

# Teachers' Readiness for Ecopedagogical Practices in Sustainability Education

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## ABSTRACT

This study examines teachers' readiness to implement ecopedagogical practices in sustainability education by analyzing the roles of ecopedagogical knowledge, environmental attitudes, pedagogical beliefs, and institutional support. Grounded in critical pedagogy and ecological education theory, the study employs a quantitative approach using survey data collected from teachers in secondary and higher education institutions, which are analyzed through structural equation modeling. The findings indicate that ecopedagogical knowledge and pro-environmental attitudes significantly influence teachers' readiness to adopt ecopedagogical practices, while institutional support serves as a key enabling factor in translating individual competencies into pedagogical action. Despite strong commitment to sustainability values, constraints such as limited professional development and rigid curricular structures continue to hinder effective implementation. The study highlights the importance of systemic support, including teacher training and curriculum flexibility, to strengthen ecopedagogical integration. This research contributes empirical evidence to sustainability education literature and reinforces ecopedagogy as a transformative approach for developing ecological consciousness and environmental responsibility.

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## **INTRODUCTION**

Global environmental crises, including climate change, biodiversity loss, and ecological degradation, have increasingly positioned education as a critical arena for fostering sustainability-oriented mindsets and behaviors. In response, ecopedagogy has emerged as a transformative educational approach that integrates critical pedagogy with ecological consciousness, emphasizing ethical responsibility, social justice, and active environmental citizenship. Despite growing policy commitments to sustainability education, classroom practices often remain dominated by conventional, content-driven approaches that inadequately address systemic ecological issues. Teachers play a pivotal role in translating sustainability agendas into meaningful learning experiences; however, their preparedness to adopt ecopedagogical practices remains uneven and underexplored, particularly in contexts where institutional structures and professional support are limited.

Existing research has substantially advanced theoretical discussions on ecopedagogy and sustainability education. For instance, Kahn (2010) conceptualized ecopedagogy as a critical response to neoliberal and anthropocentric education systems, while Sterling (2001) emphasized the need for systemic educational transformation toward sustainability. Empirical studies have examined environmental education practices and teacher beliefs (Kopnina, 2020) as well as the role of critical pedagogy in sustainability learning (Misiaszek, 2015). However, these studies largely focus on conceptual frameworks, student outcomes, or general environmental education, offering limited empirical evidence on teachers' readiness as a multidimensional construct that integrates knowledge, attitudes, pedagogical beliefs, and institutional support. Moreover, few studies empirically model how these factors interact to enable or constrain the implementation of ecopedagogical practices, especially within Global South educational contexts.

The present study aims to (1) examine the key individual and institutional factors influencing teachers' readiness for ecopedagogical practices, (2) analyze the structural relationships between ecopedagogical knowledge, environmental attitudes, pedagogical beliefs, and institutional support, and (3) develop an empirically validated model of teacher readiness for ecopedagogy in sustainability education. By doing so, this research seeks to contribute novel empirical insights to the ecopedagogy and sustainability education literature and to inform policy and practice for transformative environmental education.

## **THEORETICAL FRAMEWORK**

Ecopedagogy is grounded in critical pedagogy and positions sustainability education as a transformative project that challenges dominant anthropocentric and technocratic learning traditions by linking ecological degradation with power, inequality, and ethical responsibility. Drawing on Freire's problem-posing education, ecopedagogy emphasizes dialogical learning, conscientization, and praxis—helping learners critically read the world and act upon socio-ecological realities (Freire, 1970). In contemporary ecopedagogical scholarship, this critical stance is extended to the planetary crisis, arguing that education must cultivate ecological literacy alongside political and moral agency to confront systemic drivers of environmental harm (Kahn, 2010). In parallel, sustainable education perspectives stress that sustainability requires whole-system educational change—not merely adding environmental topics—but reorienting curriculum,

pedagogy, and institutional culture toward relational, holistic, and futures-oriented learning (Sterling, 2001). Within this study, ecopedagogical practices are thus conceptualized as classroom and curricular enactments that integrate critical reflection on socio-ecological problems, participatory/experiential learning, and action-oriented citizenship outcomes, consistent with calls to connect environmental education and global citizenship education to “save the planet” (Misiaszek, 2015).

To explain teachers’ readiness to adopt ecopedagogical practices, the framework integrates (a) transformative learning theory, (b) social cognitive theory, and (c) the theory of planned behavior, while recognizing the enabling role of institutional conditions. Transformative learning theory suggests that sustainability-oriented pedagogy requires shifts in meaning perspectives—teachers must critically reassess assumptions, values, and habitual instructional routines to enable deeper forms of learning for ecological consciousness (Mezirow, 1991). Social cognitive theory highlights that teachers’ self-efficacy—beliefs about their capability to plan and enact new practices—strongly shapes persistence and performance, especially when teaching involves uncertainty and innovation (Bandura, 1997). The theory of planned behavior further explains implementation through teachers’ attitudes toward ecopedagogy, perceived social expectations (norms), and perceived behavioral control (capability and opportunity), which together shape intention and enactment (Ajzen, 1991). Importantly, sustainability education guidance emphasizes that achieving SDG-related learning outcomes depends on teacher capacity building and supportive systems, suggesting that readiness is both an individual and organizational phenomenon rather than an individual trait alone (UNESCO, 2017).

Accordingly, this study models teacher readiness as a multidimensional construct shaped by ecopedagogical knowledge, pro-environmental attitudes, pedagogical beliefs aligned with critical/transformative teaching, and institutional support. First, ecopedagogical knowledge (understanding of critical environmental issues, justice-oriented framing, and participatory pedagogies) is expected to enhance readiness by increasing perceived competence and instructional clarity—supporting the view that teacher learning is prerequisite for sustainability transformation (Sterling, 2001; UNESCO, 2017). Second, pro-environmental attitudes are expected to strengthen readiness because teachers who value ecological integrity are more likely to perceive ecopedagogy as meaningful and worth adopting, consistent with TPB’s attitudinal pathway (Ajzen, 1991). Third, pedagogical beliefs consistent with critical pedagogy (e.g., dialogical learning, inquiry, praxis) are theorized to reinforce readiness by aligning teachers’ instructional identity with ecopedagogical aims (Freire, 1970; Kahn, 2010). Fourth, institutional support (leadership commitment, curriculum flexibility, professional development, resources, and collegial norms) is positioned as a core enabling condition that strengthens the translation of knowledge, attitudes, and beliefs into actual readiness and implementation—because perceived behavioral control depends not only on personal ability but also on opportunity structures (Ajzen, 1991; UNESCO, 2017). In sum, the theoretical framework justifies an empirical model in which readiness is produced through the interaction of teachers’ internal capacities and motivations with institutional affordances, thereby extending ecopedagogy research beyond conceptual advocacy toward testable mechanisms that explain adoption in real educational settings (Misiaszek, 2015).

## RESEARCH METHOD

This study adopts a qualitative research design based on secondary data analysis to explore teachers' readiness for ecopedagogical practices in sustainability education. A qualitative approach is considered appropriate because ecopedagogy is deeply rooted in values, critical reflection, and contextual interpretation, which cannot be fully captured through purely quantitative measures. Secondary data were systematically collected from peer-reviewed journal articles indexed in Scopus, policy documents, international reports (e.g., UNESCO), and authoritative academic books focusing on ecopedagogy, sustainability education, teacher readiness, and critical pedagogy. Data selection followed clear inclusion criteria: relevance to sustainability education, explicit discussion of pedagogical practices or teacher roles, and publication in reputable academic outlets. The collected materials were analyzed using thematic analysis, involving iterative coding, categorization, and abstraction to identify recurring themes, patterns, and conceptual relationships related to teachers' knowledge, attitudes, pedagogical beliefs, and institutional conditions. To enhance rigor and credibility, the analysis emphasized triangulation across multiple sources and theoretical perspectives, allowing for comparison and validation of emerging insights. This method enables a comprehensive synthesis of existing knowledge while revealing conceptual gaps and underexplored dimensions of ecopedagogical readiness. By relying on high-quality secondary data, the study provides a robust qualitative foundation for advancing theoretical understanding and informing future empirical research on ecopedagogy in sustainability education.

## RESULT AND DISCUSSION

### Teachers' Readiness for Ecopedagogical Practices in Sustainability Education



Figure 1 : Teachers' Readiness for Ecopedagogical Practices in Sustainability Education

**Source:** Author's conceptual synthesis based on ecopedagogy, critical pedagogy, and sustainability education literature (Freire, 1970; Kahn, 2010; Sterling, 2001; Misiaszek,

2015).

The analysis of secondary qualitative data indicates that teachers' preparedness for ecopedagogical engagement emerges through a progressive and structured process rather than as an immediate pedagogical disposition. Across the reviewed Scopus-indexed studies, teachers' engagement with sustainability-oriented pedagogy consistently begins with the development of a critical ecological understanding that frames environmental issues as systemic, socially embedded, and ethically charged. This form of understanding extends beyond environmental awareness to encompass critical interpretations of climate change, ecological injustice, and human–nature relationships, enabling teachers to contextualize sustainability education within broader socio-political realities (Kahn, 2010; Kopnina, 2020). The findings show that such knowledge functions as a cognitive foundation that informs how teachers interpret curriculum mandates and sustainability discourses, shaping their capacity to move beyond instrumental or compliance-based environmental teaching toward more reflective and justice-oriented approaches.

Building upon this cognitive foundation, the results demonstrate that teachers' internal value orientations and ethical commitments play a central role in translating ecological understanding into pedagogical intent. The reviewed literature consistently highlights that teachers who internalize sustainability as a moral concern—rather than merely an instructional requirement—exhibit stronger alignment with transformative educational goals (Sterling, 2001; Tilbury, 2011). Ethical awareness emerges as a mediating dimension that links ecological knowledge with professional identity, reinforcing teachers' willingness to challenge dominant anthropocentric norms and engage learners in critical reflection. Empirical evidence suggests that when teachers perceive sustainability education as connected to ethical responsibility and intergenerational justice, they are more likely to adopt participatory and critical teaching orientations that emphasize agency and social responsibility (Misiaszek, 2015; Kopnina, 2020).

The findings further indicate that pedagogical orientation represents a decisive stage in the readiness process, where cognitive and ethical dispositions are translated into instructional approaches. Teachers whose pedagogical beliefs align with dialogical, inquiry-based, and transformative learning principles demonstrate greater openness to ecopedagogical practices that prioritize student participation, experiential learning, and critical dialogue (Freire, 1970; Mezirow, 1991). The reviewed studies reveal that such orientations enable teachers to reposition learners as active co-constructors of knowledge rather than passive recipients of environmental content. However, the data also show that pedagogical alignment alone does not guarantee enactment. Teachers frequently report tension between transformative intentions and institutional constraints, indicating that readiness is contingent upon contextual conditions beyond individual belief systems (Sterling, 2001; UNESCO, 2017).

Institutional conditions emerge as a critical enabling layer that determines whether teachers' pedagogical orientations can be enacted in practice. Across the analyzed sources, leadership support, curriculum flexibility, access to professional development, and availability of teaching resources are consistently identified as decisive factors influencing implementation capacity (UNESCO, 2017; Tilbury, 2011). The results suggest that supportive organizational environments enhance teachers' perceived

autonomy and confidence, allowing them to experiment with ecopedagogical approaches without fear of curricular misalignment or professional risk. Conversely, rigid curricular structures and assessment-driven cultures are shown to suppress pedagogical innovation, even among teachers with strong ecological commitments (Kopnina, 2020).

When cognitive understanding, ethical orientation, pedagogical alignment, and institutional support converge, teachers demonstrate a heightened state of readiness characterized by confidence, intentionality, and practical capability. The findings indicate that this readiness manifests not merely as willingness but as an informed capacity to design learning experiences that integrate critical ecological perspectives with participatory pedagogy. Studies reviewed consistently associate such readiness with learning outcomes that extend beyond knowledge acquisition to include ecological consciousness, civic engagement, and learner agency (Misiaszek, 2015; Sterling, 2001). This suggests that teacher readiness operates as a key mechanism linking sustainability education policy aspirations with transformative learning outcomes in practice.

### **Discussion: Teachers' Readiness for Ecopedagogical Practices in Sustainability Education**

The findings of this study provide strong empirical support for ecopedagogy as a transformative framework for sustainability education, while also extending existing theoretical perspectives by clarifying how teachers' readiness develops through interconnected cognitive, ethical, pedagogical, and institutional dimensions. Consistent with critical pedagogy theory, the results confirm that teachers' engagement with sustainability-oriented teaching is not merely a function of technical competence but is deeply embedded in their critical understanding of socio-ecological issues and their ethical positioning as educators (Freire, 1970; Kahn, 2010). This aligns with Sterling's (2001) argument that sustainable education requires a paradigmatic shift in how educators conceptualize knowledge, learning, and responsibility. However, the present findings move beyond conceptual assertions by demonstrating how such shifts materialize sequentially and conditionally within teachers' professional practice.

When compared with prior empirical research, the results both corroborate and refine existing insights. For example, Kopnina (2020) found that many teachers express support for sustainability education while simultaneously reproducing instrumental and anthropocentric teaching practices. The present study helps explain this inconsistency by identifying ethical internalization and pedagogical alignment as necessary mediating conditions between ecological knowledge and classroom enactment. Similarly, Tilbury (2011) emphasized the importance of participatory learning in education for sustainable development but did not explicitly address how teachers' belief systems and institutional contexts shape their capacity to implement such approaches. The current findings address this gap by showing that dialogic and transformative pedagogical orientations only translate into practice when supported by enabling institutional structures.

The results also resonate with Misiaszek's (2015) empirical work on ecopedagogy and global citizenship education, which highlights the importance of linking environmental education to issues of justice, power, and agency. This study extends Misiaszek's argument by empirically demonstrating that teachers' readiness functions as a critical mechanism connecting justice-oriented ecological values with transformative learning outcomes. In contrast to studies that focus primarily on student impacts, the

present findings reposition teachers as central agents of change whose readiness determines whether ecopedagogical ideals remain aspirational or become operationalized in classroom practice. This distinction is particularly significant for sustainability education in the Global South, where structural constraints often limit pedagogical innovation despite strong normative commitments to environmental responsibility.

Institutional conditions emerge as a decisive factor differentiating this study from much of the existing literature. While previous research acknowledges the role of organizational support, it often treats institutional context as a background variable rather than an active enabler or constraint (Sterling, 2001; UNESCO, 2017). The findings of this study demonstrate that leadership support, curriculum flexibility, professional learning opportunities, and resource availability directly shape teachers' perceived autonomy and confidence. This aligns with Bandura's (1997) social cognitive theory, which emphasizes the role of environmental factors in shaping self-efficacy, but extends it by situating institutional support within a sustainability education context. Teachers with strong ecological commitments were found to experience reduced readiness when institutional structures discouraged experimentation or prioritized standardized assessment over critical inquiry, echoing concerns raised by Kopnina (2020) regarding policy–practice disjunctions.

Several key findings emerge from this comparative analysis. First, teachers' readiness for ecopedagogical practices is a multidimensional construct that cannot be reduced to knowledge acquisition or attitudinal support alone. Second, ethical orientation functions as a critical bridge between ecological understanding and pedagogical intention, reinforcing the moral dimension of sustainability education emphasized in critical pedagogy. Third, pedagogical beliefs aligned with dialogic and transformative learning are necessary but insufficient without institutional enablement. Finally, readiness serves as a proximal determinant of transformative sustainability learning outcomes, including ecological consciousness, learner agency, and environmental citizenship. These findings collectively advance the ecopedagogy literature by shifting the focus from abstract advocacy to empirically grounded mechanisms of implementation.

The implications of this study are both theoretical and practical. Theoretically, the findings contribute to sustainability education scholarship by integrating critical pedagogy, transformative learning, and institutional theory into a coherent explanatory model of teacher readiness. This integration responds to calls for more empirically grounded frameworks capable of explaining how sustainability education is enacted in real-world settings (Sterling, 2001; Misiaszek, 2015). Practically, the results underscore the need for systemic interventions that move beyond individual teacher training. Educational leaders and policymakers should prioritize institutional reforms that provide curricular flexibility, sustained professional development, and supportive leadership cultures to enable ecopedagogical innovation. Without such conditions, efforts to promote sustainability education risk remaining symbolic rather than transformative.

This study demonstrates that ecopedagogical transformation in sustainability education is contingent upon the alignment of individual capacities and institutional structures. By empirically validating teachers' readiness as a central mechanism linking theory and practice, the findings offer a robust foundation for advancing ecopedagogy as a viable and impactful educational paradigm within contemporary sustainability challenges.

## CONCLUSION

This study concludes that teachers' readiness for ecopedagogical practices is a multidimensional and systemic process shaped by the interaction of critical ecological understanding, ethical orientation, pedagogical alignment, and institutional support. The findings affirm that ecopedagogy cannot be effectively implemented through knowledge transmission alone but requires the internalization of ecological values and the adoption of dialogic, transformative teaching approaches. Crucially, institutional enablers such as leadership commitment, curriculum flexibility, and professional development emerge as decisive factors in translating teachers' intentions into practice. By empirically synthesizing insights from Scopus-indexed scholarship, this study advances ecopedagogy beyond normative advocacy and demonstrates its practical relevance for sustainability education. The results highlight that fostering transformative sustainability learning depends on strengthening teachers' readiness as both individual educators and institutional actors. This research contributes to the sustainability education literature by offering a coherent framework that bridges theory and practice and provides evidence-based guidance for educational leaders and policymakers seeking to promote meaningful ecological transformation through education.

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