ^[18, 36].

Ultimately, a dedication to transformative change, ethical engagement, and continuous professional growth will be essential for addressing these challenges and improving the inclusion of Indigenous knowledge in educational settings.

Conclusion

This paper has demonstrated that Indigenous pedagogy, viewed as a form of curriculum praxis, provides a strong and effective framework for improving the BSEB secondary school curriculum. By integrating subject matter with knowledge and experiences from the land and local communities, the educational experience becomes

significantly enriched. This approach not only makes the material more relevant to students but also enhances their engagement and deepens their understanding across various disciplines. Importantly, applying Indigenous pedagogy does not compromise academic rigor; rather, it strengthens curriculum implementation by affirming and celebrating the cultural identities of learners. By incorporating Indigenous perspectives and methodologies into the educational framework, we can develop a more humane, inclusive, and meaningful secondary education system in Bihar, one that values the diverse backgrounds and experiences of all students. This approach promotes a holistic understanding of knowledge, enabling students to connect more deeply with what they are learning and with their communities.

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