

A Humanistic-Ecological Project-Based Learning Model Integrating Balinese Local Wisdom for Adolescent Development in Bali's Tourism Contexts: A Systematic Literature Review

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Abstract: This systematic literature review synthesizes evidence on Project-Based Learning (PjBL) integrated with Balinese local wisdom for adolescent human resource development in Bali's tourism contexts. Following PRISMA 2020 guidelines, a Scopus search (2016-2025) identified 21 empirical studies. Each was coded for PjBL implementation, local wisdom integration, humanistic/ecological perspectives, youth development, and tourism relevance. Findings show widespread integration of humanistic/ecological perspectives and local wisdom. However, explicit PjBL implementation appeared in only 8 of 21 studies (38.1%), with others showing project-like elements. Recurring limitations include partial local wisdom integration and limited attention to ecological impact and youth agency. Based on this, the study proposes a seven-stage PjBL syntax operationalizing *Tri Hita Karana*, *Tat Twam Asi*, and *menyama braya*. This model offers a culturally grounded framework for adolescent HRD, addressing existing gaps and promoting humanistic-ecological sustainability in Bali's unique tourism setting.

Keywords: Project-Based Learning, Balinese local wisdom, humanistic-ecological education, sustainable tourism education, systematic literature review

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1. Introduction

Human resource development (HRD) is a fundamental prerequisite for sustainable development. In Indonesia, HRD is often associated with strengthening academic competence, advancing 21st-century skills, and character education. However, sustainable HRD requires a holistic philosophical foundation that integrates personal, social, cultural, and ecological dimensions (Sterling, 2016; Wilujeng et al., 2020). A humanistic perspective positions learners as whole persons whose development is fostered through meaningful learning experiences, dialogic engagement, and learner-centered pedagogy (Noddings, 2016; Jacobus et al., 2023; Syafira et al., 2024). In contrast, an ecological perspective conceptualizes humans as embedded within interdependent ecosystems; therefore, education should cultivate critical awareness and responsibility for environmental sustainability (Sterling, 2016; Siregar, 2019; Giyono, 2024).

In the global context, tourism has become a sector that accelerates globalization, generating substantial economic benefits while also producing complex social and ecological challenges, including cultural commodification and environmental pressures (Akamavi et al., 2023; Baena & Cerviño, 2024). Discourses on sustainable tourism and green tourism have expanded to balance economic objectives with social and ecological responsibilities (Al-Romeedy & Alharethi, 2025; Wibisana & Dewi, 2023). HRD in tourism regions increasingly includes strengthening young people's capacities to navigate shifts in values, identity, and social relations amid intensifying globalization (Valueanu, 2021; Chui et al., 2025).

In Bali, adolescent HRD unfolds within a distinctive context as an internationally recognized cultural tourism destination. Tourist flows, digital promotion, and the tourism industry create a social space in which local values, market logics, and global lifestyles intersect. Tourism-driven globalization offers economic opportunities and cultural visibility, yet it may also encourage the commercialization of sacred spaces, transformations in village spatial patterns, and heightened environmental stress (Sugiyarto & Amaruli, 2018; Sumiati, 2017; Siregar, 2019). Balinese senior high school students are directly exposed to these dynamics, and some are engaged in the cultural tourism ecosystem through performing arts and tourism services (Putri et al., 2025; Sirait et al., 2025). While such involvement can reinforce cultural identity and expand economic opportunities, it may also contribute to fatigue, academic pressure, identity confusion, and tensions between economic orientations, customary obligations, and educational priorities (Rameka, 2016; Rusman et al., 2024; Sirait et al., 2025).

Balinese local wisdom such as *Tri Hita Karana*, *Tat Twam Asi*, and *menyama braya* has substantial potential as a foundation for character education and sustainable development (Sriatha et al., 2017; Wulandari et al., 2024; Nasir et al., 2025). These concepts regulate harmonious relationships among humans, God, fellow humans, and nature (Metera et al., 2025; Wibisana & Dewi, 2023; Wiryawan & Ernawati, 2024), emphasize interdependence and empathy (Paramita et al., 2024; Kusrianto, 2025), and foreground social solidarity. As such, Balinese local wisdom can provide not only a normative basis, but also an epistemic foundation for adolescent HRD—one that governs how learners identify problems, engage with communities, and evaluate the

sustainability of their actions. Rather than functioning merely as cultural content or moral reinforcement, *Tri Hita Karana* can serve as an ontological lens for detecting socio-ecological imbalances, *Tat Twam Asi* can operate as an intersubjective framework for empathic inquiry, and *Menyama Braya* can anchor collaborative knowledge-making with local stakeholders.

This positions Balinese local wisdom as a structural logic for learning design, rather than a supplementary value layer, thereby strengthening identity resilience amid global flows (Zulkarnaen, 2022; Sari & Pramono, 2025). In this model, Balinese local wisdom functions as an epistemic structure that governs the learning process. *Tri Hita Karana* serves as the Ontological Filter to identify imbalances in the tourism ecosystem. *Tat Twam Asi* operates as an Intersubjective Epistemology, where students view the community and nature not as objects of study, but as extensions of themselves ("I am You"). Finally, *Menyama Braya* acts as a Relational Methodology, transforming the project from an individual academic task into a communal act of knowledge co-production with local stakeholders.

Senior high schools in Bali play a strategic role as sites for identity formation and reflective learning during adolescence. Schools therefore need to design learning experiences that enable students to understand and wisely navigate the pressures of tourism-driven globalization. Project-Based Learning (PjBL), when contextualized through local wisdom and authentic issues, has been shown to be effective in developing conceptual understanding, critical thinking skills, and socio-ecological concern (Muthmainnah & Mutiah, 2023; Sari & Pramono, 2025; Wulandari et al., 2024). Integrating Balinese local wisdom into PjBL thus holds promise for advancing a humanistic-ecological model of adolescent HRD in tourism settings.

Addressing the scholarly gap, this study moves beyond the mere "infusion" of local values into existing curricula. While previous research has explored Project-Based Learning (PjBL) and local wisdom separately, there is a lack of a unified pedagogical framework where Balinese local wisdom serves as the epistemic architecture of the learning process. This study identifies a configuration gap in how local wisdom is often treated as supplementary content rather than a structural logic. Therefore, this study proposes a novel pedagogical framework that redefines PjBL through a humanistic-ecological lens, specifically tailored for adolescent development in Bali's tourism-impacted regions.

2. Method

Study Design and Reporting Standard

This systematic literature review was conducted following PRISMA 2020 guidelines (Page et al., 2021) to synthesize evidence on Project-Based Learning integrated with Balinese local wisdom for adolescent development in tourism contexts. The review protocol was prepared prior to screening but not registered.

Eligibility Criteria

Studies were included if they met all of the following criteria: (1) focused on Project-Based Learning or closely related project-based approaches; (2) integrated

Balinese local wisdom (e.g., *Tri Hita Karana*, *Tat Twam Asi*, *menyama braya*) or explicitly situated learning within Balinese cultural–educational contexts; (3) addressed humanistic dimensions (e.g., values, empathy, agency) and/or ecological dimensions (e.g., sustainability, environmental literacy); (4) were relevant to youth or adolescent development in educational settings with potential or explicit links to tourism contexts; and (5) were published in English between 2016 and 2025 with accessible full text. Studies were excluded if they were secondary reviews without primary data, lacked either PjBL (or equivalent project-based approaches) or local wisdom components, or fell outside the conceptual and contextual scope of this review. Although the primary conceptual focus is Balinese local wisdom and Bali's tourism context, the corpus also includes several non-Balinese studies on local wisdom and sustainability education that offer transferable principles for the proposed model

Information Sources and Search Strategy

A systematic search was conducted in Scopus (January 2016–December 2025) using an iterative Boolean strategy combining: ("local wisdom" OR "indigenous knowledge" OR "*Tri Hita Karana*" OR "*Tat Twam Asi*" OR "*menyama braya*" OR "Balinese culture") AND ("Project-Based Learning" OR PBL OR PjBL) AND ("secondary school" OR "high school" OR adolescent* OR teenager* OR "adolescent HRD" OR "student development") AND ("environmental education" OR "education for sustainable development" OR ESD OR "humanistic education"). The final search yielded 2,929 records.

Study Selection

All records were imported into Rayyan (Ouzzani et al., 2016) for screening. After removing 163 duplicates, 2,766 records underwent title/abstract screening by two independent reviewers. Records were excluded if they did not address education ($n = 1,100$), lacked local wisdom ($n = 850$), were non-empirical ($n = 400$), had wrong context ($n = 200$), or other reasons ($n = 142$). Seventy-four full-text articles were assessed for eligibility. Fifty-three were excluded: no PjBL approach ($n = 18$), insufficient local wisdom integration ($n = 15$), no youth focus ($n = 8$), no tourism/ecological relevance ($n = 7$), wrong design ($n = 3$), and language barriers ($n = 2$). Twenty-one studies met all criteria and were included (Figure 1).

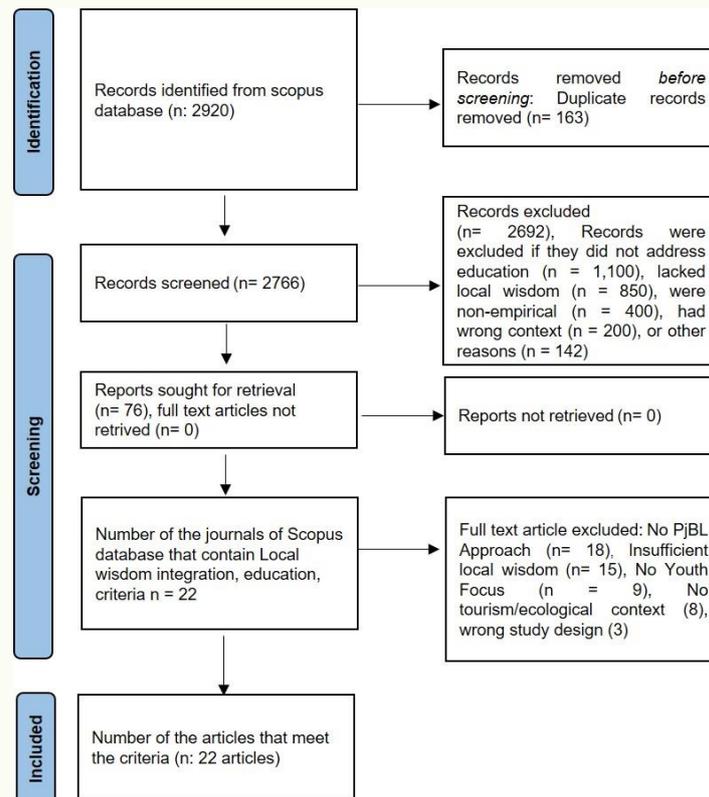


Figure 1. The Prisma Model for Articles Selection

Data Extraction and Synthesis

Data were extracted using a standardized form covering: bibliographic details, study design, methods, participants, and key findings. Each study was coded for: (1) PjBL implementation level, (2) type and depth of local wisdom integration, (3) humanistic perspective, (4) ecological perspective, (5) adolescent HRD orientation, and (6) tourism context relevance. For each dimension, three coding levels (low/medium/high) were assigned based on explicit descriptions in the study reports.

In the case of PjBL, a high level was assigned when studies described a full project cycle (from problem identification to public presentation) with learner-centered assessment; medium when project elements were present but not fully elaborated as a complete PjBL cycle; and low when projects were mentioned only briefly or used as minor activities. Comparable criteria were developed for local wisdom (from symbolic mention to deep normative and procedural integration) and for youth and tourism relevance (from incidental to central focus).

A narrative synthesis approach (Popay et al., 2006) was employed due to heterogeneity in designs and contexts. Findings were organized thematically around how PjBL was implemented, how Balinese local wisdom functioned pedagogically, and how humanistic-ecological outcomes addressed adolescent HRD in tourism settings. Descriptive statistics summarized thematic coverage, and visual representations illustrated patterns across studies.

Quality Appraisal

Methodological quality was assessed using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018). Quality results contextualized evidence strength during interpretation rather than serving as exclusion criteria.

3. Result and Discussion

Thematic and Methodological Characteristics of the 21 Included Studies

Across the 21 reviewed articles, the evidence base demonstrates a clear and consistent orientation toward value-based (humanistic) and sustainability-oriented (ecological) education, whereas explicit Project-Based Learning (PjBL) appears only in a smaller subset of studies (see Figure 2 and Figure 3). Thematic coding shows that PjBL is explicitly described in 8 of 21 articles (38.1%). This suggests that, although PjBL is conceptually relevant to the field, many contributions strengthen the theoretical and contextual foundations of PjBL indirectly rather than presenting fully developed PjBL implementation syntax.

Such indirect contributions typically take the form of local-wisdom education, character and values education, or tourism sustainability frameworks that are structurally compatible with PjBL logics but are not labeled or organized explicitly as PjBL designs (Rahmawati et al., 2025; Rizka et al., 2025; Yusupova et al., 2025; Kizys et al., 2025; Macintyre et al., 2020). In contrast, local wisdom is present in 18 of 21 articles (85.7%), demonstrating that culturally grounded approaches dominate the discourse and providing a robust conceptual and empirical basis for integrating local wisdom as a central, rather than peripheral, element in learning design (Rizka et al., 2025; Aswita et al., 2018; Wardhani et al., 2024; Karmini et al., 2021; Mulyana & Busro, 2025).

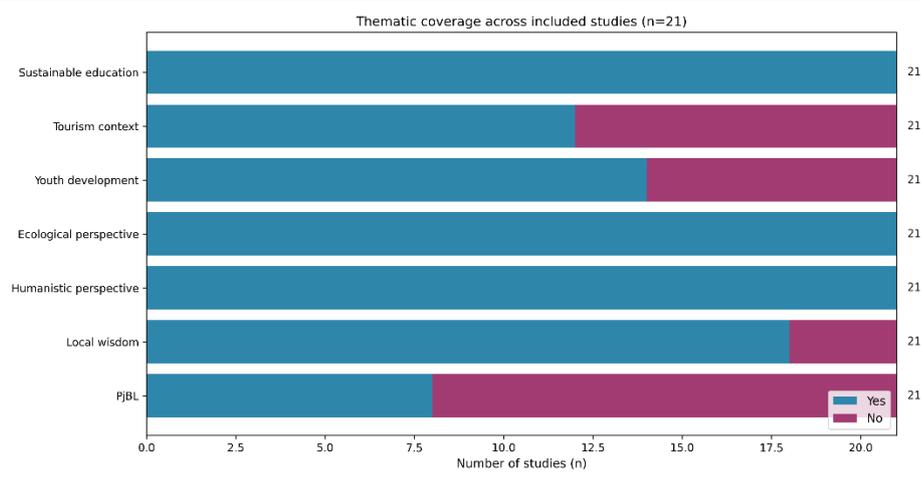


Figure 2. Thematic coverage across the 21 included studies.

As summarized in Figure 3, humanistic perspectives are present in all 21 articles (100%), as are ecological perspectives (100%). This universal coverage suggests that, despite variations in instructional models and disciplinary entry points, the reviewed

corpus shares a common socio-ecological framing: learning is repeatedly positioned as a process of forming responsible, relational, and ecologically aware agents (Demssie et al., 2020; Sutrisno et al., 2024; Martinez-Martinez et al., 2023). Within this shared framing, adolescent HRD is explicitly addressed in 14 of 21 articles (66.7%), which supports the feasibility of positioning adolescents as active agents in community-linked learning and sustainability-oriented projects (Rahmawati et al., 2025; Kizys et al., 2025; Rizka et al., 2025).

Tourism contexts are present in 12 of 21 articles (57.1%), indicating that tourism is frequently conceptualized as a sociocultural–ecological system where education, community development, and sustainability intersect (Mulyana & Busro, 2025; Widodo et al., 2024; Mir et al., 2024; Muhamad et al., 2025; Martinez-Martinez et al., 2023). Taken together, these patterns show that the current evidence base strongly supports the conceptual compatibility of PjBL, local wisdom, adolescent HRD, and tourism contexts, even if an explicit, fully integrated PjBL model for Balinese tourism settings and adolescents has not yet been articulated.

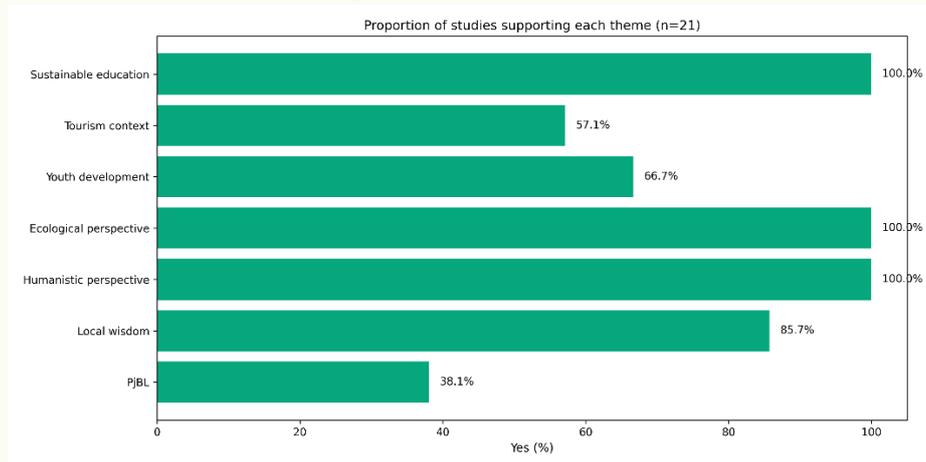


Figure 3. Proportion of included studies supporting each thematic dimension.

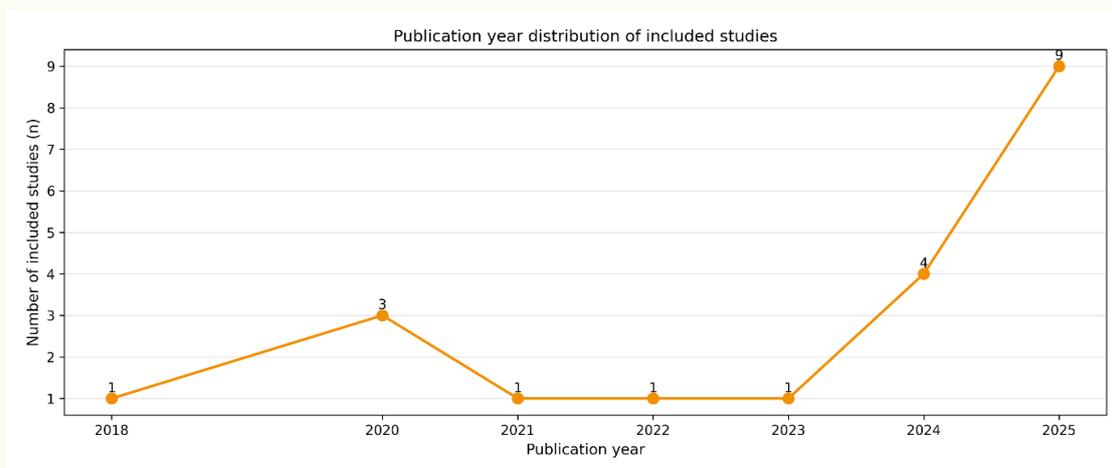


Figure 4. Publication year distribution of the 21 included studies

The temporal distribution of the included studies (Figure 4) indicates that this evidence base has emerged primarily in recent years, aligning with broader global trends in sustainability education, indigenous and local knowledge integration, and youth-focused, community-linked pedagogy. The concentration of studies in the more recent publication years suggests that the field is still evolving, with growing attention to the intersection of local wisdom, environmental sustainability, and youth capacity building. This recency strengthens the relevance of the present synthesis for contemporary policy and practice, but also implies that existing models remain fragmented and that there is substantial room for further conceptual consolidation.

In addition, the level-coded analysis (Figure 5) provides a more nuanced picture of how strongly different themes are embedded in the studies. While local wisdom and tourism contexts are frequently present at the thematic level, their depth and explicitness of integration vary across studies. Only a subset of studies demonstrates high-level, fully articulated PjBL designs, whereas many contributions employ project-like or experiential elements without providing a complete PjBL syntax. Similarly, local wisdom may be invoked as a cultural background or content topic in some studies, but only a smaller subset clearly operationalizes it as a normative compass for decision-making, interaction, and evaluation within the learning process.

Within this pattern, three studies stand out as particularly Bali-specific and conceptually central to this systematic review: (a) Balinese local wisdom as a foundation for sustainable tourism (Mulyana & Busro, 2025), (b) Bali tourism village landscapes as educational resources (Widodo et al., 2024), and (c) Balinese local wisdom as an operational model for humanism education in formal schooling (Karmini et al., 2021). These three studies provide direct grounding for a Bali-contextualized PjBL syntax by demonstrating, respectively, how Balinese philosophy structures sustainable tourism, how tourism villages can function as situated learning environments, and how Balinese values can be embedded in school culture and pedagogical routines. The remaining studies contribute complementary elements, such as sustainability competences, community participation, and governance and organizational learning perspectives that supply transferable pedagogical mechanisms and socio-ecological rationale for the proposed humanistic-ecological PjBL model.

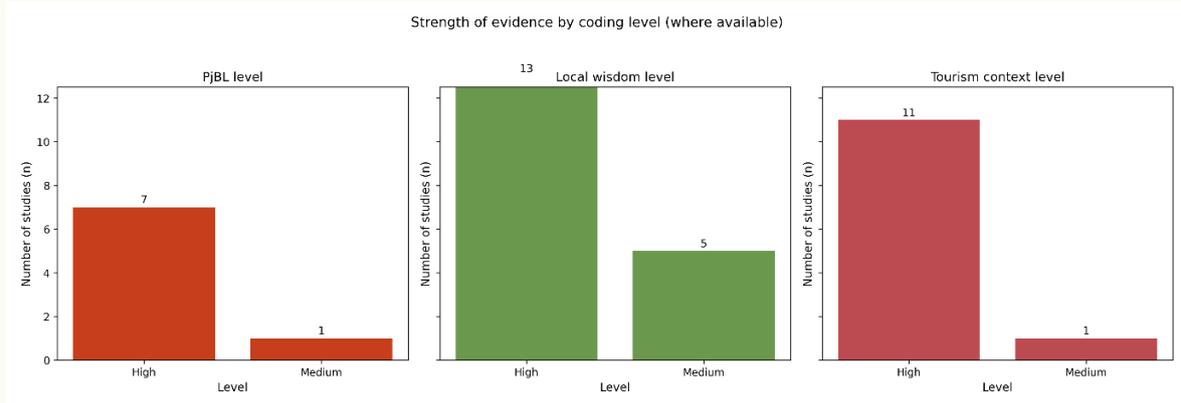


Figure 5. Coding levels for PjBL, local wisdom, and tourism context.

As shown in Figure 6, the most frequently used instruments are observation (13/21 studies) (e.g., Rizka et al., 2025; Mulyana & Busro, 2025) and interviews (12/21) (e.g., Rahmawati et al., 2025; Rizka et al., 2025; Demssie et al., 2020), indicating a strong qualitative, field-based orientation. Questionnaires/surveys appear in 7 studies (e.g., Rahmawati et al., 2025; Sutrisno et al., 2024; Demssie et al., 2020), mainly in quantitative or mixed-methods designs. Document analysis (e.g., Rizka et al., 2025; Mulyana & Busro, 2025) and FGDs (e.g., Demssie et al., 2020) are used in 4 and 3 studies, respectively, as complementary sources of evidence. Only a few studies do not clearly specify their instruments. Overall, this pattern suggests that the evidence base relies on instrument triangulation to capture both measurable outcomes and rich contextual information.

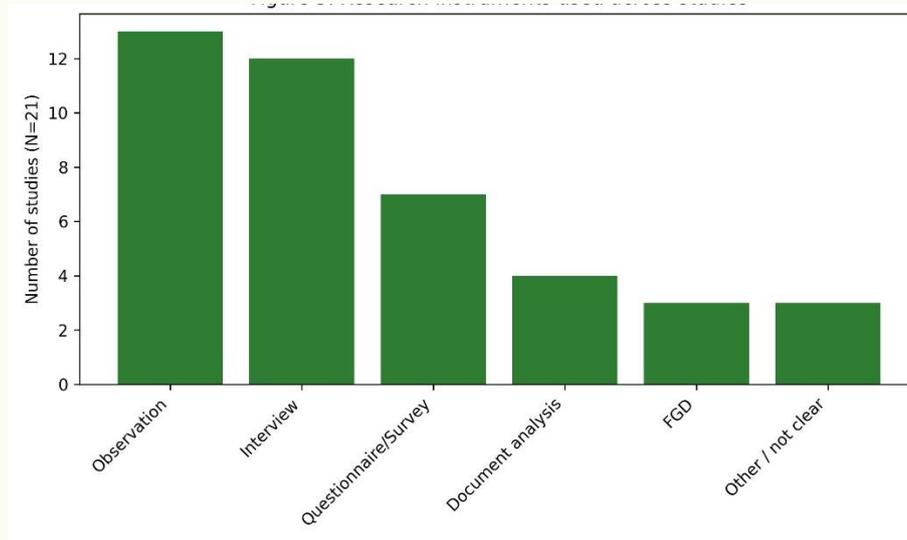


Figure 6. Research instruments used across the 21 studies

Figure 7 illustrates that community members are the most common research subjects (14/21 studies) (e.g., Rizka et al., 2025; Sutrisno et al., 2024; Mulyana & Busro, 2025), followed by students (12/21) (e.g., Rahmawati et al., 2025; Rizka et al., 2025)

and teachers (8/21) (e.g., Rizka et al., 2025). Experts (e.g., Demssie et al., 2020) and university students appear only in a small subset of studies, and two studies are primarily document-based. This composition indicates that the literature closely links school settings with local communities and tourism contexts, which is consistent with the humanistic-ecological orientation of the proposed PjBL model.

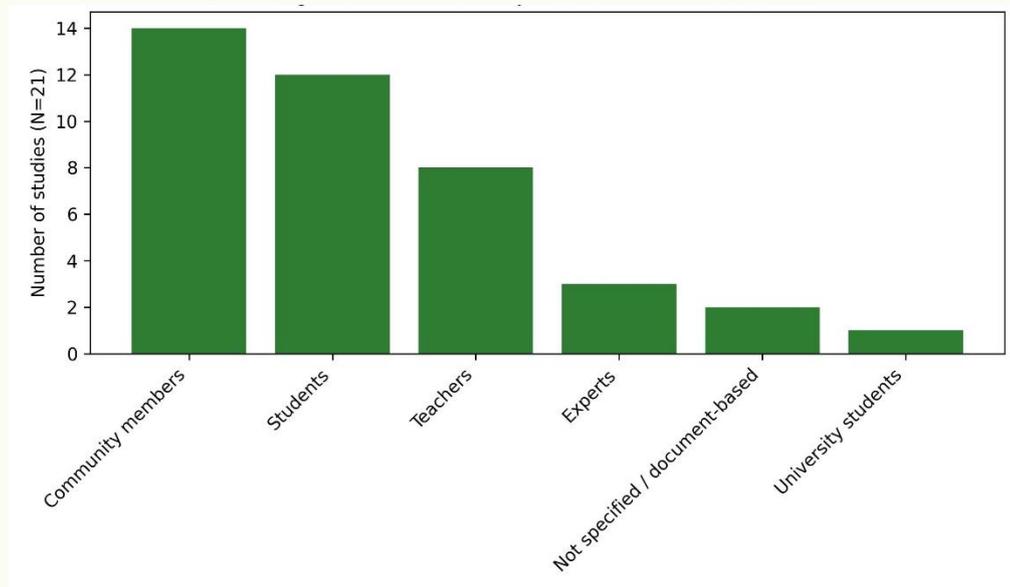


Figure 7. Types of research subjects involved in the 21 included studies.

As illustrated in Figure 8, the corpus combines quantitative techniques such as descriptive analysis (6/21 studies) (e.g., Rizka et al., 2025), statistical analysis (4/21) (e.g., Rahmawati et al., 2025), t-tests (3/21) (e.g., Rahmawati et al., 2025), and SEM (4/21) (e.g., Sutrisno et al., 2024) with qualitative approaches. Qualitative methods include thematic analysis (4/21) (e.g., Rahmawati et al., 2025; Mulyana & Busro, 2025), Miles and Huberman's interactive model (3/21) (e.g., Rizka et al., 2025), and qualitative coding (3/21) (e.g., Mulyana & Busro, 2025). A few studies describe their analysis only in narrative terms without naming a specific framework. Taken together, these patterns indicate that the corpus provides a sufficiently robust methodological basis to support the synthesis of a humanistic-ecological PjBL model grounded in both numerical and interpretive evidence.

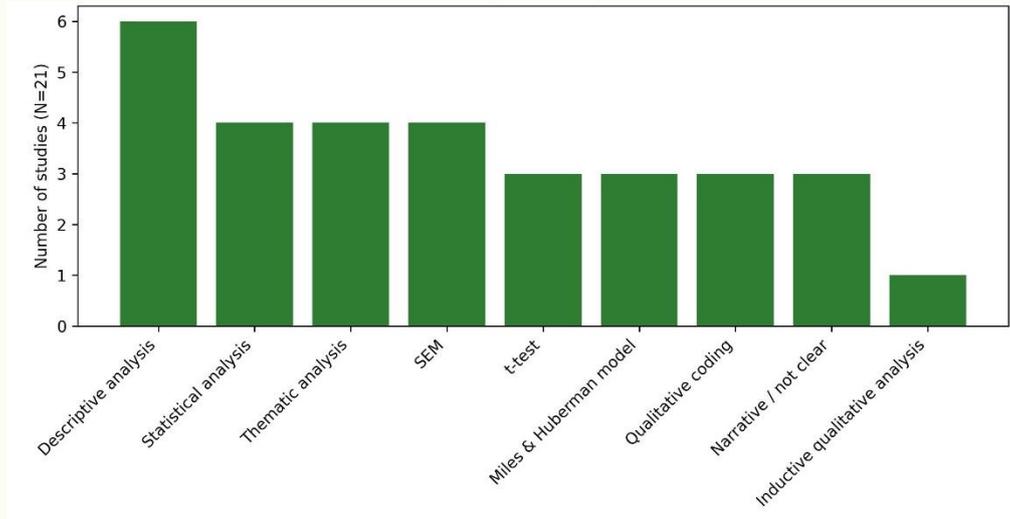


Figure 8. Data analysis techniques reported in the 21 included studies.

To complement the thematic patterns shown in Figures 2 - 8, Table 1 provides a concise summary of the main findings from the 21 included studies, focusing on contributions to project-based learning, local wisdom, adolescent HRD, and tourism-related sustainability.

Table 1. Important Research Results from the 21 Included Studies

No.	Authors (Year)	Important Results
1	Rahmawati et al. (2025)	STEAM PjBL–design thinking effectively increases students' environmental literacy and engagement in real-world problem-solving.
2	Kizys et al. (2025)	PjBL integrating community assets and career development strengthens rural students' STEM engagement and connects learning with local livelihoods.
3	Yusupova et al. (2025)	PjBL in teacher education supports SDG-oriented competencies but requires explicit scaffolding for reflection and collaboration.
4	Demssie et al. (2020)	Community-engaged sustainability education enhances local ownership but demands careful facilitation to balance stakeholder power.
5	Mulyana & Busro (2025)	Balinese local wisdom (<i>Tri Hita Karana</i>) provides a strong philosophical basis for sustainable, community-centred tourism.
6	Widodo et al. (2024)	Tourism villages (e.g., Panglipuran, Bali) function as effective "learnsapes" connecting curricula with real socio-ecological systems.
7	Wardhani et al. (2024)	Environmental education based on Dayak Paramasan local wisdom builds ecological intelligence and sustainable behavior.

No.	Authors (Year)	Important Results
8	Aswita et al. (2018)	Sabang Island local wisdom supports ecological intelligence and can be leveraged for sustainable tourism practices.
9	Mir et al. (2024)	Tourism resources can support children's educational attainment and community development through interdependent tourism–community relations.
10	Bhakti et al. (2024)	Edutourism research is growing rapidly but remains fragmented in conceptual models and methodologies.
11	Muhamad et al. (2025)	Sustainable ecotourism infrastructure significantly influences local government policy in strategic tourism areas.
12	Martínez-Martínez et al. (2023)	Sustainability knowledge management in tourism is uneven; stronger mechanisms are needed to institutionalise sustainability knowledge.
13	Greenall & Bailey (2022)	Including Traditional Ecological Knowledge in biology education deepens ecological understanding and respect for Indigenous perspectives.
14	Rosa et al. (2020)	Collaborative problem-solving with Piil Pesenggiri local wisdom successfully builds students' scientific attitudes.
15	Sujinah et al. (2019)	Local-wisdom-based textbooks improve writing literacy by linking language learning with students' cultural contexts.
16	Sutrisno et al. (2024)	Community empowerment for sustainable tourism transition requires integrating economic, sociodemographic, and governance factors.
17	Karmini et al. (2021)	Balinese local wisdom can be operationalised as a humanistic education model in formal schooling.
18	Rizka et al. (2025)	Place-based, culturally grounded curricula strengthen students' sense of place, identity, and environmental responsibility.
19	Macintyre et al. (2020)	Youth-centred sustainability initiatives in tourism contexts show promise but require long-term evaluation of community impacts.
20	Lozano et al. (2017)	Develops a framework connecting sustainability competences with pedagogical approaches for sustainable development education in higher education.
21	Multiple studies	Strong conceptual support exists for a humanistic-ecological PjBL model using local wisdom and tourism settings, but a fully articulated syntax for Balinese youth has not yet been formalised.

Building upon the synthesis of existing literature and addressing the identified configuration gap, Table 2 presents a proposed seven-stage Humanistic–Ecological Project-Based Learning (PjBL) syntax. The proposed Humanistic-Ecological PjBL model departs from conventional ESD-based PjBL (Education for Sustainable Development) in its fundamental logic. Conventional PjBL is often linear and product-centric, focusing on technical solutions to environmental problems. In contrast, this model is cyclical and relational, shifting the focus from "solving a technical problem"

to "restoring socio-ecological harmony." While conventional models emphasize individual student agency, this model centers on collective empathy and communal solidarity as the primary engine of inquiry.

Table 2. Seven-Stage Humanistic–Ecological PjBL Syntax Integrating Balinese Local Wisdom

Stage	Stage Name	Key Activities	Local Wisdom as Epistemic Structure
1	Value-Grounded Problem Sensing	Students explore socio-ecological issues in tourism contexts through observation and dialogue.	<i>Tri Hita Karana</i> as an epistemic filter for identifying disharmonies across spiritual, social, and ecological realms.
2	Community Asset and Stakeholder Mapping	Students identify cultural resources, practices, and stakeholders.	<i>Menyama braya</i> as relational logic, positioning community as knowledge partners.
3	Collaborative Problem Framing	Students co-define problem focus and goals.	<i>Tat Twam Asi</i> as intersubjective framing (“I am You”) ensuring shared-benefit goals.
4	Culturally Grounded Solution Design	Students design solutions integrating scientific knowledge and cultural philosophy.	<i>Tri Hita Karana</i> as a design compass guiding spiritual, social, and ecological alignment.
5	Prototyping and Community-Based Testing	Students develop and test prototypes with local stakeholders.	<i>Menyama braya</i> as communal validation through iterative co-evaluation.
6	Public Presentation	Students present outputs to community and tourism actors.	<i>Tri Hita Karana</i> as ethical structure communication framed as <i>ngayah</i> .
7	Reflection and Cultural-Ecological Accountability	Students reflect on growth, cultural alignment, and ecological impact.	<i>Tat Twam Asi</i> as reflective lens for relational harmonization.

To ensure that the proposed seven-stage model is grounded in systematic evidence rather than conceptual elaboration alone, each stage has been mapped against the empirical findings of the 21 included studies. Table 3 demonstrates how the thematic results of the SLR provide the foundational support for the operational syntax of the Humanistic–Ecological PjBL model.

Table 3. Empirical Foundations Supporting the Seven-Stage PjBL Model

Model Stage	Supporting Studies (from SLR)	Empirical Evidence from Literature
Value-Grounded Problem Sensing	Rahmawati et al. (2025); Widodo et al. (2024)	PjBL is most effective when starting with authentic

Model Stage	Supporting Studies (from SLR)	Empirical Evidence from Literature
		"learnsapes" and real-world problem-solving.
2. Community Asset & Stakeholder Mapping	Kizys et al. (2025); Sutrisno et al. (2024)	Integrating community assets and sociodemographic factors strengthens contextual relevance and local livelihoods.
3. Collaborative Problem Framing	Demssie et al. (2020); Yusupova et al. (2025)	Sustainability education requires explicit scaffolding for collaboration to balance stakeholder power and define shared goals.
4. Culturally Grounded Solution Design	Karmini et al. (2021); Greenall & Bailey (2022); Mulyana & Busro (2025)	Local wisdom (e.g., <i>Tri Hita Karana</i>) and Traditional Ecological Knowledge provide the philosophical basis for sustainable design.
5. Prototyping & Community-Based Testing	Wardhani et al. (2024); Rosa et al. (2020); Rizka et al. (2025)	Culturally grounded curricula and collaborative problem-solving build ecological intelligence and sustainable behavior.
6. Public Presentation (Ngayah)	Mir et al. (2024); Muhamad et al. (2025)	Interdependent tourism–community relations are strengthened through authentic dissemination and engagement with policy actors.
7. Reflection & Cultural–Ecological Accountability	Martínez-Martínez et al. (2023); Lozano et al. (2017)	Institutionalizing sustainability requires reflective, iterative cycles and a clear connection between pedagogy and competences.

A Humanistic-Ecological Project-Based Learning Model Integrating Balinese Local Wisdom for Adolescent HRD in Bali’s Tourism Contexts

Across the 21 reviewed studies, a convergent pattern indicates that humanistic-ecological perspectives and local wisdom yield their strongest educational impact when embedded as a pedagogical process, rather than treated merely as additional curricular content. In multiple contexts, local wisdom operates most effectively when it functions as a normative framework that shapes how learners define problems, engage stakeholders, negotiate meanings, and evaluate the sustainability of proposed solutions (Aswita et al., 2018; Demssie et al., 2020; Karmini et al., 2021;

Mulyana & Busro, 2025; Rizka et al., 2025; Wardhani et al., 2024). When enacted this way, local wisdom and humanistic-ecological values guide decision-making routines, interaction norms, inquiry ethics, and reflective practices, rather than remaining symbolic, descriptive, or purely cognitive.

In tourism and sustainability-related settings, this process-oriented integration is particularly salient. The reviewed studies show that tourism problems are inherently socio-ecological and value-laden, requiring learners to navigate tensions among economic interests, cultural integrity, and environmental stewardship (Martinez-Martinez et al., 2023; Mir et al., 2024; Muhamad et al., 2025; Mulyana & Busro, 2025; Sutrisno et al., 2024; Widodo et al., 2024). When local wisdom is enacted as an ethical compass, it aligns cultural identity, social responsibility, and ecological care in ways that make “humanistic–ecological” integration substantive rather than rhetorical (Karmini et al., 2021; Mulyana & Busro, 2025). This is consistent with humanism education models in Bali, where values are embedded through curricular infusion, habituation, exemplary practice, and school culture, demonstrating that values are learned as lived practice rather than as abstract principles alone (Karmini et al., 2021).

Within this landscape, the PjBL-oriented evidence provides strong “how-to” mechanisms that can be aligned with Balinese local wisdom and adolescent HRD aims. PjBL combined with design thinking offers a clear progression from empathy-based problem framing to prototyping and testing, enhancing environmental literacy and student engagement (Rahmawati et al., 2025). Place-based PjBL and asset-based community approaches foreground community needs and resources, strengthening relevance, agency, and career-related development for adolescents (Kizys et al., 2025). Boundary crossing and community learning models further illustrate how participatory diagnostics and knowledge co-production with communities as co-educators and co-researchers can be ethically organized an important consideration for culturally sensitive tourism villages (Macintyre et al., 2020). Complementary tourism and sustainability studies justify using tourism villages as authentic learning ecosystems, where students learn through direct engagement with socio-cultural and ecological dynamics (Mir et al., 2024; Martinez-Martinez et al., 2023; Muhamad et al., 2025; Sutrisno et al., 2024; Widodo et al., 2024).

At the same time, the synthesis makes visible a clear configuration gap. While the evidence base provides substantial support for PjBL, tourism, adolescent HRD, and local wisdom often in partial or overlapping combinations (e.g., entrepreneurship education for sustainable tourism grounded in local wisdom; Rizka et al., 2025) none of the reviewed studies presents a fully articulated PjBL syntax that is explicitly grounded in Balinese local wisdom and tailored to adolescent human resource development in Bali’s tourism areas. This absence justifies the present study’s contribution, namely the formulation of a humanistic-ecological PjBL model in which

Balinese values (*Tri Hita Karana*, *Tat Twam Asi*, and *menyama braya*) function as structuring principles for each PjBL stage rather than as additional content topics.

Synthesizing these strands, the proposed model integrates: (1) staged inquiry and prototyping cycles from PjBL design thinking (Rahmawati et al., 2025); (2) place- and community-based asset mapping with authentic partnerships (Kizys et al., 2025; Widodo et al., 2024); (3) participatory diagnostics and community knowledge co-production (Macintyre et al., 2020); (4) Balinese philosophical grounding for socio-ecological sustainability in tourism (Mulyana & Busro, 2025); and (5) operational mechanisms for embedding Balinese values in formal schooling practices (Karmini et al., 2021). In this configuration, Balinese local wisdom serves as a guiding compass for (a) selecting project issues, (b) organizing fieldwork ethics and community engagement, (c) formulating criteria for acceptable solutions, and (d) structuring impact reflection. The resulting syntax positions adolescents in Bali's tourism regions as active agents of culturally rooted, humanistic-ecological development, and offers a theoretically grounded, contextually specific model that addresses the identified gap in the existing literature (Aswita et al., 2018; Demssie et al., 2020; Martinez-Martinez et al., 2023; Mir et al., 2024; Muhamad et al., 2025; Rizka et al., 2025; Sutrisno et al., 2024; Wardhani et al., 2024).

Limitations and Directions for Future Research

This systematic literature review has several limitations. First, the exclusive reliance on Scopus-indexed, English-language publications (2016–2025) introduces a global indexing bias, potentially overlooking indigenous Balinese epistemologies published in Indonesian databases (e.g., Garuda, SINTA). This epistemic asymmetry means the findings may over-represent globally visible research while under-representing locally grounded perspectives. Second, the heterogeneity of study designs necessitated a narrative interpretation rather than a quantitative synthesis, which may introduce subjectivity based on the quality of original reporting. Finally, the proposed seven-stage model remains conceptual; thus, future empirical research is required to pilot and evaluate its impact on adolescents' identity resilience and ecological literacy. Such studies are essential to refine the model's epistemic structure and ensure its practical accountability within Balinese senior high schools in tourism contexts.

4. Conclusion

This study contributes a transformative pedagogical framework that repositions Balinese local wisdom from mere "cultural content" to a fundamental epistemic structure. By aligning PjBL stages with the relational logics of *Tri Hita Karana*, *Tat Twam Asi*, and *Menyama Braya*, the proposed seven-stage model addresses the identified configuration gap in adolescent HRD. This approach ensures that learning in Bali's tourism regions is not only academically competitive but also ontologically rooted and ecologically accountable.

Methodologically, while the reviewed literature provides rich qualitative insights, there is a notable lack of rigorous experimental and longitudinal designs to substantiate long-term behavioral impacts. This gap underlines a strategic opportunity to empirically test the proposed humanistic–ecological PjBL syntax. Ultimately, this direction positions education as a primary driver in preparing Balinese youth who are culturally grounded and committed to ecological stewardship, ensuring the sustainability of Bali’s tourism landscape through a robust, theoretically-grounded HRD framework.

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