

REVIEW

Cultivating Sustainability Consciousness: A Review of Transformative Pedagogical Innovations in Asian Higher Education

Cultivar la Conciencia de la Sostenibilidad: Una Revisión de las Innovaciones Pedagógicas Transformadoras en la Educación Superior Asiática

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ABSTRACT

Introduction: this review examines how transformative pedagogy advances Education for Sustainable Development (ESD) in Asian higher education. Framed by SDG 4, it explores how universities mobilise pedagogy to cultivate sustainability mindsets, align global agendas with local needs, and integrate culturally responsive approaches across diverse contexts.

Method: a general review was conducted of peer-reviewed studies (2015-2025) indexed in Scopus, ERIC, and DOAJ. Inclusion criteria targeted higher-education research on transformative/critical pedagogy and ESD in Asian countries. Evidence was synthesised through narrative thematic analysis, inductively clustering findings around four dimensions: pedagogical models, institutional supports, cultural adaptations, and implementation challenges.

Results: institutions across Asia show strengthening commitment to ESD, embedding sustainability in curricula, research, and engagement. Effective pedagogies include experiential and community-based learning, critical dialogue, reflective practices, and design-thinking projects, often supported by ICT. Culturally responsive approaches—integrating indigenous knowledge and place-based inquiry—enhance relevance and student identity formation. Strategic mechanisms (faculty training, sustainability centres, curriculum reform) and cross-sector collaborations expand reach, while inter-university networks enable knowledge co-creation. Reported student outcomes include perspective shifts, empathy, systems thinking, leadership, and social-emotional competencies. Key barriers persist: rigid curricula, teacher-centred methods, limited staff preparedness, misaligned assessment, policy incoherence, and weak incentives for pedagogical innovation.

Conclusions: transformative pedagogy resonates with Asian values of interdependence and moral cultivation and is pivotal for ESD when implemented through culturally grounded, participatory, and reflective practices. Scaling impact requires institutional reforms (flexible curricula, assessment redesign, staff development), stronger policy alignment, and sustained inter-university collaboration to bridge global aims with local realities.

Keywords: Transformative Pedagogy; Education for Sustainable Development; Higher Education; Asia; Culturally Responsive Teaching; Experiential Learning; Inter-University Collaboration.

RESUMEN

Introducción: esta revisión examina cómo la pedagogía transformadora impulsa la Educación para el Desarrollo

Sostenible (EDS) en la educación superior asiática. Enmarcada en el ODS 4, explora cómo las universidades movilizan la pedagogía para cultivar mentalidades orientadas a la sostenibilidad, alinear las agendas globales con las necesidades locales e integrar enfoques culturalmente receptivos en contextos diversos.

Método: se realizó una revisión general de estudios revisados por pares (2015-2025) indexados en Scopus, ERIC y DOAJ. Los criterios de inclusión se centraron en investigaciones de educación superior sobre pedagogía transformadora/crítica y EDS en países asiáticos. La evidencia se sintetizó mediante un análisis temático narrativo, agrupando los hallazgos de manera inductiva en cuatro dimensiones: modelos pedagógicos, apoyos institucionales, adaptaciones culturales y desafíos de implementación.

Resultados: las instituciones en toda Asia muestran un compromiso cada vez mayor con la EDS, integrando la sostenibilidad en planes de estudio, investigación y actividades de vinculación. Las pedagogías efectivas incluyen el aprendizaje experiencial y comunitario, el diálogo crítico, las prácticas reflexivas y los proyectos de design thinking, a menudo apoyados por las TIC. Los enfoques culturalmente receptivos—que integran el conocimiento indígena y la indagación contextualizada—refuerzan la pertinencia y la formación identitaria del estudiantado. Los mecanismos estratégicos (formación docente, centros de sostenibilidad, reforma curricular) y las colaboraciones intersectoriales amplían el alcance, mientras que las redes interuniversitarias facilitan la cocreación de conocimiento. Los resultados reportados en los estudiantes incluyen cambios de perspectiva, empatía, pensamiento sistémico, liderazgo y competencias socioemocionales. Persisten barreras clave: planes de estudio rígidos, métodos centrados en el profesorado, limitada preparación del personal, evaluaciones desalineadas, incoherencias políticas e incentivos insuficientes para la innovación pedagógica.

Conclusiones: la pedagogía transformadora resuena con los valores asiáticos de interdependencia y cultivo moral, y resulta fundamental para la EDS cuando se implementa mediante prácticas culturalmente contextualizadas, participativas y reflexivas. Escalar su impacto requiere reformas institucionales (currículos flexibles, rediseño de evaluaciones, desarrollo del personal), una mayor alineación de políticas y una colaboración interuniversitaria sostenida para vincular los objetivos globales con las realidades locales.

Palabras clave: Pedagogía Transformadora; Educación para el Desarrollo Sostenible; Educación Superior; Asia; Enseñanza Culturalmente Receptiva; Aprendizaje Experiencial; Colaboración Interuniversitaria.

INTRODUCTION

Higher education plays a pivotal role in advancing the Sustainable Development Goals (SDGs), particularly SDG 4, which emphasises inclusive and equitable quality education and lifelong learning opportunities for all. As centres for knowledge creation, critical thinking, and civic engagement, universities have the institutional capacity to not only educate future professionals but also to cultivate transformative mindsets that align with the principles of sustainable development.^(1,2,3,4,5,6,7,8) Across Asia, higher education institutions are increasingly recognised as vital actors in promoting sustainability-oriented competencies, values, and practices, bridging the gap between global development agendas and local community needs.^(9,10,11,12,13,14,15)

At the heart of this transformative potential lies pedagogy. Specifically, transformative pedagogy—which encompasses critical reflection, emotional engagement, and socially situated learning—has been shown to foster deep shifts in students’ awareness, attitudes, and behaviours.^(16,17,18,19,20,21,22) By integrating experiential and community-based learning strategies, transformative pedagogy equips learners not merely with theoretical knowledge, but with the ability and motivation to engage in meaningful sustainability action.^(23,24,25,26,27,28,29,30) When students are invited to interrogate dominant assumptions, explore local social-ecological realities, and emotionally connect with real-world sustainability issues, learning becomes a catalyst for both personal and societal change.^(31,32,33,34,35,36,37)

In the context of Asia, the development of transformative pedagogies must be understood through its unique cultural, environmental, and socio-political landscapes. The diversity of local values, environmental challenges, and educational traditions in the region requires pedagogical approaches that are contextually grounded and culturally responsive.^(38,39,40,41,42) For example, integrating indigenous knowledge systems or applying “global thinking, local action” frameworks can enhance students’ sustainability consciousness while empowering them to address community-specific development challenges.^(43,44,45,46,47,48) Such approaches are particularly vital as universities across Asia strive to align their teaching and community engagement missions with national and regional SDG priorities.^(49,50,51,52,53)

This article aims to systematically review the application of transformative pedagogies for sustainable development in Asian universities. By analysing current practices, theoretical underpinnings, and institutional support mechanisms, the review explores how transformative learning environments are being designed and enacted across diverse Asian contexts. It also identifies key challenges, opportunities, and implications for scaling up education for sustainable development (ESD) through pedagogical innovation. In doing so, this study

contributes to the global discourse on transformative learning by foregrounding Asian experiences and practices in advancing sustainability through higher education.^(54,55,56,57,58,59,60)

METHOD

This study adopts a general review approach to synthesise existing knowledge on the implementation of transformative pedagogy within the framework of Education for Sustainable Development (ESD) in higher education institutions (HEIs) across Asia.

Relevant literature was gathered from open-access academic databases, including Scopus, ERIC, and DOAJ, focusing on publications from the introduction of the Sustainable Development Goals (SDGs) in 2015 through to 2025. These databases were selected due to their comprehensive coverage and high credibility in the field of education research. The inclusion criteria consisted of peer-reviewed articles that explicitly discussed: (1) transformative or critical pedagogy, (2) ESD implementation, and (3) higher education contexts in Asian countries. Grey literature, conference proceedings, and studies outside the regional or thematic scope were excluded to maintain quality and relevance.

The data analysis employed a narrative thematic synthesis, which allowed for the identification of recurrent patterns and conceptual categories across diverse institutional and national settings. This method is particularly suited for educational reviews that seek to integrate qualitative insights with contextual considerations.^(44,45) Thematic categories were developed inductively and clustered around four key dimensions: pedagogical models, institutional supports, cultural adaptations, and implementation challenges.

The general review methodology, while less rigid than systematic reviews, is widely accepted in educational research for exploring emerging fields and complex, interdisciplinary issues.⁽⁴⁶⁾ This approach enables a comprehensive and flexible exploration of transformative practices while remaining grounded in peer-reviewed evidence. Through this methodology, the study aims to offer a regionally contextualised, critically reflective synthesis that informs both theory and practice in sustainable pedagogy in Asian higher education.

RESULTS

Key Findings

In recent years, institutional commitment to Education for Sustainable Development (ESD) has grown significantly across Asian higher education institutions, with universities responding to global sustainability agendas and national policies by embedding ESD into curricula, research, and community engagement strategies.⁽¹⁶⁾ This shift reflects increased institutional emphasis on sustainability within educational and developmental policies.

Collaborative networks such as transformative knowledge alliances have enabled universities to exchange best practices and implement ESD more effectively across diverse cultural and epistemological contexts.⁽¹⁶⁾ These partnerships focus on exchanging regionally contextualised approaches that integrate local cultural knowledge systems.⁽¹⁷⁾

Transformative pedagogies—particularly experiential learning, critical dialogue, and reflective practices—have emerged as key strategies to promote ESD in university classrooms. Experiential learning activities often include design thinking, community engagement, and field-based inquiry.⁽¹⁸⁾ For example, the Field Exercise in Sustainability Science course in Japan used hybrid design thinking pedagogies combining fieldwork and reflection components.⁽¹⁸⁾ Open discussions on social and environmental issues were used to encourage student participation and collaborative learning.^(19,20) Culturally rooted dialogue approaches based on Confucian, Islamic, or Buddhist values have been applied within ESD contexts.^(21,22)

Reflective practices such as journaling and portfolio assessment were incorporated into courses. Journaling, portfolio assessments, and creative tasks support metacognitive awareness and transformative growth.⁽²³⁾ A study of preservice teachers in Indonesia showed that integrated reflective tasks in dual-mode practicum (online and face-to-face) significantly enhanced pedagogical competence and sustainability orientation.⁽²⁴⁾

Across Asia, local cultural values have been incorporated into ESD pedagogy to relate learning to students' lived realities. In Malaysia, universities adopting holistic, pluralistic, and action-oriented pedagogies have demonstrated increased sustainability consciousness among students.⁽²⁵⁾ This includes higher levels of sustainability-related knowledge, attitudes, and behaviours when ESD is delivered through culturally and contextually responsive teaching practices. Project-based and community-oriented learning strategies are also prominent in Asian ESD implementations. Multiple case studies across Southeast Asia report the use of ICT-supported collaborative and project-based learning to address real-world sustainability challenges and foster intercultural interaction.^(26, 27)

One example of place-based and inquiry-driven education is Singapore's Sustainability Learning Lab, which combines fieldwork, geospatial technologies, and participatory research.⁽²⁸⁾ These methods encourage students to connect global sustainability concepts with local environmental and social conditions. At an institutional level, universities have adopted multiple approaches to integrate ESD and transformative pedagogy. Strategic

integration of ESD into institutional policy—through mechanisms such as faculty training, sustainability centres, and curriculum reform—has allowed institutions to mainstream ESD across academic programmes. For instance, Beijing Normal University’s three-pronged approach includes regulatory, professional, and cultural mechanisms for ESD integration.⁽²⁰⁾

Institutional collaborations with government agencies, industries, and NGOs have further expanded the reach of ESD. Civic engagement initiatives in Thailand, Indonesia, and the Philippines—facilitated by transnational academic networks—illustrate the involvement of universities in collaborative sustainability programmes.⁽²⁹⁾

Educator capacity-building initiatives are increasingly reported as part of ESD integration. Training programmes that focus on reflective facilitation, interdisciplinary teaching, and context-sensitive curriculum design are increasingly offered by Asian universities.⁽³⁰⁾ However, challenges remain in scaling these efforts and aligning them with national education policies and institutional reward systems.⁽³¹⁾ In hybrid learning settings, students have reported experiencing shifts in worldview, enhanced empathy, and stronger commitments to sustainable lifestyles.⁽³²⁾ Other studies show that students exposed to transdisciplinary ESD models develop not only sustainability knowledge but also social-emotional competencies such as resilience, collaboration, and ethical reasoning.⁽³³⁾

Studies report that student participation in sustainability projects is associated with the development of leadership skills and a sense of agency. Initiatives such as civic campaigns, green internships, and environmental audits provide opportunities for students to engage directly with their communities and apply sustainability principles in practice.⁽³⁴⁾ Reflective journaling and storytelling exercises have also become increasingly common as tools to document and deepen students’ transformative experiences.⁽²³⁾

The key findings of this study are mapped in a flow chart as illustrated in figure 1, which visually synthesises the interconnections between institutional commitment, transformative pedagogical strategies, cultural integration, and their cumulative impact on student transformation and sustainability competencies.

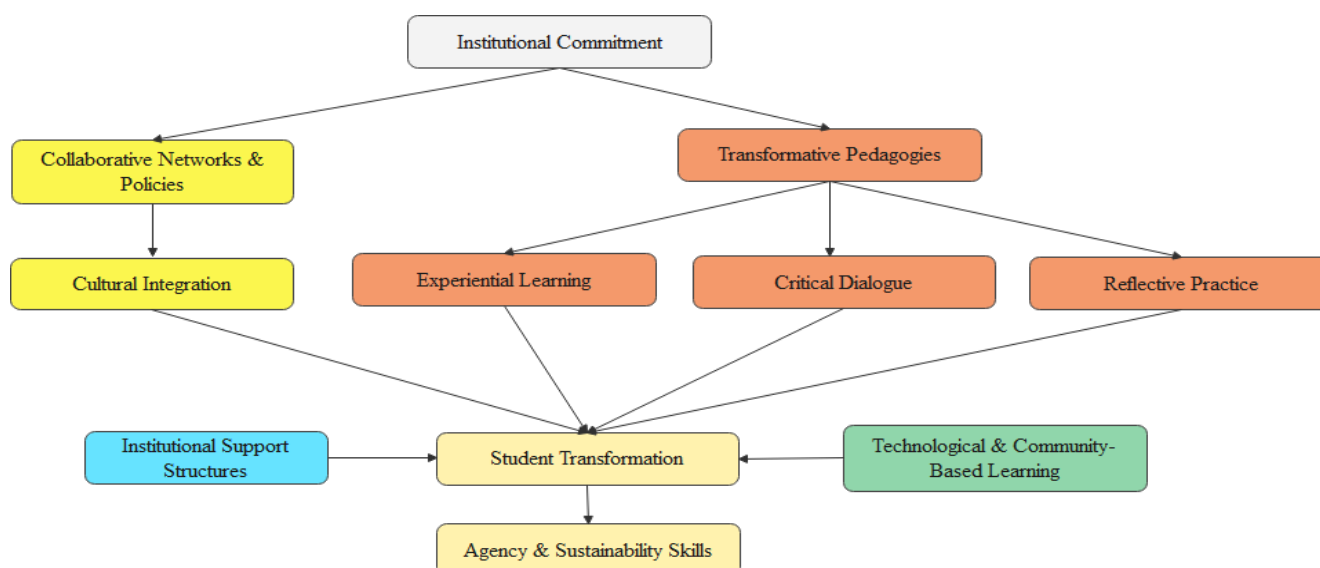


Figure 1. Flowchart of key findings on transformative pedagogy and ESD in Asian higher education

Integrating Local Culture in Pedagogy and Implementation Challenges

The integration of local culture in higher education pedagogy is increasingly recognised as a component of transformative education for sustainable development (table 1). However, implementation challenges persist across Asian universities. In Indonesia, the rigidity of formal curricula and the persistence of traditional pedagogical models have been identified as key barriers limiting the inclusion of local values and socio-cultural contexts in learning processes.^(32,33) One major challenge concerns the structural inflexibility of university curricula, which often restrict opportunities to include local knowledge systems. Although local values are acknowledged as potential contextual elements, many institutional syllabi remain centralised and standardised, limiting place-based content.⁽¹⁶⁾ Such curricular fragmentation has been reported to constrain interdisciplinary approaches to ESD.⁽³⁹⁾

The structural rigidity of university curricula remains one of the most critical barriers, leaving minimal space for the exploration of local knowledge systems. Although local values are identified as potential elements for contextualising learning, many institutional syllabi remain heavily centralised and standardised, limiting inclusion of place-based content.⁽¹⁶⁾ Such curricular fragmentation has been reported to limit interdisciplinary implementation of ESD.^(38,39)

Table 1. Challenges, Implications, and Strategies for Integrating Local Culture into Higher Education Pedagogy for Education for Sustainable Development (ESD) in Asia	
Dimension	Challenges Identified
Curriculum Structure	Rigid, centralised, and standardised curricula limit inclusion of local knowledge and socio-cultural contexts. ^(16,32,33)
Teaching Methods	Predominance of teacher-centred pedagogy relying on rote memorisation and didactic delivery. ⁽³²⁾
Faculty Preparedness	Limited training in culturally responsive and ESD-aligned pedagogy. ⁽¹⁶⁾
Assessment Practices	Conventional assessments emphasise content mastery over contextual and reflective learning. ^(35,36)
Institutional & Policy Frameworks	Structural inflexibility and national policies constrain holistic ESD; focus remains narrow (environmental over social/cultural aspects). ⁽³⁷⁾
Institutional Incentives	Lack of recognition or rewards for pedagogical innovation and community-based projects. ^(16,32)
Transformative Potential	Persistent systemic and pedagogical challenges undermine impact. ^(16,33)

The prevalence of traditional, teacher-centred teaching methods further compounds this issue. These methods rely on rote memorisation and didactic delivery, with limited application of participatory or problem-based learning approaches.⁽³²⁾ A related issue lies in the limited preparedness of academic staff to implement culturally responsive and ESD-aligned teaching. Many educators lack adequate training in integrative pedagogical strategies that combine sustainability frameworks with local cultural narratives.⁽¹⁶⁾

Assessment practices present an additional challenge. Conventional evaluation methods in higher education typically prioritise content mastery over contextual understanding. Existing assessments seldom include measures of students' reflections, social awareness, or emotional development.⁽³⁵⁾ The absence of culturally grounded assessment rubrics aligned with ESD principles has been reported as a source of inconsistency in implementation.⁽³⁶⁾

At a broader systemic level, institutional structures and national education policies often constrain holistic ESD adoption. In China, for example, despite national support for sustainability education, unclear conceptual frameworks and inconsistent implementation have limited ESD integration to primarily environmental themes, overlooking social equity and cultural diversity.⁽³⁷⁾

The challenges above are further exacerbated by a lack of institutional incentives for innovation. Faculty members who invest time and effort in developing culturally responsive pedagogies or engaging in community-based projects often do so without formal recognition or support. In many institutions, academic promotion remains tied to traditional research outputs, rather than to contributions in pedagogical innovation or community engagement.^(16,32) Cultural narratives, indigenous wisdom, and traditional ecological knowledge have been utilised as locally embedded resources in ESD initiatives.⁽¹⁶⁾

Relevance of Transformative Pedagogy to Asian Values and the Role of Inter-University Collaboration

Table 2. Case Studies of Transformative Pedagogy in Asian Higher Education					
Context / Country	Case Study / Intervention		Transformative Pedagogical Features		Key Outcomes
Japan	Design Thinking-based Sustainability Science Course		Hybrid learning, co-creation, empathy-driven problem solving, critical reflection		Deep perspective shifts; development of systems thinking; enhanced student engagement with sustainability. ⁽¹⁸⁾
Thailand	Teacher Training Programmes Blending Transformative and Contextual Pedagogy		Integration of local cultural understanding with reflective and dialogic practices		Strengthened cultural competence and pedagogical capacity of teachers; improved student engagement. ⁽³³⁾
China	University ESD Integration through Policy and Curriculum Reform		Institutional embedding of sustainability values and intercultural approaches		Mainstreaming of sustainability education, though primarily environmental; highlighted gaps in social and cultural inclusion. ⁽³⁷⁾
Indonesia	Preservice Teacher Practicum with Reflective Tasks		Dual-mode practicum (online and face-to-face) with integrated reflective journaling and portfolio assessment		Enhanced pedagogical competence; increased orientation towards sustainability and critical self-awareness. ⁽²⁴⁾

In the evolving landscape of higher education, particularly within Asian contexts, transformative pedagogy has gained increasing prominence as a framework for meaningful, socially responsive learning. Transformative pedagogy has been reported to involve reflective, dialogical, and value-oriented learning processes.⁽⁴⁰⁾ In several Asian societies characterised by collectivist and spiritual traditions, transformative pedagogical approaches have been adopted in alignment with local cultural and philosophical values.^(30,41)

Transformative pedagogy within Asian higher education often integrates elements of communal learning, respect for tradition, and holistic personal development. These elements resonate strongly with cultural frameworks that emphasise interdependence, harmony, and moral cultivation. Examples of how transformative pedagogy has been operationalised across Asian higher education contexts are summarised in table 2, which highlights a range of interventions, their pedagogical features, and key outcomes.

Studies on culturally sensitive pedagogy report higher student engagement and stronger learning outcomes when teaching practices incorporate local values and ways of knowing.⁽⁴²⁾ Pedagogical practices that include Indigenous or minority epistemologies have been associated with greater student belonging and identity development. In Australia, Aboriginal students were more successful when exposed to culturally responsive, transformative pedagogies that acknowledged their unique modes of learning.⁽⁴³⁾ Similar findings have been reported in Thailand, where teacher training programmes combining transformative and contextual approaches improved students' cultural and academic competencies.⁽³³⁾ Another study describes the integration of traditional knowledge and reflective practice in sustainability education.⁽⁴²⁾

Studies have documented that the collaborative nature of learning environments contributes to changes in educators' professional identity. For instance, language teachers redefined their professional roles during the COVID-19 pandemic through reflective engagement with peers and communities.⁽⁴⁵⁾ Cross-university collaboration has emerged as a key domain for applying transformative pedagogy in Asia. Collaborative models allow institutions to pool resources, co-create curriculum, and learn from each other's socio-cultural adaptations.⁽¹⁶⁾ Transformative knowledge networks comprise transdisciplinary, cross-cultural academic partnerships focusing on social innovation.

To illustrate the interconnections between transformative pedagogy, Asian cultural values, educator and student development, and inter-university collaboration, figure 2 presents a conceptual flowchart synthesising these relationships. For instance, a design thinking-based course in Japan implemented hybrid learning and inter-institutional collaboration to cultivate empathy, creativity, and systems thinking among students.⁽¹⁸⁾ Such multi-institutional collaborations allow learners to engage with diverse worldviews, practise critical reflection, and participate in solution-oriented, experiential learning.^(46,47)

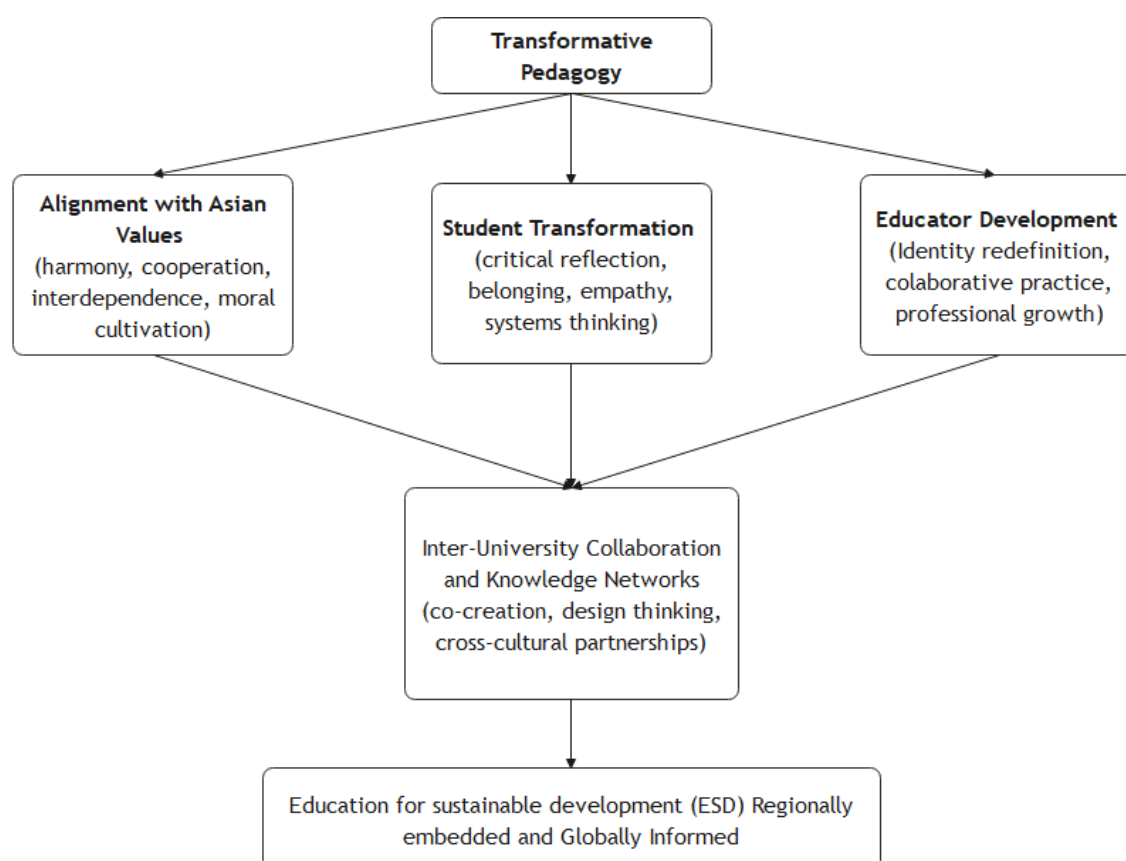


Figure 2. Relevance of Transformative Pedagogy to Asian Values and the Role of Inter-University Collaboration

DISCUSSION

Key Findings

The findings indicate that transformative pedagogy serves as the central foundation for advancing Education for Sustainable Development (ESD) in Asian higher education institutions, particularly through experiential learning, critical dialogue, and reflective practice.⁽⁴⁸⁾ These approaches align with Mezirow's concept of perspective transformation, in which learners undergo critical reflection and re-evaluate deep-seated assumptions through exposure to real-world sustainability dilemmas.⁽¹⁸⁾ The dialogic and emancipatory elements embedded in Freire's pedagogy reinforce this process, as open discussion on sustainability enables learners to become active participants in societal change rather than passive recipients of knowledge.⁽⁴⁹⁾ Consequently, transformative learning in ESD not only enhances students' cognitive capacities but also nurtures empathy, ethical awareness, and a sense of social responsibility.⁽³⁷⁾

Institutional commitment to ESD across Asian universities reflects a structural shift in higher education governance that mirrors global sustainability trends.⁽⁵⁰⁾ The incorporation of sustainability principles into curricula, research, and community outreach exemplifies how higher education institutions are aligning with Sustainable Development Goal 4 to promote inclusive and equitable education.⁽³⁹⁾ Policies supporting faculty training, curriculum reform, and the establishment of sustainability centres demonstrate the institutionalisation of transformative pedagogy as a strategic priority.⁽¹⁷⁾ Nevertheless, challenges persist in translating these policies into practice due to rigid curricular frameworks, limited faculty incentives, and insufficient institutional support for innovative pedagogy.⁽³²⁾

Cultural responsiveness has emerged as one of the most distinctive contributions of Asian higher education to transformative ESD.⁽⁵¹⁾ Integrating indigenous, religious, and philosophical traditions—such as Confucian harmony, Buddhist mindfulness, and Islamic zakat—enables sustainability education to resonate with learners' lived realities.⁽²²⁾ Empirical studies in Malaysia and Indonesia show that culturally grounded pedagogies enhance students' sustainability literacy, motivation, and moral engagement.⁽²⁵⁾ This evidence validates Mezirow's argument that transformation occurs when learning experiences are emotionally and culturally meaningful.⁽⁴⁸⁾ However, rigid educational hierarchies and Western-centric curricula still limit the potential of local epistemologies in shaping contextually relevant sustainability education.⁽¹⁶⁾

Collaborative and transnational partnerships have become essential mechanisms for scaling ESD implementation across Asia.⁽⁵²⁾ Cross-university alliances, such as transformative knowledge networks, facilitate mutual learning and innovation through shared research and co-teaching initiatives.⁽¹⁷⁾ These collaborations not only exchange pedagogical strategies but also build institutional capacity for addressing sustainability challenges in diverse socio-cultural settings.⁽⁴⁶⁾ Partnerships involving universities, governments, and non-governmental organisations demonstrate how higher education can operate as a hub for social transformation and sustainable policy development.⁽³⁴⁾ Such initiatives reaffirm Freire's principle of collective empowerment through dialogue and cooperation.⁽⁴⁹⁾

The transformative impact of these pedagogies on students and educators is evident through shifts in worldview, social engagement, and sustainability consciousness.⁽⁷⁾ Learners exposed to hybrid, project-based, and ICT-supported environments demonstrate enhanced resilience, empathy, and ethical reasoning.⁽²⁸⁾ Reflective journaling, storytelling, and portfolio assessment have also proven effective in deepening metacognitive awareness and self-evaluation, leading to sustained behavioural change.⁽²³⁾ These findings parallel international research showing that emotionally charged, experiential learning environments cultivate long-term commitments to sustainable lifestyles.⁽⁸⁾ Collectively, they illustrate that transformative learning is both a personal and collective journey that empowers learners to engage critically with global and local sustainability challenges.⁽⁵³⁾

This review underscores that transformative pedagogy in ESD is not a fixed instructional model but an evolving, culturally mediated process of learning and change.⁽⁴⁸⁾ The synthesis reveals that effective ESD in Asia depends on the synergy between institutional commitment, cultural grounding, and collaborative engagement.⁽⁵⁰⁾ Theoretically, these findings expand transformative learning theory by demonstrating its applicability across diverse socio-cultural and digital contexts.⁽⁵⁴⁾ Practically, they highlight the need for universities to institutionalise reflective, dialogic, and community-engaged pedagogies supported by policy reform and faculty development.⁽⁵⁵⁾ By uniting global sustainability frameworks with local wisdom traditions, Asian higher education offers a model of transformative practice that is both regionally relevant and globally impactful.⁽¹⁶⁾

Integrating Local Culture in Pedagogy and Implementation Challenges

The integration of local culture into higher education pedagogy is recognised as a vital foundation of transformative education for sustainable development (ESD), as it situates learning within learners' socio-cultural realities and promotes contextual understanding.⁽⁴⁸⁾ This approach aligns with Freire's idea of conscientization, where education serves as a liberatory process that empowers learners to critically examine and act upon their environment.⁽⁴⁹⁾ Embedding indigenous wisdom, local traditions, and ecological ethics enriches the learning

process by connecting abstract sustainability concepts with community-based experience.⁽³⁷⁾ In this context, transformative learning becomes both a personal and collective act of reflection that integrates cognitive, emotional, and practical engagement for sustainable change.⁽⁵⁶⁾

However, the findings reveal that institutional rigidity and standardised curricula remain significant barriers to integrating local culture in ESD across Asia.⁽¹⁶⁾ Centralised education systems often marginalise local knowledge and limit interdisciplinary learning, described as a “disconnection between experience and reflection”.⁽⁴⁸⁾ These constraints reduce the relevance of ESD and hinder students from relating global sustainability principles to their lived environments.⁽⁵⁷⁾ Similar challenges have been reported in international contexts where higher education institutions prioritise global metrics over community-based learning.⁽⁵⁵⁾ Therefore, flexible curriculum design that allows the inclusion of regional content and community partnership is crucial to advancing transformative and contextually relevant sustainability education.⁽⁵⁸⁾

Pedagogically, the persistence of teacher-centred and rote-based learning contradicts the participatory and reflective ethos of transformative pedagogy.⁽⁴⁹⁾ Such practices prevent students from engaging in critical dialogue and collaborative problem-solving, thereby limiting the formation of transformative consciousness.⁽⁵⁹⁾ Empirical studies across Asia and beyond confirm that project-based and discussion-oriented learning fosters deeper reflection, empathy, and civic engagement compared to conventional methods.⁽⁶⁰⁾ This supports the “head, hands, and heart” framework, which highlights the need for cognitive, practical, and affective learning integration.⁽³⁷⁾ Consequently, shifting from transmissive to participatory pedagogies is essential for creating learning environments that cultivate critical thinking, sustainability literacy, and social agency.⁽⁵³⁾

Another critical barrier lies in limited faculty preparedness and assessment misalignment with transformative learning goals.⁽¹⁶⁾ Many educators lack training in culturally responsive pedagogy and ESD-oriented assessment strategies, resulting in reliance on content-based evaluations that neglect reflective and emotional growth.⁽⁵⁰⁾ International studies show that formative assessments—such as reflective journals, community engagement reports, and digital storytelling—better capture transformative outcomes in sustainability education.⁽²³⁾ Such tools resonate with Freire’s view of education as praxis, where reflection and action operate in unity to foster social transformation.⁽⁴⁹⁾ Enhancing educator competence through professional development and revising evaluation systems toward qualitative, reflective indicators is therefore crucial to fully realise the goals of transformative ESD.^(40,48)

Despite systemic barriers, the inclusion of local culture remains indispensable for advancing transformative and sustainable education.⁽⁴⁰⁾ Culturally rooted learning connects academic knowledge with moral, emotional, and communal dimensions of sustainability, fostering identity, empathy, and social commitment among students.

⁽¹⁶⁾ Integrating indigenous perspectives strengthens students’ sense of belonging and their ability to act as change agents within their communities.⁽⁶¹⁾ As Freire and Mezirow emphasised, genuine transformation arises when learners reinterpret their experiences through reflective engagement within their cultural contexts.

^(48,49,62) Ultimately, Asian higher education institutions must evolve into culturally responsive ecosystems of learning that balance global sustainability goals with local epistemologies to produce critical, ethical, and socially responsible graduates.⁽³⁷⁾

To move forward, universities must prioritise institutional support and policy reforms. Flexible curriculum design that allows for the inclusion of regional content, interdisciplinary modules, and community engagement is necessary. Faculty training must be expanded to include ESD pedagogies that are participatory, culturally adaptive, and critically reflective. Furthermore, assessment frameworks should evolve to accommodate diverse expressions of learning, such as reflective journals, community action reports, and digital storytelling—all of which can highlight students’ transformative journeys more holistically.^(62,63,64,65,66,67,68,69,70)

Relevance of Transformative Pedagogy to Asian Values and the Role of Inter-University Collaboration

Transformative pedagogy has proven to be particularly relevant within Asian higher education contexts because it aligns closely with indigenous cultural values that emphasise collectivism, social harmony, and moral cultivation.⁽⁴⁸⁾ The findings of this review reaffirm that learning in Asia is often conceived not merely as an intellectual pursuit but as a moral and communal endeavour grounded in shared values and interdependence.

^(49,71,72,73,74,75,76,77) This resonates with Freire’s view of education as a dialogical and emancipatory process, where learners actively engage in questioning, reflecting, and co-creating meaning within their cultural realities.

⁽³⁵⁾ Such alignment between transformative pedagogy and Asian value systems enhances the receptivity of sustainability education, as students perceive the learning process as congruent with traditional virtues such as compassion, mindfulness, and collective responsibility.^(56,78,79,80,81,82,83)

Empirical evidence from Asian universities demonstrates how culturally attuned transformative practices improve learning outcomes and social awareness.⁽⁵⁹⁾ The integration of reflective dialogue, empathy-based design thinking, and experiential learning in Japan, Thailand, and Indonesia mirrors Mezirow’s concept of the “disorienting dilemma,” which prompts students to critically reassess assumptions and adopt new perspectives.^(48,84,85,86,87,88,89,90) Similarly, programmes that combine local cultural understanding with transformative reflection—

such as Thailand's teacher training initiatives—illustrate the practical synergy between regional educational traditions and transformative learning principles.^(63,91,92,93,94,95,96) These cases also support Freire's assertion that critical pedagogy can generate empowerment by linking knowledge to lived social realities.⁽⁴⁹⁾ By connecting students' moral consciousness with sustainability goals, Asian universities exemplify how transformative pedagogy can become a culturally grounded pathway for Education for Sustainable Development (ESD).^(50,97,98,99,100,101) In contrast to the Western emphasis on individualism, many Asian educational philosophies—whether rooted in Confucian, Buddhist, or Islamic traditions—value interdependence, social responsibility, and moral cultivation.^(20,102,103,104,105,106,107,108) This alignment enhances the receptivity and effectiveness of transformative learning in the region.^(109,110,111,112,113)

The theoretical congruence between transformative pedagogy and Asian philosophies extends beyond classroom practices to broader epistemological orientations.^(51,114,115,116,117,118,119,120) Confucian educational traditions prioritise relational ethics and communal learning, while Buddhist and Islamic frameworks stress balance, reflection, and self-discipline as foundations of moral knowledge.^(22,121,122,123,124,125,126) These traditions parallel Mezirow's and Freire's ideas that transformative education must integrate cognitive, emotional, and moral dimensions to cultivate critical consciousness and ethical responsibility.⁽³⁵⁾ In this sense, transformative pedagogy provides a modern interpretive lens through which Asian educators can revitalise indigenous educational ideals while addressing contemporary sustainability challenges.⁽¹⁶⁾ The resulting pedagogical synthesis bridges global and local paradigms, supporting the creation of learning spaces that are intellectually rigorous, emotionally engaging, and culturally affirming.^(55,127,128,129,130,131)

The review also highlights the collaborative and relational nature of transformative pedagogy, which finds strong resonance in Asian educational contexts.⁽⁵²⁾ Learning in this paradigm is inherently social, unfolding through co-construction, shared inquiry, and reflection—a process that mirrors the collective ethos of Asian societies.⁽⁴⁹⁾ Empirical studies from Thailand, Japan, and China show that peer learning, community engagement, and inter-institutional cooperation amplify the transformative impact of pedagogy by fostering empathy and intercultural understanding.⁽⁶⁴⁾ In particular, inter-university collaborations serve as dynamic platforms for mutual learning, resource sharing, and innovation in sustainability education.⁽¹⁷⁾ Such partnerships exemplify Freire's principle of “dialogue among equals,” transforming academic institutions into communities of shared practice dedicated to ethical, sustainable, and culturally grounded development.^(53,132,133,134)

The growth of transdisciplinary and cross-university knowledge networks across Asia underscores the potential of collaboration in scaling transformative education.⁽⁶⁵⁾ These partnerships enable universities to integrate diverse epistemologies and adapt sustainability curricula to multiple cultural contexts, thereby enhancing their relevance and inclusivity.^(28,135,136,137) Through joint curriculum design, faculty exchanges, and collaborative research, institutions develop both institutional and student capacities for systems thinking and social innovation, transformative learning is most powerful when it occurs within a community of reflection and practice—a principle embodied in Asia's expanding inter-university collaborations for ESD.^(46,48,49) Such alliances not only strengthen academic networks but also cultivate a shared moral commitment to sustainability, positioning Asian higher education as a model for globally connected yet culturally rooted transformative pedagogy.^(50,138)

Limitations and Directions for Future Research

This review is subject to several limitations. Firstly, it draws exclusively from open-access literature published between 2015 and 2025, which may have excluded some influential studies found in closed databases. Secondly, the review focuses primarily on qualitative findings and conceptual discussions. It does not include a meta-analysis of quantitative outcomes or longitudinal evaluations of transformative pedagogy's long-term impact on student behaviour, academic performance, or institutional change.

Future research should consider comparative studies across different Asian countries to explore how cultural, political, and economic factors shape the implementation and effectiveness of transformative pedagogies. Moreover, action research involving collaborative experiments between universities—such as co-teaching, joint sustainability projects, and student exchange programmes—could provide valuable insights into how inter-institutional partnerships enhance transformative learning processes. Expanding the scope of research to include quantitative indicators and long-term impact assessments will also be crucial for policy uptake and institutional investment in transformative ESD.

CONCLUSIONS

This general review has demonstrated that transformative pedagogy offers a powerful and culturally resonant framework for advancing Education for Sustainable Development (ESD) across higher education institutions in Asia. By fostering critical reflection, value-oriented dialogue, and experiential engagement, transformative learning enables students to cultivate the sustainability mindsets and competencies necessary for navigating complex social-ecological challenges.

The findings highlight that many universities in Asia have shown considerable innovation in integrating ESD through culturally responsive and contextually embedded pedagogies. Practices such as community-engaged learning, reflective journaling, and design thinking exercises have proven effective in promoting student transformation and agency. Moreover, the alignment of transformative pedagogy with Asian values—such as collectivism, harmony, and moral responsibility—makes it particularly suitable for enhancing both academic and civic outcomes.

However, the success of these initiatives depends significantly on institutional support, including curriculum flexibility, faculty development, and incentive structures that reward pedagogical innovation. Without these enabling conditions, the transformative potential of ESD may remain fragmented or peripheral within formal education systems. Strategic collaboration between institutions, governments, and civil society actors is therefore essential to embed transformative ESD at scale.

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