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Contents

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ABOUT THIS ISSUE

This issue brings together five contributions on educational philosophy, teaching innovation, cultural learning, and children’s well-being. The articles examine the value of education in the age of artificial intelligence, the aesthetic-educational significance of the Miao epic King Yalu, school-based yoga in India and Malaysia, and a teacher–AI–student model in higher education.

ARTICLES	PAGES
01 Beyond Irreplaceability: Educational Value as Self–World Transformation in the Age of Artificial Intelligence Qian Liu	1–26
02 The Aesthetic-Educational Mechanism of the Miao Heroic Epic “King Yalu” Wenxiang Luo	27–52
03 Yoga Among Children in India: An Explorative Review of Current Evidence, Challenges, and Future Directions Revathi Munirathinam, Hithiksha Sri Suresh, Nikhilesh Suresh	53–61
04 Yoga Among Children in Malaysia: An Explorative Review of Current Evidence, Challenges, and Future Directions Revathi Parmasivam, Vishnuram Thennarasan, Subadhara Priya Thennarasan, Vedha Priya Thennarasan	62–95
05 “Teacher–AI–Student” Tripartite Collaboration: Reconstruction and Empirical Validation of the Teaching Model for Ideological and Political Courses in Higher Education Jiahui Qin	96–111



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Beyond Irreplaceability: Educational Value as Self–World Transformation in the Age of Artificial Intelligence

Qian Liu^{1*}

1 The University of Texas at Austin, Austin, TX 78712, USA

*Corresponding author: Qian Liu ; email: 2523199367@qq.com

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Abstract

Generative artificial intelligence (AI) intensifies an old question about the purposes of education: why should people cultivate capacities that machines can exercise more efficiently? A prominent response defends education by identifying distinctively human abilities that AI cannot replace. This paper challenges the normative structure of that response. The fact that a task can be delegated does not settle whether a person's education is valuable; task substitutability and educational worth are different kinds of judgement. Drawing critically on *Bildung*, Deweyan experience, world-centred education, and theories of relationality, the paper develops a relational-transformative account of educational value. On this account, education matters insofar as it enables ethically and epistemically defensible changes in how persons encounter, interpret, and respond to themselves, others, and a shared world. Rather than treating any transformation as educationally good, the proposed framework applies non-negotiable safeguards against manipulation and serious harm, followed by three interacting criteria: epistemic answerability, reflective appropriation, and ethical responsiveness. Four contrastive cases demonstrate that AI-assisted learning may be educationally significant despite extensive delegation, whereas unaided cognitive performance need not be. The paper addresses objections concerning skill acquisition, indoctrination, pluralism, and the alleged indispensability of human cognitive labour. It concludes that AI neither abolishes nor automatically secures the worth of education: its significance depends on the forms of self–world relationship that educational practices make possible.

Keywords: philosophy of education; generative artificial intelligence; educational value; self–world relations; epistemic agency; reflective autonomy

I. INTRODUCTION: THE WRONG TEST OF EDUCATIONAL WORTH

When a generative AI system can draft an essay, explain an argument, produce a computer program, or synthesize a literature, the immediate educational question appears practical: what should students still be required to do themselves? A deeper question is normative: why ought they to be educated at all if comparable outputs can be obtained without their labour? Bialystok (2026) makes the force of this challenge explicit by arguing that philosophers of education must defend the cultivation of minds in an age of extensive cognitive outsourcing. The challenge deserves a direct answer, but the terms of that answer matter. A defence that merely inventories the abilities in which humans remain superior accepts the very comparison that makes education appear dispensable whenever technology advances.

Call this the irreplaceability defence: educational investment is justified, at least centrally, because it produces human abilities that artificial systems cannot perform or replace. Its attraction is understandable. Schools must prepare people to act competently in a changing world; qualifications matter to employment, public life, and practical independence. The irreplaceability defence, however, turns a contingent forecast

about technological capabilities into a condition of educational worth. If that condition is accepted, every improvement in AI appears to erode education's moral purpose. Even educational aims said to be uniquely human—empathy, creativity, moral judgement, or authentic communication—risk becoming the next entries in a competition with machines.

This paper argues that this is a category mistake. Substitutability concerns whether one agent or system can deliver a functionally comparable task outcome. Educational value concerns what it is worthwhile for a person to become, understand, experience, and answer for through an educational encounter. The two questions intersect, but neither logically resolves the other. A delegated task can contribute to a deeply educative encounter, while an independently completed task can yield little beyond a correct answer. The distinction does not imply that knowledge and skills are trivial, or that every AI-assisted experience is educational. It establishes that independence of task production is neither necessary for relational educational value nor sufficient to establish educational worth overall.

The positive argument develops an account of education as normatively defensible self-world transformation. The expression self-world relation names the lived and interpretive orientation through which a person encounters facts, other people, institutions, cultural practices, and demands that resist immediate preference. Transformation concerns a consequential reorientation of that relation: not simply acquiring an isolated proposition, but seeing a domain differently, responding to reasons differently, or recognizing responsibilities that were previously invisible. The account draws on *Bildung* without assuming that *Bildung* denotes a single historically fixed ideal; it also engages Dewey's reconstruction of experience, Rosa's account of resonance, and Biesta's world-centred orientation (Dewey, 1916, 1938; Rosa, 2019; Biesta, 2022).

The central thesis is conditional rather than technologically optimistic: AI-mediated learning can possess educational value when its mediation supports warranted, reflectively owned, and ethically responsive transformations in learners' relations with the world. To prevent an indiscriminate celebration of change, I propose a two-level normative architecture: a threshold of acceptable educational means, followed by substantive but context-sensitive standards for evaluating the transformation. This is a philosophical construction rather than an empirically validated measurement scale. Its purpose is to make judgements about educational worth more explicit and contestable.

II. WHY IRREPLACEABILITY CANNOT GROUND EDUCATIONAL VALUE

2.1 The substitution argument and its hidden premise

A powerful version of the substitution argument runs as follows. First, education equips individuals to carry out valuable cognitive tasks. Second, if an AI system can carry out those tasks at least as well, educating individuals to carry them out is no longer required to secure the relevant outcomes. Therefore, the

education formerly aimed at those tasks loses its justification. The inference becomes valid only if we insert an additional premise: the value of educating someone consists wholly in obtaining the independently produced outputs of that person's performance.

That premise is implausible as a comprehensive philosophy of education. Learning mathematics may alter how a person perceives patterns and arguments, even when a calculator supplies the result. Learning history may complicate one's understanding of inherited privilege and collective responsibility, even when a system can summarize the archive. Learning a language may make a previously distant cultural world accessible, even when machine translation is fluent. These examples do not prove that every lesson in mathematics, history, or language is valuable. They show why the possibility of task substitution alone cannot settle the question.

The issue is not that output-based evaluation is always mistaken. A bridge must be safe, a clinical recommendation must be warranted, and a public decision must be justified. In such settings competent performance is indispensable. Yet it remains possible for the same educational activity to have constitutive significance for the learner that is not exhausted by those external outcomes. To reason from functional replacement to the worthlessness of learning is therefore to confuse an instrumental criterion with a broader normative one.

2.2 The moving-target problem

The irreplaceability defence is also unstable. Whenever a capacity once thought distinctively human is modelled computationally, the defence must retreat toward another capacity. This can encourage a narrow human exceptionalism: humanity's educational importance becomes something to prove by identifying a remaining technical advantage. Such a position mistakes comparative capability for dignity or educational entitlement. A person with limited productive or cognitive capacities is not correspondingly less worthy of education. Likewise, the educational interests of children, older adults, and people with disabilities should not depend on what is difficult for a machine to simulate.

A different version claims that it is teachers, rather than skills, who are irreducible. Tishenina (2026), drawing on Biesta, argues for the distinctive role of the teacher in calling students into subject-ness. This is a serious challenge, but it should not be collapsed into the crude idea that human teachers win a capability contest. A claim about ethical address, responsibility, and shared existence is categorically different from a claim about who produces the better explanation. The present paper addresses the worth of a person's education, not a forecast that human teachers will become obsolete. Whether particular pedagogical relationships require human presence remains an important, additional question.

2.3 A counterfactual that clarifies, rather than predicts

Imagine an AI system able to outperform humans in every externally assessable cognitive task: composing arguments, making predictions, solving proofs, and synthesizing evidence. The scenario is not a technological forecast; it is a limiting thought experiment. Under the irreplaceability defence, the justification for educating humans becomes increasingly elusive. Under a relational account, a different question survives: would a person's encounters with mathematics, history, literature, other people, and public reasons still matter to how that person lives and relates to a shared world? If the answer can be yes, educational worth cannot be indexed solely to comparative performance.

The thought experiment requires one clarification. If the phrase 'all cognition is delegated' literally means that no human understanding, uptake, attention, or reflection occurs, then it also eliminates the learner as a participant in education. That is not the scenario defended here. Complete substitution of externally evaluated cognitive products can coexist with first-person engagement with their meaning. The distinction is not an attempt to hide a uniquely human cognitive competence from AI; it identifies the subject whose education is at issue. Someone else's understanding cannot simply count as mine because it is available to me. Nevertheless, my understanding need not originate from my unaided production of each intermediate inference (Hardwig, 1985; Clark & Chalmers, 1998).

2.4 Four senses of replacement and an invalid inference

The language of replacement conceals several different relations. Functional replacement means that an alternative system produces an equivalent result. Procedural replacement means that it carries out intermediate operations once undertaken by the learner. Institutional replacement means that schools or employers redesign roles around the availability of those systems. Normative replacement would mean something stronger: that the reason a person had to engage in learning has disappeared. These relations can coexist, but no one of the first three entails the fourth. For instance, automated transcription may remove a professional reason to master shorthand, yet it need not remove the educational reason to listen carefully, interpret testimony, or become answerable to another speaker. Conversely, a skill may be valuable for employability without carrying unusual formative importance. Philosophical argument must therefore identify which sense of replacement is relevant to which educational aim.

A second distinction concerns the bearer of value. An institution may reasonably withdraw resources from teaching an obsolete production method, while an individual may still find educational value in studying its history and conceptual foundations. A profession may delegate a diagnostic subtask while continuing to require practitioners to understand the conditions of warranted delegation. Neither example establishes that every historical practice should survive unchanged. Rather, they show why a verdict about what a curriculum should fund is not identical to a verdict about whether a human being's learning is valuable. The irreplaceability argument moves between these questions too quickly. Its rhetorical force

derives from treating a shifting division of labour as though it were an ontological discovery about who deserves an education.

2.5 A limited but decisive philosophical conclusion

The argument so far establishes a modest asymmetry. One credible case of educational value persisting despite complete functional substitution suffices to defeat the thesis that irreplaceability is necessary for educational value. But it does not show that cognitive practice can always be safely outsourced, or that AI should become the default agent in classroom work. Those are contingent pedagogical questions requiring attention to learner development, institutional aims, and evidence. The philosophical conclusion is consequently stronger than technological enthusiasm and weaker than an unrestricted licence to delegate. It requires us to stop using comparative task performance as the final court of appeal when evaluating human education.

III. FROM CAPACITY CULTIVATION TO SELF–WORLD RELATIONS

3.1 Bildung without romanticism

Bildung is often translated as formation, cultivation, or self-formation. These translations illuminate its concern with how a person becomes a certain kind of participant in cultural and social life, but no single translation exhausts its histories. A workable philosophical reconstruction need not treat Bildung as the achievement of a prescribed ideal personality. It can instead emphasize that learning is formative when engagement with what is other than the self changes the person's relation to the world. This includes intellectual, affective, ethical, and civic dimensions without assuming they advance together.

This reconstruction stands near Dewey's (1916) conception of education as a reorganization of experience that increases its meaning and enables a more intelligent direction of subsequent experience. Dewey (1938) also cautions that not every experience is genuinely educative: some experiences close off the conditions for growth. The caution is decisive here. If transformation can be manipulative, dogmatic, or destructive, 'change' cannot by itself supply the standard of educational value.

Biesta (2009, 2020) distinguishes qualification, socialization, and subjectification to resist reducing education to a single measurable outcome. His later world-centred proposal gives weight to the encounter with a world that does not simply comply with the learner's desires (Biesta, 2022). Rosa (2019) similarly foregrounds the quality of relations with the world rather than an ever-expanding inventory of resources and capacities. These approaches are not identical: experience, subjectification, and resonance carry different theoretical commitments. They nevertheless make it possible to articulate a question that output-centred frameworks tend to miss: what changes in how a learner can be addressed by, answer to, and inhabit the world?

Contemporary work already connects Bildung with generative AI. Arstorp et al. (2026), for example, describe teacher educators' accounts of individual, social, and professional Bildung under conditions of AI-mediated learning. My contribution is not the general observation that AI raises questions about Bildung. It is the narrower claim that substitutability is normatively orthogonal to educational worth, together with a decision procedure for distinguishing worthwhile transformation from merely effective influence.

3.2 Defining a relation, not merely an outcome

A self–world relation has at least four analytically separable aspects: what the person notices, what the person takes to count as a reason, how the person locates themselves among others, and how the person is disposed to respond or act. A relation can therefore change without a dramatic conversion of identity. A student who begins to see scientific disagreement as disciplined inquiry rather than incompetence has undergone a modest but meaningful reorientation. So has a student who comes to recognize whose testimony has been systematically discounted, or who learns to inhabit an unfamiliar text without instantly reducing it to a familiar stereotype (Fricker, 2007).

The adjective 'transformative' does not demand permanent psychological conversion. Education often involves tentative shifts, reversals, and experiments in judgement. A defensible transformation may be partial and revisable; indeed, the ability to revise may be part of its worth. Nor does educational value require that a learner's worldview change in every lesson. Practice, consolidation, memorization, and skill maintenance can be instrumentally and developmentally important because they sustain the conditions for future encounters. The account is therefore an account of educational worth at the level of purposes and trajectories, not a rule that each classroom episode must demonstrate immediate transformation.

A further distinction separates self–world transformation from self-improvement as optimized performance. One can score higher without enlarging one's understanding of the world. Conversely, one may become less certain, more attentive to complexity, or less willing to accept convenient explanations; such outcomes can look inefficient while being educationally significant. This difference is particularly salient when AI compresses the interval between question and answer. The reduced time required to produce a response is not the same as a reduced time required to become answerable to its significance.

3.3 Mediation does not imply alienation

People have always learned with tools, communities, texts, teachers, and inherited institutions. Hardwig (1985) demonstrates the prevalence of epistemic dependence even in sophisticated knowledge practices. Clark and Chalmers (1998) challenge the sharp boundary between internal and externally supported cognition. Their arguments do not settle the purposes of education, but they undermine the assumption that assistance necessarily diminishes intellectual participation. Du and Yuan (2026) similarly distinguish

productive AI-mediated reliance from forms of dependence that displace the learner's opportunities for judgement.

AI can thus function as a mediator of self–world relations rather than merely as an intruder into an otherwise unmediated mind. It may offer alternative descriptions, simulate counterarguments, translate unfamiliar perspectives, and make difficult material accessible. Yet the same architecture can conceal sources, flatter existing beliefs, generate persuasive falsehoods, or create a persuasive appearance of understanding. Relationality is therefore not a technological endorsement. It specifies the level at which AI's educational significance must be judged: the resulting quality of a person's encounter with the world, not merely the amount of labour displaced.

3.4 The structure of a self–world relation

A relation is not simply an internal attitude attached to an external object. It has a perceptual dimension, because learning changes what becomes salient; an interpretive dimension, because it changes the descriptions and distinctions through which experience becomes intelligible; a practical dimension, because interpretations shape possibilities for action; and an interpersonal dimension, because a person's sense of what can be justified depends partly on recognition by and responsibility to others. These dimensions need not shift at the same pace. A learner might understand a scientific argument before becoming willing to use it in public deliberation, or might learn to recognize exclusion before acquiring the vocabulary to explain its historical causes. Treating relational transformation as multidimensional avoids equating a sudden change of opinion with mature formation.

The idea of the world also needs discipline. It does not refer only to an objective inventory of facts, nor only to the learner's privately constructed reality. The world includes natural constraints, shared practices, institutional histories, and other people whose experiences resist a learner's preferred narrative. A good educational relation must preserve the possibility that the world answers back: a hypothesis fails, a text unsettles, a community member contests an interpretation. An AI-generated explanation can orient attention toward such resistance, but it can also remove it by smoothing disagreement into the most probable agreeable response. The relevant distinction is not between an authentic physical classroom and an inauthentic digital interface. It is between forms of mediation that permit an encounter with recalcitrant reality and forms that seal the learner inside a persuasive interpretation.

3.5 Productive uncertainty and the risk of romanticizing struggle

A relational theory must not mistake frustration for depth. Some encounters genuinely require sustained effort, disciplinary patience, or repeated exposure to failure. Yet difficulty has no automatic sanctity. A learner who struggles with inaccessible prose may be excluded from precisely the encounter a course intends to cultivate. AI-supported paraphrase may remove accidental barriers while preserving difficult

questions about evidence, injustice, or competing values. Conversely, instant answer generation may eliminate worthwhile difficulty when a student must learn to see why a proof follows or why a historical claim cannot be settled by a single quotation. The pedagogical distinction lies between enabling access to significant resistance and suppressing resistance that is constitutive of the learning aim.

This point qualifies a simple reading of resonance. A worthwhile encounter is not guaranteed to feel harmonious; disagreement, disappointment, and revised self-understanding may make it unsettling. Rosa's (2019) emphasis on relations to the world provides a valuable contrast with accumulation, but it does not supply an automatic measure of an individual lesson's success. A student may feel profound resonance with a false account, while a carefully corrected belief can initially produce alienation. The relational-transformative framework therefore treats affective intensity as evidence requiring interpretation, not as a surrogate for epistemic or ethical justification.

3.6 The institutional conditions of personal formation

Bildung is sometimes presented as a private journey of the cultivated self. In contemporary education, however, the conditions of that journey are institutionally distributed. Curriculum selection determines which world a learner is invited to encounter; assessment determines which forms of response receive recognition; language policies influence who can be heard; digital platforms shape whether claims may be questioned. These conditions are especially visible when AI systems personalize examples and rearrange access to sources. A learner's apparent transformation may partly reflect which voices the institution has allowed into the conversation. Self-world formation is therefore not separable from the politics of world-presentation.

IV. THE RELATIONAL–TRANSFORMATIVE ACCOUNT

4.1 The core proposition

I propose the following formulation: an educational experience has constitutive relational value when, through an appropriately structured encounter with knowledge, others, or the world, a learner acquires or revises an orientation that can be responsibly sustained, questioned, and enacted. 'Constitutive' is important. The change is not valuable merely because it will increase future wages, improve test performance, or protect a competitive edge; it can matter as part of living an intelligible, reflective, and responsible human life. Instrumental benefits are neither excluded nor sufficient.

This proposal contains two distinct claims. The negative claim is that unassisted cognitive production is not necessary for relational educational worth and is not sufficient, by itself, to establish educational worth as a whole. The positive claim is that defensible relational transformation provides a constitutive source of educational value. The positive claim is not the stronger assertion that all legitimate educational purposes reduce to transformation. Public education also involves qualification, access to disciplinary practices,

democratic participation, and the material distribution of opportunity (Biesta, 2009; Nussbaum, 2010). The present theory clarifies a neglected basis of worth rather than cancelling those other functions.

4.2 Two contrasted learners

Consider Learner A, who relies on an AI assistant to locate readings, generate competing historical interpretations, and summarize technical disagreements. A nevertheless studies the cited material, asks why the narratives diverge, revises a previously unexamined assumption, and becomes more attentive to the testimony of people affected by the history being studied. The AI performs much of the externally visible cognitive labour, but the learner develops a more responsible orientation to a difficult world.

Now consider Learner B, who independently reads every source, produces an accurate essay, and receives the highest grade. B can reproduce the material but treats it as an isolated performance requirement. Neither the assumptions guiding future judgement nor the relationship to other perspectives shifts. B has acquired and demonstrated real competence; it would be incorrect to say that nothing was learned. Yet the fact of unaided completion does not by itself establish the same kind of relational educational achievement observed in A.

The comparison does not require a categorical ranking of persons or the denial of competence-based value. It establishes a logical asymmetry: outsourcing can be compatible with relational educational achievement, whereas unaided production does not guarantee it. To identify worthwhile transformation, however, a more demanding normative test is required. Learner A might have been manipulated by an elegant but false AI narrative. A change of outlook may equally constitute the successful production of prejudice. We must therefore ask not only whether a transformation occurred but whether it was educationally defensible.

4.3 Constitutive value, instrumental value, and educational purpose

The account distinguishes three propositions that ordinary debate routinely compresses. The first is that certain capacities have instrumental value because they enable useful achievements. The second is that sustained encounters with subject matter can have constitutive value because they participate in forming the person who encounters it. The third is that public education has responsibilities of justice, qualification, and common life that cannot be settled by the first two propositions alone. A school may justifiably insist upon independent numeracy for safety and civic participation while also valuing AI-assisted inquiry that broadens a student's relationship to mathematical explanation. These propositions generate potentially competing obligations, but not a contradiction. The fact that one educational good can survive functional replacement does not entail that skill assessment should be abolished.

By 'constitutive' I mean that the educational good is partly realized in the learner's developing relation to the world, not merely produced as a separable external consequence. A historical conversation can have

value in the way it changes whose suffering a person can recognize, even before this leads to an observable civic action. The claim is neither that every genuine feeling of recognition counts nor that interior change is immune to criticism. Relational goods remain contestable in light of reasons, practices, and the claims of others. Their distinctive feature is that they cannot be exhaustively described by an external performance output without losing what they are supposed to value.

4.4 Two propositions about necessity and permissibility

The theory's negative proposition is logical: independent production of a cognitive artifact is not a necessary condition for meaningful educational formation. Its positive proposition is normative and conditional: an AI-mediated experience may constitute educational value when the learner's evolving self-world relation can withstand reasoned epistemic, reflective, and ethical scrutiny. The negative proposition rejects a universal prohibition on mediation; the positive proposition does not confer automatic legitimacy upon every successful intervention. Together they prevent two mirror-image mistakes: the belief that assistance always contaminates authentic learning, and the belief that favourable behavioural change is enough to count as education.

The criteria are not a definition intended to settle every possible case by stipulation. Philosophical standards can guide public reasoning while remaining open to challenge at their boundaries. For example, a learner may gain a more accurate understanding yet remain unable to articulate the reasons for it; the educational value of this shift may be provisional rather than absent. Alternatively, a learner may eloquently defend an interpretation whose adoption depended on deception. The proper question is what reasons warrant the judgement, what evidence would defeat it, and who has standing to contest it. This form of assessment is deliberately more demanding than declaring that a chatbot has improved engagement.

4.5 From solitary authorship to responsible uptake

A central implication concerns agency. The romantic picture of independent thought treats a conclusion as truly one's own only if its premises, formulations, and intermediate steps were self-produced. Intellectual life rarely satisfies this condition. Researchers trust instruments they cannot construct, readers rely on translation, and students inherit conceptual vocabularies developed by others (Hardwig, 1985). Dependence becomes educationally problematic not simply when a contribution originates elsewhere, but when a learner loses the practical ability to identify what has been accepted, which uncertainties remain, and how correction would proceed. Responsible uptake is therefore a better standard than solitary authorship for many, although not all, educational purposes.

V. A LAYERED NORMATIVE STANDARD

5.1 Why a single metric fails

A purely outcome-based approach risks declaring any persuasive modification of beliefs a success. A purely autonomy-based approach can mistake unchallenged personal preference for mature judgement. A purely epistemic approach can overlook the harms of a technically accurate but demeaning pedagogical interaction. The standards of educational worth must be plural without being arbitrary. I propose a layered architecture: a set of non-compensable safeguards concerning the educational means, followed by three mutually informing criteria for the value of the resulting relationship.

The structure is deliberately not an additive score. It would be incoherent to say that severe coercion can be offset by excellent factual accuracy, or that knowingly fabricated evidence becomes acceptable because it produces empathy. Similarly, apparent moral enthusiasm cannot excuse the complete suppression of a learner's ability to question. Below these limits, educational judgements may still require contextual interpretation; the aim is disciplined practical reasoning, not mechanical classification.

5.2 First layer: safeguards against domination and serious harm

An educational arrangement fails the prior permissibility test when its transformative effects are secured through serious deception, coercive manipulation, humiliation, exclusion, or the deliberate undermining of a learner's standing as someone able to ask for reasons. These prohibitions are defeasible only in the ordinary sense that context can change how an act is described: a fictional simulation clearly framed as fiction is not the same as fraudulent evidence presented as fact. The normative reason for the boundary is that education addresses the learner as a participant in shared inquiry, rather than treating the learner merely as material to be reshaped.

In AI-mediated settings, the safeguard directs attention to persuasive design and institutional power. An assistant that selectively fabricates sources to produce a desired ideological conversion is not redeemed by an impressive change in attitudes. An algorithm that systematically silences minority perspectives may damage the very shared world a learner is supposed to encounter. Educational institutions must therefore examine not only what a learner comes to believe, but also how the conditions of uptake were constructed and who can challenge those conditions.

5.3 Second layer, criterion one: epistemic answerability

A valuable reorientation ought to be answerable to evidence, reasons, and relevant forms of experience. This criterion does not demand that every learner personally reproduce the complete proof or independently verify every source; such a demand would disregard the unavoidable social division of cognitive labour (Hardwig, 1985). It demands that significant claims remain open to appropriate scrutiny and that learners have proportionate opportunities to identify why particular claims deserve trust. Epistemic dependence

becomes problematic when the presentation of authoritative outputs precludes examination of the grounds for acceptance (Du & Yuan, 2026).

The standard is domain-sensitive. In scientific inquiry, answerability may require evidence, methods, and uncertainty. In historical interpretation, it may require accountable use of sources and attention to competing accounts. In literature and the arts, the relevant reasons will not always take the form of experimentally testable propositions. Epistemic answerability is therefore broader than factual accuracy: it concerns an orientation of responsiveness to reasons appropriate to the practice at hand. It is also fallibilist. Education may deepen when a learner recognizes that a previously confident interpretation was too simple.

5.4 Second layer, criterion two: reflective appropriation

A transformation must be attributable to the learner's own revisable engagement, not simply to the successful implantation of an attitude. Reflective appropriation does not mean unaided origination; a teacher, book, peer, or AI system can supply almost every substantive proposal. What matters is that the learner can meaningfully consider, resist, reinterpret, or revise what is offered. Appropriation is a matter of participatory authority over one's developing orientation, not intellectual isolation.

This criterion explains why a machine-generated answer can educate without establishing that every automated influence does. A student who uses a model to articulate unfamiliar arguments and then reconsiders a cherished assumption may appropriate the insight. A student whose preferences have been modified by opaque, personalized reinforcement without any opportunity for critical distance has not exercised the same kind of agency. Biesta's (2020, 2022) account of subjectification offers one important way of understanding why becoming a subject cannot be reduced to the accumulation of performance indicators. The present criterion remains modest: it requires conditions of contestability rather than claiming an uncontested definition of the fully autonomous person.

5.5 Second layer, criterion three: ethical responsiveness

Educational transformation changes how a person lives among others and responds to claims that are not simply self-authored. Ethical responsiveness concerns whether the new orientation makes it possible to take others' vulnerability, standing, and reasons seriously. It is not a requirement that education manufacture one approved political or moral worldview. Rather, it excludes orientations sustained by systematic dehumanization, denial of equal standing, or cultivated indifference to foreseeable harm. Fricker's (2007) analysis of epistemic injustice is instructive: relations to knowledge are also relations in which others may be recognized or denied credibility.

This criterion also guards against individualistic interpretations of *Bildung*. A learner who becomes remarkably self-confident through AI-assisted coaching while growing contemptuous of other people has not necessarily achieved educationally admirable formation. The content of ethical responsiveness must

remain open to public argument, especially in pluralistic classrooms. Reasonable disagreement over substantive values is compatible with shared commitments to non-domination, reciprocal recognition, and the revisability of judgement.

5.6 How the layers work together

The assessment proceeds in a specified order. First ask whether the process violates the safeguards against domination and serious harm; where it does, attractive outcomes cannot compensate. Second ask whether a significant self–world reorientation or an enabling step within a longer developmental trajectory occurred. Third examine its epistemic answerability, reflective appropriation, and ethical responsiveness. Defects short of the initial prohibitions need not yield an automatic 'zero'. They require articulated, context-sensitive judgement about the gravity of the defect, the developmental stage of the learner, and opportunities for repair.

The three substantive criteria are not psychometric subscales. Neither equal numerical weights nor statistical independence is assumed. They also do not provide a universal algorithm that can certify an experience as education. They are public reasons for deliberation: an examiner, teacher, or learner can explain why a transformation appears valuable, incomplete, fragile, or objectionable. The framework thereby reverses the burden of justification. Instead of asking whether humans remain better than machines, it asks whether the relationship brought into being through educational mediation is worth affirming. Table 1 condenses the deliberative sequence; its questions are philosophical prompts, not validated indicators.

Table 1. A layered protocol for judging relational educational value

Stage	Guiding question	Decision function
Prior safeguard	Were serious deception, coercion, exclusion, or domination used?	Disqualifying concerns cannot be offset by attractive outcomes.
Relational change	Has a meaningful self–world reorientation (or enabling trajectory) occurred?	Identifies the proposed constitutive educational good.
Epistemic answerability	Is the new orientation open to relevant reasons, evidence, and correction?	Evaluates warrant rather than fluent appearance.
Reflective appropriation	Can the learner meaningfully contest, reinterpret, or revise the influence?	Evaluates participation rather than unaided origination.
Ethical responsiveness	Does the relation acknowledge others' standing and foreseeable consequences?	Evaluates recognition and responsibility without prescribing one worldview.

Note. The protocol organizes philosophical judgement; it is not a numerical index or validated scale.

5.7 Why the layers are neither a checklist nor a sum

The sequence of judgement matters. If an institution manufactures consent through coercion or serious deception, one cannot offset that violation by adding the benefits of accurate factual learning. The first layer consequently establishes defeasible boundaries of permissibility rather than a low score to be compensated by higher performance elsewhere. In ordinary cases that pass this threshold, the three substantive criteria

interact. Epistemic answerability constrains what may responsibly be believed; reflective appropriation concerns whether a learner can treat such reasons as revisable considerations; ethical responsiveness concerns the relationship between those considerations and the standing of others. A failure in one dimension may expose a defect in the others without making them identical.

Consider a learner who revises a prejudicial belief after reading verified testimony but cannot yet explain how the testimony should affect future conduct. The epistemic change can be real and valuable while ethical learning remains incomplete. A different learner may articulate impressive commitments to inclusion while uncritically believing a fabricated story: ethical vocabulary does not repair the epistemic defect. An evaluative judgement should be able to name such partial achievements, explain unresolved tensions, and state why the transformation remains contestable. A numerical composite score would conceal rather than resolve these distinctions. The framework is closer to structured deliberation than to measurement.

5.8 Burden of proof and the possibility of reversal

Because transformation is longitudinal, its educational meaning may change with later experiences. A conclusion once defensible may need revision when new evidence appears, or when a learner encounters persons excluded from the original account. This does not render assessment arbitrary. It requires judgements to specify their time horizon and the conditions under which they would be reconsidered. The evidence appropriate to such judgement may include dialogic explanation, comparison of earlier and later interpretations, and decisions made when the learner is no longer prompted by the AI system. None of these traces is self-interpreting; especially when an institution rewards a particular moral vocabulary, students may learn to perform the desired discourse without genuine appropriation.

The epistemic burden also runs in both directions. A critic who claims that AI assistance necessarily destroys learning must show why the relevant relation could not develop through mediated engagement. A proponent who celebrates AI-enabled 'personal growth' must show that the change was neither merely pleasant nor secured by manipulation. This symmetry matters. Without it, traditional teaching practices receive an unearned presumption of legitimacy while newer media must satisfy impossible standards, or fashionable systems receive undue indulgence while familiar pedagogies are scrutinized. The same normative questions apply to human teachers, textbooks, peer groups, and algorithmic tutors, though their concrete risks differ.

VI. TESTING THE THEORY WITH CONTRASTIVE CASES

6.1 AI-mediated historical understanding

A student consults an AI tutor to compare accounts of a colonial history. The tutor displays its sources, distinguishes fact from interpretation, acknowledges disagreement, and asks the student what evidence

might disconfirm an appealing narrative. Over several encounters, the student becomes more attentive to voices previously ignored and more careful about causal claims. Despite extensive delegation of retrieval and summarization, the learner's orientation becomes epistemically more responsible and ethically more responsive. Subject to scrutiny of the sources and interaction, this experience can possess constitutive educational value.

6.2 High performance without meaningful reorientation

Another student completes a demanding examination without assistance, correctly reproduces the content, and demonstrates disciplinary competence. These achievements justify recognition under qualification-oriented aims. However, the examination alone does not establish whether the student can situate that knowledge within an enlarged relation to a shared world. The proper conclusion is not that the achievement is worthless. It is that task mastery and relational formation are distinguishable dimensions of educational evaluation, and the former does not exhaust the latter.

6.3 Effective conversion through manufactured authority

A personalized AI guide supplies fabricated testimony, conceals counterevidence, and gradually persuades a learner to adopt a new social conviction. The conviction may produce durable changes in identity and action. Yet the process fails epistemic answerability and reflective appropriation, and may also violate the safeguard against serious deception. Its success in producing transformation is not evidence of educational worth. This case marks the boundary between formation through engagement and the instrumental engineering of another person's beliefs.

6.4 Accessible participation and unequal starting points

A learner with substantial reading barriers uses AI to translate dense texts into accessible language, map competing positions, and ask questions privately before joining a classroom discussion. The learner's dependence on assistance is high. Nevertheless, if access widens participation, supports contestability, and enables new forms of relation to the subject matter, the case may exemplify educational success. A prohibition on tools justified solely by the ideal of independent cognitive production would risk mistaking a particular mode of performance for the educational purpose itself. This does not remove the need to safeguard privacy, accuracy, and equitable access (Miao & Holmes, 2023).

Together the cases reveal the explanatory gain. The relevant contrast is not 'AI versus no AI', or 'effort versus ease'. It is the difference between educational arrangements that enable accountable participation in a world capable of challenging the learner and arrangements that merely produce an output, a preference, or an appearance of understanding. The contrast is defeasible and interpretive, but it is sharper than a moving inventory of allegedly irreplaceable human capacities.

6.5 A scientific literature review written by a model

Suppose a graduate student asks an AI system to produce a competent literature review with accurate citations and a balanced account of competing theories. In the first variation, the student submits the text without reading the underlying work and cannot respond when a colleague challenges its assumptions. The output is useful, but there is little evidence of a transformed relation to the field. In the second variation, the student treats the draft as a map of disagreements, follows the central references, discovers an omitted methodological dispute, and revises a previously confident research position. Much of the original text was still machine-produced. What differs is the student's accountable engagement with a disciplinary world, including the possibility that the model's representation would be resisted by the literature itself.

These variations illustrate why the same interface and similar final artifacts may conceal distinct educational processes. A policy that measures the proportion of generated words will not, by itself, identify the difference. Yet the second case also exposes the danger of overclaiming: the ability to explain a few disputed citations may not show durable mastery of research methods. Independent competence can remain a separate qualification requirement. The relational criterion identifies an educational good within the activity, not an exemption from the standards of academic scholarship.

6.6 High-stakes competence and justifiable nondelegation

Now consider emergency clinical training. An AI assistant may supply the correct differential diagnosis and communicate it more clearly than a novice clinician. Nonetheless, a training institution can insist that the novice independently recognize urgent warning signs and know when automated advice is unsafe. This requirement does not refute the relational theory. It arises from the responsibilities attached to professional action: patients need practitioners with reliable minimum capabilities, particularly where systems fail or access is interrupted. Here nondelegation is justified by an identifiable educational purpose, not by a general demand that humans preserve superiority to machines. The distinction permits strong competence standards without converting professional education into a competition for permanent human exceptionalism.

6.7 Persuasion, care, and the manufacture of agreement

A final contrast concerns a conversational tutor that adjusts its responses to a student's emotional history. It may offer patient explanations and support a student in articulating a neglected personal concern. But identical personalization techniques might be used to secure agreement with an institution's preferred narrative. The visible result - greater confidence and a coherent new interpretation - could look similar. What distinguishes the educative case is not the warmth of the conversation. It is whether the system discloses important uncertainty, makes reasonable alternatives available, and preserves the learner's opportunity to refuse its conclusions without penalty. The example connects epistemic answerability and reflective appropriation to the power conditions specified by the first normative layer.

6.8 Literary interpretation and the quality of encounter

Consider an undergraduate studying a novel written in a language the student does not yet read fluently. A generative model offers a careful translation and several conflicting interpretations. This assistance might initially seem to replace the student's literary labour. But the educational judgement depends on what follows. If the student uses the output only to repeat a conventional interpretation on an examination, there is little basis for describing a changed relation to literary experience. If the student compares passages, notices what the translation cannot preserve, and begins to attend to a narrator's unreliable perspective, mediation may have widened the student's encounter with a text. The issue is not that the machine has furnished the 'right' interpretation, since interpretation often admits reasoned disagreement. The issue is whether the student has learned to inhabit that disagreement with greater attentiveness and responsibility to the evidence of the work.

The example reveals a limitation in the phrase 'all cognitive tasks'. Interpretive education includes practices whose goods cannot be completely identified with a separately delivered artifact. A competent interpretation printed on a page is different from a student's encounter with its difficulties, although the two may share verbal content. This difference need not express a uniquely human capacity that AI lacks. It expresses the perspective from which a person's education is evaluated: whether this learner now encounters the work differently. The distinction is compatible with criticizing lazy dependence on AI when that dependence prevents such an encounter. It also permits defending translation and adaptive explanation when they give the learner access to an unfamiliar world that would otherwise remain closed. In this sense, the relational account changes the unit of assessment from the provenance of an answer to the significance of an encounter.

VII. OBJECTIONS AND REPLIES

7.1 Does this account undervalue cognitive labour?

The strongest objection holds that intellectual labour is itself formative. Struggling through a proof, learning to write, and persisting with a difficult text develop habits of attention and judgement. AI-mediated shortcuts may deprive learners of the very experiences through which a meaningful relation to the world becomes possible. Bialystok's (2026) warning about extensive outsourcing gives this objection contemporary force. The relational-transformative account should accept much of it.

What it denies is a universal inference from lower effort to lower educational worth. Cognitive labour frequently functions as a necessary route to particular kinds of understanding, but whether it does so depends on the task, learner, and developmental purpose. A beginner may need to calculate independently to grasp number relations; a researcher may be better served by software that frees attention for critical interpretation. Under the proposed framework, intellectual effort is a pedagogical means with potentially

deep formative significance, not an independent metaphysical test of whether education still matters. Where the loss of practice undermines future answerability or agency, delegation is educationally objectionable for precisely that reason.

7.2 If transformation is central, what about ordinary learning?

Not every spelling lesson, safety procedure, or rehearsal of foundational facts visibly transforms a person's worldview. An exclusive focus on dramatic transformation would misdescribe education and invite schools to chase theatrical experiences. The account responds by distinguishing individual instructional episodes from educational trajectories. Routine exercises may develop capabilities without which later encounters would be superficial or dependent in harmful ways. They can also stabilize a more durable orientation toward a discipline. Relational educational worth can therefore be mediated over time rather than displayed at every moment.

A stronger objection says that education sometimes has value simply because knowing a true fact is good, even if no relation changes. I do not deny this possibility. The claim defended here is that relational transformation supplies one constitutive and systematically neglected basis of educational worth, sufficient to refute the irreplaceability defence as a complete theory. It is not an exhaustive taxonomy of all educational goods. This limited scope improves rather than weakens the central argument: the paper need not prove that no other value exists to show that machine substitutability is not decisive.

7.3 Is the ethical criterion covert indoctrination?

Any normative account of good education faces a pluralist challenge. If educators determine what counts as an ethically desirable orientation, they may use *Bildung* as a respectable name for enforcing conformity. This is not solved by placing ethics alongside autonomy. A school can praise autonomy while making disagreement costly. The safeguard and reflective criterion must therefore constrain the educator's own preferred outcomes, not only those produced by AI systems.

An ethically responsive classroom permits students to criticize institutional norms, teachers' judgements, and the framework itself. It distinguishes respecting another person's standing from accepting every substantive belief that person holds. It requires that disagreements be worked through by reasons, perspectives, and fair opportunities for challenge rather than by covert persuasive control. No framework eliminates the need for political and moral judgement, but public contestability is preferable to leaving such judgements unacknowledged in algorithmic optimization systems.

7.4 Can AI really mediate a relation to the world?

A further objection maintains that an encounter with an AI-generated representation is only a relation to a simulation, not to other people or the world. The worry is important when systems invent citations, simulate empathy, or create frictionless agreement. But mediation is not equivalent to separation. Written

testimony, photographs, scientific models, and historical archives can mediate genuine encounters without being identical to their subjects. The pertinent issue is whether the mediator preserves possibilities of correction, resistance, and contact with what exceeds its own narrative. AI can open such possibilities; it can also close them through hallucination, personalization, or systematic filtering. The framework provides grounds for distinguishing these outcomes rather than settling the question by the mere presence of a machine.

This response does not imply that AI is an ethically accountable interlocutor in exactly the same sense as a person. Tishenina (2026) is right to insist that the educator's address to a learner raises issues not captured by performance comparison. The present account leaves room for specifically human relations of care, recognition, and responsibility while rejecting the idea that all AI mediation is educationally disqualifying. The relevant human claim is about how educational responsibilities are borne, not about a perpetual monopoly on technical tasks.

7.5 Does the framework neglect social inequality?

A theory focused on individual transformation may obscure differences in access, surveillance, labour conditions, and institutional power. AI systems are not neutral conduits of philosophical encounters. Commercial incentives and unequal infrastructures shape what students can ask, which voices appear credible, and who bears the cost of error. These conditions matter to each normative layer: opacity affects epistemic answerability; coercive data extraction affects freedom; selective representation affects ethical responsiveness. Accessible and publicly accountable learning environments therefore belong to the conditions of relational educational worth, not merely to the technical implementation of a philosophical ideal (Selwyn, 2019; Miao & Holmes, 2023).

7.6 The disagreement objection: must formation converge on approved values?

Imagine two students who consider the same historical evidence, openly acknowledge uncertainty, listen carefully to those affected, and finally disagree about a contested public responsibility. If ethical responsiveness demanded agreement on a predetermined conclusion, one of them would necessarily be classified as educationally deficient. That would give an institution unacceptable power over conscientious judgement. The framework instead locates its minimum ethical demand in how persons are treated as participants whose claims merit consideration, while allowing substantial disagreement about policy and moral interpretation. This is not an empty proceduralism: exclusion, humiliation, and deliberate deception can violate a person's standing even when deployed in defence of an attractive substantive cause.

Pluralism does not mean that every outcome is equally defensible. Some interpretations ignore decisive evidence; others deny the credibility of affected persons without reasons. Educational evaluation can criticize those defects without demanding uniform convictions. Where disagreement remains reasonable,

the value may lie in the acquisition of a more articulate, responsible and revisable disagreement. This is an important limit to the rhetoric of transformation: a learner need not arrive at the educator's worldview to have undergone formation.

7.7 The apparent paradox of human nonexceptionalism

If we reject the need to demonstrate human cognitive uniqueness, why should the framework attend specifically to human learners? The answer is a question of scope and standing, not a claim to exclusive metaphysical importance. The present argument concerns institutions whose responsibilities include educating persons. It asks whether their obligations evaporate when other systems become capable of performing the same work. They do not. A person's claim to education can be grounded in the goods and relationships education enables without proving that no nonhuman system could have analogous goods or relationships. Whether future artificial entities could be educational subjects is a distinct philosophical question that this paper does not decide.

Likewise, the claim that an AI tutor mediates worthwhile learning does not require treating the tutor as morally interchangeable with a teacher. Machines may function as explainers, organizers, or conversational partners while human institutions retain obligations to protect learners and answer for the educational environment. Avoiding human exceptionalism in the justification of education is compatible with acknowledging present differences in accountability, vulnerability, embodiment, and institutional responsibility. The thesis would be weakened, not strengthened, by pretending these differences are philosophically trivial.

7.8 Is reflective appropriation an unfair standard?

A serious objection concerns learners who are very young, have significant communication impairments, or are only beginning to acquire disciplinary language. Requiring explicit argumentative defence of every belief would exclude them from educational value. Reflective appropriation must therefore be understood developmentally and relationally. In some contexts it appears as the ability to notice a mismatch, ask for help, reject an unwanted suggestion, or participate in supported decisions. Forms of answerability can be scaffolded rather than presupposed. The framework evaluates whether an educational environment cultivates and respects the learner's available forms of agency; it does not demand adult philosophical fluency as a condition of being educable.

This clarification also prevents a hidden return to the comparative-capacity standard. If education were valuable only once a person could demonstrate articulate, independent critical reflection, those who most need educational support would again be placed at the margins. The moral standing of a learner precedes the learner's demonstrated performance. The normative criteria are directed primarily at the defensibility of

educational practices and trajectories, not at ranking persons by how successfully they satisfy a demanding ideal.

7.9 A final objection: can educational change ever be evidenced?

A sceptic might grant the philosophical distinction but claim that relational transformation is too elusive to guide serious educational judgement. Students can mimic reflective vocabulary, teachers can misread silence, and changes in conduct may have multiple causes. These are genuine limits on inference. Yet they do not show that task performance is epistemically transparent. A highly polished essay, particularly one produced with undisclosed AI assistance, may also conceal the learner's understanding. The response should therefore be calibrated rather than triumphalist: evidence of formation is always partial, revisable, and situated. It becomes more credible when different contexts support the same interpretation and when a learner can confront unanticipated objections without merely reproducing a rehearsed script.

The proposal thus favors disciplined qualitative judgement rather than a claim to direct measurement of the inner self. An educator can document which reasons were exchanged, which positions were reconsidered, and what alternative readings the learner was willing to examine. The interpretation of these materials remains open to the learner's response and to collegial disagreement. Furthermore, not every institution needs to certify personal transformation as an outcome: some may responsibly cultivate the conditions for it while assessing independent capabilities for credentialing. The theory identifies a good to be protected in educational design, not a licence for institutions to grade a student's identity or infer private moral worth. That distinction helps reconcile philosophical seriousness with limits on surveillance and paternalism.

VIII. IMPLICATIONS FOR EDUCATIONAL PRACTICE AND EVALUATION

The argument alters what schools and universities should seek to justify, though it does not prescribe a uniform AI policy. Curriculum planners should distinguish tasks assigned to demonstrate independent competence from tasks designed to open a field of inquiry. Independent work remains appropriate when a target capability is itself required for responsible participation or safety. AI assistance may be appropriate when it improves access to perspectives, supports inquiry, or frees time for discussion without bypassing the learning aim. The standard is purposive alignment rather than an abstract percentage of machine-generated work.

Assessment should similarly separate at least three questions. Can the learner perform particular tasks at a required level? Can the learner explain and question the reasons on which important claims rest? Has the educational process enabled a defensible reorientation in how the learner understands or responds to the subject matter and to others? The third question cannot be reduced to a numerical transformation score. It may instead be explored through longitudinal reflection, dialogic examination, revisiting earlier claims, and

the interpretation of situated decisions. These are possible evidential practices, not empirically validated indicators supplied by this paper.

Institutional governance should examine the conditions of mediation. Can learners contest an AI's account? Are important claims traceable to trustworthy materials? Does the design encourage reflective disagreement rather than personalized compliance? Whose perspectives and experiences remain invisible? Can learners refuse AI mediation without educational penalty, and can those who require assistive technologies participate without stigma? Such questions translate the framework's normative commitments into criteria for responsible pedagogical deliberation.

Finally, the theory recommends restraint in claims about what has been 'improved'. A higher grade, faster completion time, or more positive attitude toward a course is not equivalent to a defensible change in self-world relations. The latter requires interpretive evidence and independent normative discussion. Nor does the theory guarantee that AI will generally foster *Bildung*. The framework offers a principled account of when AI's contribution would count as educationally valuable; empirical inquiry is still needed to determine where, for whom, and under which institutional conditions those contributions occur.

8.1 Curriculum design: deciding what should remain difficult

Curriculum deliberation should start with a precise statement of the educational purpose of a task. If the purpose is to master an elementary inferential relation, instant generation may short-circuit the very encounter the learner needs. If the purpose is to compare interpretations of a complex historical event, generation of alternative positions may broaden rather than narrow the field of encounter. If the purpose is to learn to contest evidence, an AI assistant can be deliberately instructed to identify uncertainties rather than settle disagreements. These decisions need not map onto a binary division between 'AI allowed' and 'AI forbidden'. They require a reasoned account of what must be done by the learner, what may be mediated, and what kinds of response would count as educationally significant.

A practical design sequence follows. Educators first identify the world or practice with which learners ought to develop a more adequate relation. They then specify which forms of friction are substantively necessary and which merely reflect avoidable barriers. Next they decide where AI can disclose multiple interpretations, support access, or introduce challenges without concealing the sources of its representations. Finally they build opportunities for learners to revisit initial judgements, confront objections, and explain their responses beyond the immediate prompt. The sequence does not guarantee *Bildung*; it makes the educational reasons for a technology choice inspectable.

8.2 Evaluation: parallel records of competence and formation

A defensible assessment system can maintain parallel records rather than collapsing all purposes into a single grade. One record concerns performance in specified tasks under defined assistance conditions.

Another concerns the quality of the learner's developing engagement with problems, evidence, and others. The second record might draw on a reflective discussion of changed interpretations, documented engagement with counterarguments, or an account of what the learner would now do differently. These practices should not become covert tests of ideological conformity. Their purpose is to make reasons and revisability visible, while protecting the possibility that a student will challenge the educator's interpretation.

Relational educational value is consequently better supported by narrative and dialogic judgement than by a standardized transformation index. Yet such judgement also requires safeguards: transparent expectations, room for reasoned disagreement, and attention to whether confidence or eloquence is being mistaken for learning. This approach makes assessment more accountable rather than less rigorous. Its rigour consists in specifying what is being judged and what evidence could undermine the assessment, not in assigning a precise number to a philosophically complex good.

8.3 Digital governance as educational governance

Institutional procurement decisions carry educational commitments. A system that hides source information, optimizes agreeable responses, or records sensitive disclosures without meaningful learner control can frustrate epistemic and reflective formation regardless of its fluency. Conversely, interfaces that make uncertainty salient, facilitate comparison with independent materials, and permit learner challenge may support more responsible encounters. These are not purely technical features. They influence which questions seem reasonable, which speakers appear credible, and how much disagreement the classroom can sustain. Procurement and evaluation should therefore include educators, students, accessibility specialists, and affected communities rather than leaving the definition of success solely to platform vendors.

The same reasoning applies to unequal access. Learners who depend on translation, assistive supports, or low-bandwidth technologies should not be judged by an ideal of unaided performance designed around more privileged students. At the same time, institutional enthusiasm for AI should not become coercion: meaningful alternatives and contestable decisions remain important. The layered standard makes these concerns internal to educational value. A supposedly transformative system that silences marginalized testimony or makes refusal practically impossible fails conditions of worthwhile formation even if its measured outcomes improve.

8.4 What remains for teachers and educational institutions

Teachers need not defend their profession by claiming permanent superiority in content generation. Their responsibility includes selecting significant encounters, noticing when apparent fluency masks misunderstanding, sustaining disagreement without humiliation, and taking responsibility for the conditions under which learners are addressed. These practices can themselves be supported by AI, and some could eventually be performed competently by machines. Their educational importance nevertheless remains

because institutions owe learners environments in which reasons can be tested and relationships can develop without coercive control. Whether an individual task is performed by a human or an AI system does not eliminate the need to assign and discharge that responsibility.

The theory is intentionally less decisive about which institutional arrangements will best realize its criteria. It does not predict the long-term effects of conversational systems, stipulate an ideal allocation of human and machine labour, or supply a validated measure of formation. Those are tasks for empirical, legal, and policy inquiry informed by normative clarity. Its philosophical contribution is to prevent those inquiries from quietly assuming that educational worth rises or falls with comparative cognitive productivity.

IX. CONCLUSION

The prospect of highly capable AI makes an old instrumental assumption difficult to ignore: the worth of education is sometimes judged by the tasks that educated people can perform better than available alternatives. If educational justification depends on a continually shrinking inventory of abilities machines cannot replace, technological improvement will always appear to threaten the point of educating human beings. That conclusion follows from the premise, not from any demonstrated loss of educational value.

This paper has offered a different premise. The constitutive worth of education can lie in enabling persons to develop more answerable, reflective, and ethically responsive relations with the world. This claim does not romanticize self-formation or presume that all change is good. It is constrained by safeguards against domination and serious harm, and assessed through epistemic answerability, reflective appropriation, and ethical responsiveness. These conditions allow extensive assistance to coexist with educational worth while refusing to count fluent misinformation, coercive persuasion, or mere output production as sufficient achievement.

The central implication is not that humans possess a mysterious quality AI will never match. It is that educational value is the wrong object of a competition in task performance. We should ask neither simply what machines can do for learners nor what learners can still do without machines, but what kinds of relations to a shared world our educational arrangements help persons to form—and whether those relations are worthy of defence.

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The Aesthetic-Educational Mechanism of the Miao Heroic Epic "King Yalu"

Wenxiang Luo ^{1*}

1 Guiyang Institute of Humanities and Science, Guiyang, China

*Corresponding author: Wenxiang Luo ; email: 1538777025@qq.com

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Abstract

Existing scholarship on the heroic epic Yalu Wang has tended to follow two broad trajectories: one foregrounding its aesthetic character, the other its social functions. Studies of the first kind have largely catalogued the distinctive features of the epic's aesthetic representation, while studies of the second have striven to account for its social utility. How the aesthetic force embedded in the epic actually operates within the funerary ritual upon its participants, attendees, and listeners, however, remains a question that has not been systematically addressed. Taking the ritual-aesthetic field as its unit of analysis, the present study examines the operative mechanism through which aesthetic education is carried out in Yalu Wang within that field. Preconditioned by the ritual field itself, this mechanism unfolds in three successive links: heroic narrative arousing sentiments of the sublime and the tragic; the soundscape constructing an immersive mode of perception; and collective bodily practice completing the internalization of aesthetic experience. Through these three links, aesthetic sentiment is ultimately transformed into dispositions of character. By disclosing an embodied form of aesthetic education that has long been obscured by the paradigm of visual contemplation, this study furnishes a transferable analytical framework for the aesthetic education of living oral traditions and provides an important point of reference for advancing an embodied turn within the aesthetic-education research of minority literatures.

Keywords: Yalu Wang; aesthetic education; ritual field; soundscape; embodiment

I. From Text to Field

1.1 A Review of Existing Research Pathways

Yalu Wang is a heroic epic of the Western Miao dialect. It came to light during a 2009 intangible cultural heritage survey carried out in the Mashan region of Ziyun Miao and Bouyei Autonomous County, Guizhou Province, and promptly entered scholarly view, attracting attention from folklorists, ethnologists, scholars of ethnic studies, and aestheticians. Over the decade and more that has followed, a sustained body of scholarship has accumulated along diverse paths, of which the aesthetic and the functional paths may be taken as representative.

On the aesthetic side, existing studies take textual collection and editing as their point of departure and abstract three kinds of character from the epic—the sublimity of the heroic image, the tragic character of migration narrative, and the ecological-aesthetic connotation of natural imagery—in order to address the core question of what aesthetic thought and features the epic contains. Zhang Jinyi, for example, develops an inquiry into the aesthetic thought of Yalu Wang along three dimensions—natural beauty, social beauty, and artistic beauty—and argues, as the crux of his position, that beyond these three forms the epic further contains a metaphysical beauty relating to the “self” (zi). Wu Jiani, in turn, frames her aesthetic analysis of the epic's narrative content with three categories: a beauty that is gloomy and desolate, a beauty that is fierce and tragic, and a beauty that is vigorous and grand. It is not hard to see that the aesthetic pathway of existing scholarship typically abstracts the epic from its ritual context of origin, conducts a close reading of the text, and then relies on pre-existing aesthetic categories to interpret and classify its content.

On the functional side, studies concentrate on the multiple roles Yalu Wang plays within Mashan Miao society, focusing especially on such cultural and educational functions as the construction of ethnic identity, the transmission of historical memory, and moral edification. Yang Lan, for instance, in *Social Functions of the Miao Epic Yalu Wang*, systematically

explicates the plural functions the epic carries within the everyday life of Miao society, covering the training of transmitters, the construction of ethical norms, and cultural transmission. Beyond textual analysis, studies on this pathway likewise treat ritual as a core component of the “function” category, ultimately establishing a correspondence between the functional features identified and the structural requirements of Miao society; particular attention is given to whether the various functions of the epic can be sustained in the context of digitalization. Chao Gejin has pointed out that Yalu Wang combines the features of a creation epic, a war epic, and a migration epic, and is thereby to be regarded as a compound (*fuhexing*) epic. This judgment is a reminder that the manifold functions catalogued above are in fact interlocked and nested within a far more complex generic structure, and whether this compound structure tends to weaken or deconstruct the educational function of the epic—and in particular whether its aesthetic-educational function can continue to exert an effect—are questions that still await further clarification.

The contribution of these two pathways should be acknowledged. Yet something else should also be observed: the longitudinal depth of the field has not been correspondingly extended. For example, the question of how aesthetic sentiment in Yalu Wang acquires the force of disposition, and the question of its precondition and mechanism, have not been adequately excavated. Investigating such a precondition and mechanism requires that work be carried out in the field on the basis of the text; only when textual and ethnographic work are combined can such depth be attained. Reading the existing literature, one finds that work in which field investigation has been carried out with care does not necessarily yield marked theoretical results, while work in which the theoretical contribution is marked is often under-supported by ethnography. On this basis the present study diverges from the two pathways sketched above as

well as from other approaches: it seeks to answer one fundamental question directly—namely, when a participant or an attendee hears a song master (geshi) chant the migration and wars of Yalu Wang within a funerary ritual, why does the body respond? Why is feeling mobilized? And how does this feeling come to settle into something lasting? For aesthetic inquiry, describing what is “beautiful” is not the same as explaining how beauty operates; for functional inquiry, stating that something is “useful” is not the same as disclosing how that usefulness actually arises. To move, therefore, from textual description to the explanation of internal mechanism is the central concern of the present study, and the radical source from which its account of the aesthetic-educational mechanism takes its bearings.

1.2 The Core Attributes of the Ritual-Aesthetic Field

The shift from outside to inside, and with it the conversion of the unit of analysis, is the key to the inquiry. This study takes the field of the entire Miao funerary ritual as its object of study—that is, the ritual-aesthetic field, a dynamic whole constituted jointly by song masters, audiences, participants, the space of the mourning hall (lingtang), the sphere of the drum, the sphere of the lusheng, bodily postures, and the sound waves of chant.

The actual mode of being of Yalu Wang is not a written text. It is a living ritual performance of chanting, embedded strictly within the specific field of the funerary ritual. Within the ritual, the song master chants throughout the night beside the coffin in the mourning hall; the listeners include the deceased's kin, members of the village, and kinfolk who have traveled from afar. The chanting extends from the onset of night until daybreak, lasting one night or several, the duration depending on the status and the economic circumstances of the deceased. There are presently three legible versions of Yalu Wang in existence, each compiled by

abstracting the epic from its ritual setting; while these have facilitated scholarly research, they have also made it easy to forget that the mode of reception proper to the epic is not reading.

Within the ritual, what Yalu Wang is for its participants is a sonic event occurring in a specific time and space. The song master's voice rises into the mourning hall; the sounds of the drum, the music of the lusheng, the tones of the suona horn, and the crash of firecrackers come rushing in; those present begin to respond in chant, to weep, to fall silent—and all of this that takes place within the field constitutes the aesthetic experience of the participants. The body, in this aesthetic experience, comes to discover the effectivity of an aesthetic education of the body: “bodily aesthetics concerns itself not only with the external form or performance of the body, but with its lived experience, and accordingly devotes itself to the improvement of our awareness of bodily states and feeling, thus providing insights of greater importance regarding our passing emotions and our enduring attitudes” (Shusterman, 2007, p. 186). Every participant who is present not only acquires an individual form of feeling, but also stores within themselves a greater number of thoughts and attitudes toward life and death. To speak of the aesthetic effect of Yalu Wang apart from the field and from bodily participation would be no different from substituting the script for the play. The force of drama lies in the special narrative of space jointly created by the actors through bodily and verbal language in company with the audience; in the same way, the aesthetic-educational force of this epic, like that of drama, requires a field jointly constructed on the ritual site by the song master and the listeners.

The specificity of this field is, in the first place, manifest in its spatial structure. The mourning hall is organized around the deceased's coffin as its center; the song master chants at the side, and the audience sits encircling the central space, producing a centripetal layout. Each participant is situated within this arrangement: the village's physical space constitutes the

community, with the deceased and the song master at its center, and the entire field is enveloped by the sacred character of ritual space. As participants, those present cannot maintain a distance from the object, nor do they observe it from the position of a detached spectator from a theater seat. The spectator is inside the ritual and is unable to withdraw from it in order to observe it. Just as a mirror cannot reflect itself—the character of the mirror itself lies within the world.

Of greater consequence is the field's non-contemplative character. The aesthetic experience of the Western aesthetic tradition—whether the “disinterested” contemplation in the Kantian sense or the later formalist insistence on the autonomy of art—presupposes a distance between subject and object. The wall of the museum gallery, the stage of the concert hall, the page of the book are all physical devices by which this distance is produced. The subject grasps the object by way of “seeing” or “reading,” and the core of aesthetic experience lies in understanding and judgment. The ritual field abolishes this distance. The participant is already absorbed into sound, space, and the gathered crowd; there is no observer's position from which one might withdraw. The manner of being in which the participant is “in the event” determines that the aesthetic education here is not brought about through “understanding the object” but is realized through being thrown, by bodily practice, into the situation. Even children of tender years, through this daily aural and visual immersion, receive this particular mode of aesthetic education.

1.3 The Auditory Construction of the Soundscape

The soundscape, also known as the acoustic landscape, refers to a sonic environment in the ecological sense—one that foregrounds the interactive relation among listener, environment, and sound, and foregrounds the perception of social and cultural information. The concept was first systematically advanced by the Canadian acoustic theorist R. Murray Schafer (2022). He

combined “sound” with “landscape” with the aim of investigating, from acoustic, psychological, sociological, and ecological perspectives, the interactive relation among sound, environment, and person in a given scene. When the Miao people chant Yalu Wang in funerary rituals to guide the spirit of the deceased back along the road to “Leidong,” the chanting of the Donglang (the master of chant in Miao funerary ritual) plays a decisive part. Without the Donglang's opening chant, none of the ritual's “operations” can take effect. Such is the importance, within soundscape theory, of the interaction between sound and person.

Among the constituents of the field, sound occupies a singular position. The chanting, the drum, the lusheng, weeping, the responses in chant (yinhe), and the like together weave an audiovisual environment that covers the mourning hall and the rest of the ritual site. It is not the “background music” of the ritual; it is the immediate object of aesthetic perception and its principal channel.

Within every ritual field, the song master's chanting is the center. The song master controls the extension of emotion by adjusting the duration of vocal portamento (tuoqiang) in accordance with the demands of content, regulates the tension of the listeners through the speed of rhythm, and inserts pauses and rests to leave room for the listeners to breathe and to respond in chant. The difference between oral and written text becomes immediately visible in the ritual: faced with repetitive content and formulaic language, the written text appears monotonous, whereas in the oral text of the ritual, sound-performance possesses a particular efficacy. In terms of affective force, because of the entry of the soundscape, the sentiment evoked by reading the written text can never occupy the same position as the sentiment gained by being on the ritual site. The soundscape, therefore, provides the listeners with a familiar structural framework and lets them, in its repetition, enter into a stable and predictable auditory rhythm; this stability is precisely the

precondition for deep immersion. The Parry-Lord school of oral poetics, although directed primarily at narrative structure, retains a stress on the property of “poetry as sounded” that may nevertheless serve as a reference for grasping the performative character of Yalu Wang (Lord, 2004).

The relation between instrumental music and chanting is not one of mere accompaniment. The rhythm of the wooden drum, low and sustained, is transmitted through the ground and through the air alike to the bodies of the listeners; its quickness or slowness and the weight of its beats sometimes signify “the tragic” and sometimes the sublime. The lusheng unfolds in the intervals of the chanting: there are notes of mourning, notes of “celebration,” notes of farewell, and notes of consolation. The several voices interweave, generating an atmosphere of grief mingled with reverence. The alternation, overlap, and echo between chanting and instrumental music compose an audiovisual commonweal suffused with the seven emotions and the six desires (qiqing liuyu). The voices of the participants—their weeping, their chanting-responses, their sighs, their subdued speech—are themselves part of the soundscape. The audience is not a silent recipient; its sound flows into the entire sonic field, forming with the song master and the instruments a configuration of “many-voicedness” (zhongsheng). The voices of individuals and of the collective fuse, communicate, and deeply converse. This mutual confirmation in hearing is precisely the condition under which the communal dimension of aesthetic experience is brought into being.

Insisting on the ritual-aesthetic field as the unit of analysis, and fastening on the operative mechanism of aesthetic education as the core question, this study interrogates the concrete paths of affective generation and bodily internalization and distills a model of the aesthetic-educational mechanism of the oral tradition. It asks how “beauty comes to belong to the human being.”

Through this analysis, the inquiry asks whether there are modes of aesthetic education that arise outside visual contemplation and textual understanding, and whether the ritual aesthetic experience embedded in oral tradition can in turn illuminate the limits of contemporary aesthetic education.

II. From Function to Mechanism

2.1 The Limits of Functional Statements

As the “encyclopedia” of the Western Miao, Yalu Wang is functionally plural and unfixed; among the most frequently cited are ethnic identification, moral edification, and the transmission of historical memory. Naming a function by its outcomes is in itself unobjectionable; what the present study requires, however, is to explain how such outcomes arise, when, where, and by whom, and—within the process—what kind of function is being conveyed, whether moral or aesthetic in character. To say that an epic carries an “ethnic identification function” is, as a statement of fact, analogous to saying that food possesses the function of satisfying hunger; neither statement touches on how food is converted into the energy of the human body, on how the digestive system operates, on how enzymes do their work, or on how nourishment is absorbed. Likewise, the statement that the epic has an ethnic identification function does not tell us which link in the chanting, which element, and by what means, brings it about that a participant develops the feeling of being a part of the collective.

This distinction is no semantic nicety. Explanation by mechanism is required in order to account for why the reception of the same epic diverges so strikingly across different reception contexts. For readers unacquainted with Miao history, Yalu Wang scarcely provokes an intense affective response—its language is formulaic, its plot repetitive, and it lacks the delicate

descriptions common in written literature. When, however, readers step beyond the written text to the ritual site itself and become participants in the ritual, they find that the chanting can bring listeners to tears, can reduce kin to uncontrollable weeping in the mourning hall, and that especially the Donglang and the apprentices of Yalu Wang remain concentrated, deeply involved, and lest they be remiss in their attention. This contrast eludes functional explanation because it does not analyze the conditions under which the function is realized. Mechanism-oriented inquiry enters precisely here: what conditions make possible the operation of aesthetic force, by what paths does this force work upon the participant, and what kind of enduring effect does it leave behind?

2.2 How Sentiment Is Aroused

The generation of sentiment within the chanting of Yalu Wang is structured; it is brought about through the coordination of specific narrative types with specific sonic forms. Its central link is the alternating arousal and reciprocal intensification of sentiments of the sublime and of tragic experience.

In speaking of Yalu Wang, we must be clear about his threefold identity: as a creation hero who rebuilt the homeland, as an ancestral leader who led his people away from war, and as an ancestral god—the three layers superimposed in a single figure. First, as the creation hero who rebuilds the homeland, he opens up heaven and earth and establishes order. The verse states: Whom did Yalu Wang send to make the sun? / Whom did Yalu Wang send to make the moon? / Gasaiyong went to make the sun, Gasaiyong went to make the moon (China Folk Literature and Art Association, 2011). As creation hero, Yalu Wang assigns each task: some make the mountains and rivers, some make the sun and moon, some make the flowers, grasses, and trees.

Second, as the ancestral leader who led the Miao forebears away from war through a migration of a thousand li, traversing innumerable mountains and rivers in search of a new homeland: Yalu Wang led the Miao forebears in their migration across thirty-five regions; the route of each branch differed, and so did the place-names along the way. Third, as ancestral god he transcends life and death and becomes the object of perpetual remembrance and supplication by later generations. As the sixth son of the ancestral god, Yalu Wang possesses the quality of spirit: when in any difficulty he can directly appeal to the prophet-grandmother in the spirit-realm of Leidong, and she, dwelling in that spirit-realm, brings his wish to fulfillment. As ancestor, he is the object of Miao remembrance; as ancestral god, he is the deity whom the Miao implore for blessings. Such a triple identity endows the figure of Yalu Wang with what Kant described as “greatness”—his strength, wisdom, and deeds all exceed the reach of ordinary experience.

Such greatness is further amplified in the chanting by sonic form. When the song master comes to the passages on heroic deeds, he typically slows the rhythm, extends the portamento, and weights the drumbeats. The dilation of time carries the listener out of ordinary linear time into an extended, ritualized temporal dimension. Within that dimension, Yalu Wang, as a vast “be-ing,” is reawakened. Longinus, in *On the Sublime*, writes: “the sublime is the echo of a great soul” (Longinus et al., 2009, p. 15). The effect of the sublime is to produce in the listener a feeling of being elevated, as though one were infused with the greatness of what one hears. The aesthetic effect of hearing the Donglang chant the heroic Yalu Wang operates in exactly this way: out of reverence and worship, a dimension surpassing one's own ordinary being arises in the listener—a thrust of character.

Yet the sublime in Yalu Wang never appears in isolation; it is always encircled by suffering. The epic devotes considerable space to the departure of the Miao forebears from their homeland

in the east and to the manifold hardships endured in the long migration. Yalu Wang, although a hero, is unable to prevent the dispersal of the tribe and the loss of the homeland. His valor can repel the assaults of his elder brother, but it cannot alter the fate of migration. This migration narrative, an “Odyssean” hero-tale, generates a deeper tragic dimension. While the listeners revere and honor the hero, their souls also experience the grief of the tribe. The interweaving of reverence and grief produces an aesthetic experience far more complex and far more substantial than any single emotion. As for the expression of the spirit of Yalu Wang, “the Mashan Miao, by way of intuition and lived experience of this spirit, condense in their hearts a ‘Yalu Wang spirit’: behind their reverence for the spirit of the Donglang there remains, in the end, reverence for the spirit of Yalu Wang” (Luo, 2025). Repeated immersion in the ritual allows the depth of aesthetic education to become ever more deeply internalized in the heart.

This tragic experience acquires a formalized channel of expression within the ritual's formulaic framework. Weeping has its appointed occasion, chanting-response has its appointed passage, silence has its appointed place. When the Donglang chants to the passages of Yalu Wang's migration, those most deeply affected knit their brows in thought; kin recollect the past; some weep, some sob. All the kin know that the deceased, like the ancestors with Yalu Wang himself, must cross high mountains and contend with fierce beasts. At certain tragic passages the entire assembly falls silent, only the drum sounding low in the mourning hall. Grief does not erupt in disordered fashion; it is taken up into the rhythm and structure of the ritual and converted into an aesthetic feeling that is expressible, bearable, and capable of being shared in the collective. For ordinary observers, those who see feel compassion, those who hear feel desolation; for kin, those who see cover their faces and weep, those who hear are moved by mingled grief and joy.

Aristotle (1996) defined the function of tragedy in the *Poetics* as follows: through the arousal of pity and fear, these emotions are given a cathartic release. If pity and fear are not purified, they become emotional toxins that wound the soul. Tragedy, by aestheticized handling, allows these emotions, at the very moment of arousal, to find a channel for release and transformation. The suffering narrative of the chanting of Yalu Wang arouses in the listeners grief; through chanting-response and weeping this grief takes formal expression (whether by drum, by lusheng, by chanting, by suona, or the like); and in the end, by way of collective resonance, it is transformed into a solemn sense of belonging, a reverence for life, a sacred sense of the soul, and a remembrance of ancestors. The passage from grief to reverence—this transformation of tragic and sublime aesthetic feeling—is the affective mechanism through which aesthetic education becomes operative.

2.3 The Bodily Channel of Auditory Immersion

The generation of affective states requires an unobstructed channel of perception. In the ritual of Yalu Wang, this channel is principally carried by the auditory. Compared with the visual, the auditory possesses a more immediate corporeal touch. Vision presupposes a distance between subject and object; for “seeing” to take place, the object and subject stand apart. The auditory is different: sound pierces the bodily boundary of the listener and enters the listener's interior. Unlike vision, the auditory cannot be shut off and turned away in order to be transmitted; the compulsion of sound makes hearing the most effective medium in the ritual for producing immersion.

The vocal environment of the chanting acts upon the body and the emotions of the listeners through multiple mechanisms. The most basic is the drawing of bodily rhythm by rhythm itself.

The drum is transmitted to the entire body in two ways, through the ground and through the air (the latter mediated by auditory capacity). The repeated rhythm of the drumbeats will naturally bring about a synchronization of inner bodily rhythms—such as heartbeat, respiration, and muscular tension. This bodily “being-drawn-along” occurs prior to consciousness; it constitutes the embodied foundation on which the participant enters the aesthetic state.

Secondly, the rise and fall of the song master's voice directly modulates the emotional curve of the listeners. The extension of portamento produces suspense and anticipation; acceleration of rhythm produces tension and excitement; sudden pauses produce suspension and stillness. For example, the introductory (yinyan) chanting passages and the main-body chanting passages differ: in a sorrowful passage of the introduction—“warfare was not to be permitted to occur, yet warfare has already occurred; war was not to be allowed to erupt, yet war has already erupted” (China Folk Literature and Art Association, 2011).—the effect is produced even without the listeners' grasping the literal meaning of the words sung. Lord (2004), in his classic study of Yugoslav epic singers, points out that the musicality and rhythmicity of oral epic possess an affective power independent of semantic content; the hearer is often first moved by the sound and only afterward moves to grasp the meaning. An affective power of this kind that does not depend on understanding is precisely the key feature distinguishing aesthetic education in oral tradition from aesthetic education in textual reading.

Finally, the lusheng melody unfolds in the intervals of the chanting and assumes the function of emotional conversion, allowing emotion to settle and circle in purely musical form. In the Miao areas of southern and western Guizhou, the wooden drum and the lusheng typically work in concert in Miao funerary ritual; the lusheng, in turn, interacts with dance and can independently discharge a range of ritual functions such as summoning the soul of the deceased,

paying homage, performing libations, and guiding the dead on the return journey. The lusheng accomplishes narration in the form of “lusheng words” (lushengci), and a clear correspondence obtains between its melodic structure and the ritual stages. Although this observation originates in the funerary music-and-dance practices of different Miao branches, it can serve to indicate, by way of lateral evidence, that the alternation between lusheng performance and textual narration in the chanting of Yalu Wang is not an incidental matter of accompaniment; it is the intrinsic logic of the vocal-instrumental structure of Miao funerary ritual itself. The generation of this structure and function requires the participants of the ritual to undergo accumulation through the auditory aesthetic experience, and thereby to deepen the constructive effect on the aesthetic soul.

2.4 How the Body Internalizes Experience

The arousal of emotion and the immersive experience both take place within the ritual field. But aesthetic education ought not merely to produce an experience in the moment; it seeks a lasting change of disposition. After the ritual concludes, what does the participant who wept in the mourning hall carry away? If aesthetic education were nothing more than the stimulation of feeling in the moment, its significance would be quite limited. The real question is how aesthetic experience is converted from an event of life and death into an education of character for the whole of life.

The answer lies in the body. The bodily practices of the ritual—kneeling, prostrating the head, chanting-response, weeping—are precisely the pathways by which aesthetic feeling gains its preservation.

Here we must first adjust our understanding of “the body.” Common sense tends to regard the body as the container or instrument of the mind: feelings are first produced “within,” and are

then expressed “externally” through the body. The phenomenology of the body has powerfully refuted this inner-outer dualism. In *Phenomenology of Perception*, Merleau-Ponty (2001) repeatedly argues that the body is not something we “have” but the very mode by which we “are.” It is not the case that we sense the world in the head and then act through the body; rather, it is through the body that we perceive, understand, and grasp the world. The body is both the one who exists and existence itself. Emotion, too, is not a pre-existing “internal state” that precedes bodily expression; grief comes to be in the bodily act of weeping, and reverence is experienced in the bodily posture of kneeling. Bodily expression is not the external symbolic representation of feeling; it is the complete realization of feeling.

Starting from the theory of somatic aesthetics (*shenti meixue*), the kneeling, prostration, and chanting-response of kin in the funerary ritual are not the expression of internal feeling but the embodied generation of aesthetic experience itself. When the chanting of the epic arouses grief, the body of the participant, by a specific mode of engagement, takes part in the formation of that grief: the lowered head gives grief its bodily form; the kneeling knee makes reverence the actual state of the body. Feeling is not first formed at the psychological level and then “flows” onto the body; rather, feeling completes its own generation in the actions and postures of the body.

The repetitiousness of bodily practice brings a still deeper effect. The ritual is not a one-time event. A Mashan Miao person participates repeatedly in funerary rituals across the course of a life, repeatedly hears the chanting of Yalu Wang, and repeatedly enters into the bodily states of kneeling, chanting-response, weeping, and grief. This repetition establishes a stable correlation between specific bodily postures and specific affective states and gives rise to what may be called an aesthetic habitus. Bourdieu's concept of habitus may be usefully borrowed here: it is a system of dispositions stored in the body, capable of being automatically summoned in future

situations; it is the “history made body,” the process by which external structures are internalized as bodily dispositions. [Note: the source text cites reference for this passage, but the supplied reference list contains only entries ; the corresponding Bourdieu citation has not been located in the original manuscript and should be supplied by the author.] A Miao person who has long been away from Mashan, hearing in some strange land a lusheng melody or a fragment of the chanting of Yalu Wang, will find the body react prior to consciousness, the heart's mood flowing naturally forth. The Miao proverb “when the lusheng sounds, the soles of the feet grow itchy” is the best proof of this. Such is the result of the aesthetic education stored in the body—a result that continues to operate across time and space.

2.5 Collective Synchrony and Community

Functional studies state that Yalu Wang possesses an ethnic identification function, but they typically do not explain how this identification is actually produced within concrete experience. The answer that mechanism analysis offers is this: the synchronizing of collective bodies is the key link.

Within the ritual, bodily practice is not the isolated behavior of individuals but a collective synchrony. All together kneel, chant-response, fall silent, and weep. The consonance of bodily rhythm has a singular effect: it lets the individual feel, at the bodily level, the consonance with others and thereby gives rise, at the affective level, to an experience of “community of feeling.” From bodily synchrony to affective confluence is the basic path by which a sense of community is generated.

Durkheim, in *The Elementary Forms of Religious Life*, discerned this principle in his analysis of collective ritual. He observed that when people gather to perform common bodily

actions and to issue common vocal expressions, a state of “collective effervescence” arises, within which the individual surpasses his own isolated existence and feels the force of the group. Van Gennep, in *The Rites of Passage*, likewise noted that collective bodily behavior in ritual has the function of reintegrating the individual into the group. For the funerary ritual, the common behavior of the participants is precisely the means by which the community reconstitutes its wholeness after the loss of a member.

In the funerary ritual of Yalu Wang, the collective bodily synchrony differs in affective tone from the “effervescence” that Durkheim discussed—it is the synchrony of mourning and reverence—but the mechanism by which a sense of community is produced is the same. The collective sound of weeping, the shared rhythm of chanting-response, the solemnity of collective silence—all transmit to each participant the same message: your grief is not isolated; your body shares a rhythm with that of others; you belong to this community that is now mourning and remembering together. At the moment that the individual is in bodily synchrony with the group, his feeling also flows together with the group, and the individual grief is thereby converted into the community's solemn memory. In this sense, aesthetic education is not only individual but also communal education—it is through bodily synchrony that the individual confirms, in the deepest layer of feeling, his indivisibility from the group.

III. From Case to Theory

3.1 A Three-Layer Model of the Mechanism

Drawing the foregoing together, the aesthetic-educational mechanism of Yalu Wang may be distilled into a three-layered structure: the ritual-sublime layer, the auditory-immersion layer, and the embodied-internalization layer.

The ritual-sublime layer is the source of energy. The heroic narrative and the memory of suffering in the field, mediated by the vocal form of the chanting, arouse sentiments of the sublime and of tragic experience and provide the emotional energy that aesthetic education requires. The arousal of the sublime produces in the participant an impulse to converge upon the heroic personality; the catharsis of tragic experience converts grief into a solemn sense of belonging and of gratitude toward ancestors. Without this layer, there would be no content to be perceived and internalized in what follows.

The auditory-immersion layer is the channel of perception. The soundscape composed of chanting voice and of drum, lusheng, and other instruments allows emotional energy to act directly upon the body and the emotions of the participants without passing through any conceptual intermediary. Rhythm draws bodily rhythm along; melody modulates the emotional curve; the repetition and variation of sound produces the depth of immersion. Auditory immersion ensures the intensity of the aesthetic experience, so that the generation of feeling does not remain at the level of shallow sentiment but reaches a degree sufficient to alter the state of body and mind.

The embodied-internalization layer is the ultimate point of arrival. Collective bodily practice inscribes the affective experience in bodily memory and forms an aesthetic habitus that can be summoned in future situations; this allows the effects of aesthetic education to exceed the spatiotemporal limits of the ritual site. Through the repeated enactment of bodily behaviors—kneeling, prostrating the head, chanting-response, weeping—aesthetic feeling acquires its storage at the bodily level and is transformed into an enduring element of the participant's structure of character.

The three layers are mutually dependent. Without the arousal of the ritual sublime, auditory immersion would be no more than sonic stimulation; without the support of auditory immersion, the intensity of sublime feeling would be insufficient for catharsis and conversion; without the embodied-internalization layer as the point of arrival, the affective experience would dissipate as the ritual ended. Only when the three are unified is the aesthetic-educational event complete. This structure also explains why the aesthetic-educational effect of Yalu Wang cannot be fully reproduced in textual reading divorced from the ritual. The written text lacks the channel of sonic immersion and the point of arrival in bodily participation; the mechanism of aesthetic education is incomplete, and the effect is inevitably lost.

3.2 Implications for Contemporary Aesthetic Education

The significance of this model is not confined to the study of Yalu Wang; it points to a dimension long neglected in the theory of aesthetic education within the oral traditions of China's ethnic minorities, and it constitutes a critical point of reference that, starting from the periphery, casts light back upon the center.

The dominant paradigm of aesthetic education in contemporary schools is visual contemplation: art class faces the painting, music class faces the performance, literature class faces the text. The student is always in a passive position; the aesthetic experience depends upon viewing, reading, and understanding; the body is required to remain quiet and still; emotional fluctuation is confined to after-class discussion or writing. The deep presupposition of this paradigm is that the goal of aesthetic education is to cultivate the understander, and that the core of aesthetic capacity is the capacity for understanding and judgment.

The mechanism model of Yalu Wang points to a different path. In the ritual aesthetic, the goal is not to cultivate the understander but to shape the participant—one who, by being drawn into the aesthetic event, internalizes aesthetic feeling, through bodily participation, as part of his own disposition. The core of aesthetic capacity is not understanding and judgment but responsiveness (*ganshouli*) and empathic capacity (*gongqingli*). This capacity does not depend on the analytical understanding of the object but on the bodily experience of being present and taking part.

It is not being suggested that school aesthetic education should replicate the funerary ritual. The sacred space-time at the threshold of life and death on which the ritual-sublime layer depends cannot, and should not, be reproduced in an educational setting. But the implication of the mechanism does not lie in the specific form of ritual; it lies in a renewed understanding of the conditions under which aesthetic education can occur: aesthetic education can be designed to proceed by way of the construction of field, of sonic immersion, and of bodily participation, and not only by way of the display of the work, the contemplative analysis of the work, and the verbal expression of that analysis. In contemporary practice one can already discern cognate explorations: Orff music education's emphasis on bodily movement and rhythmic participation; drama education's use of role-playing and bodily expression; community arts education's attention to collective creation and joint participation. All of these touch, in varying degrees, upon the possibility of an embodied aesthetic education. Yet at the theoretical level these practices lack a framework that can systematically account for the deep relation between body and aesthetic education. The mechanism model of Yalu Wang can provide an empirical foundation, drawn from a local oral tradition, for such theoretical construction.

At the level of bringing intangible cultural heritage into the schools, in the case of oral traditions such as Yalu Wang, one might explore a path of listening–imitation–bodily participation–creative expression: listening to chanting recordings so as to build up an auditory sense; imitating the rhythms and timbres of the song master in order to enter into the interior of the sound; experiencing a community feeling through collective chanting-response and bodily movement; and finally undertaking creative transformation in the form of drawing, drama, or writing. This is different from treating the epic as a literary text to be lectured on; it attempts to reconstruct certain of the conditions under which aesthetic education arises—sonic immersion and bodily participation—even if it cannot reproduce the sacredness of the ritual field.

3.3 The Ethical Boundary of Transformation

In discussing contemporary transformation, one issue that cannot be bypassed is the ethical boundary of culture. The funerary ritual possesses, within Mashan Miao society, a sacred character; the chanting of Yalu Wang is, in the first instance, an internal life-practice of the ethnic group, and is not a cultural performance for outsiders to view. To detach ritual elements from their original context for educational purposes carries in itself a risk of secularizing the sacred and of objectifying the practice of the subject. This is not a peripheral issue that can be set aside; it is the fundamental condition that determines whether the entire scheme of transformation is justified.

Accordingly, any scheme of transformation must take the informed consent and active participation of cultural holders as its precondition. The subjects of transformation should be the song masters, transmitters, and community members of the Miao community itself, and not external educators or researchers. What external parties can provide is not the design of the

scheme but the conditions of dialogue and the support of resources. Nor is the goal of transformation the cultivation of Miao-culture “appreciators”—a more refined version of the viewer's role, still lodged in the position of looking. The true meaning of the aesthetic education of Yalu Wang lies precisely in breaking with the position of looking; it requires that the participant's body truly enter in.

This ethical limitation does not weaken the value of the research. On the contrary, it brings to light a deeper fact: the aesthetic education of Yalu Wang has its force precisely because it is real—real death, real mourning, real communal memory, real turning-points of life. One predicament of contemporary aesthetic education is perhaps that the aesthetic experience it provides is too safe, too much like an exercise, lacking the force of direct contact with the depths of life. It is not that aesthetic education should manufacture danger or grief; rather, if it wholly insulates itself from those heavy things in life—death, suffering, loss, impermanence—it forfeits the capacity to shape an integral personality. The implications of Yalu Wang exceed the level of intangible heritage preservation or ethnic education; they point to a fundamental question in the theory of aesthetic education: how aesthetic education may once again become something directly relevant to the lived experience of human beings.

Conclusion

With respect to how the heroic epic chanted within the funerary ritual achieves aesthetic education at the level of the participant, existing research has not yet offered a clear answer. None of the earlier research pathways has touched upon the mechanism through which the aesthetic effect is generated. Their common limitation lies in taking as the unit of analysis the epic text itself, thereby excluding the process of interaction between recipient and text.

The realization of aesthetic education depends upon the construction of the ritual-aesthetic field. Heroic narrative arouses the sublime and tragic experience, providing the affective energy; the soundscape builds an immersive channel of perception, allowing feeling to act directly upon body and emotion without passing through conceptual intermediaries; collective bodily practice inscribes the affective experience in bodily memory, shaping an aesthetic habitus that can be activated by future situations. The three together compose the mechanism structure of “ritual-sublime → auditory-immersion → embodied-internalization.”

The research carries out the move from the description of attributes—what is “beautiful” and what is “useful”—to the explanation, at the level of process, of how these arise; the move from the epic text to the ritual-aesthetic field; and the move from a single case to the distillation of a general model. Hence, aesthetic education need not necessarily proceed by way of the contemplative distance of subject from object; it may also take its start from the immersive participation of a subject who is himself part of the field. Yalu Wang preserves a sample of an aesthetic-educational formation that has been obscured by the visuocentric aesthetic tradition; the analysis of its mechanism constitutes a revelation of the fundamental deviation of contemporary aesthetic-education theory. In future work one may advance comparison with the oral epics of other ethnic groups and dialogue with experimental work in embodied aesthetic education.

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**Yoga Among Children in India: An Explorative Review of Current Evidence,
Challenges, and Future Directions**

Revathi Munirathinam ^{1*}, Hithiksha Sri Suresh ², Nikhilesh Suresh ²

1 Engineering Department, Scientific Society Group, Tiruvannamalai, Tamilnadu – 606805,
India.

2 Air Force School Avadi, Chennai, 600062, India.

*Corresponding author: Revathi Munirathinam; email: drsaralah@gmail.com

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Abstract

Yoga has emerged as an important non-pharmacological intervention for promoting children's physical, psychological, cognitive, and social well-being. As the birthplace of yoga, India has increasingly integrated yoga into educational and healthcare systems through national policies and school-based initiatives. Despite widespread implementation, evidence regarding its effectiveness, accessibility, and sustainability remains fragmented. This exploratory review synthesizes existing literature on yoga among children in India, examining its historical evolution, physiological and psychological benefits, educational outcomes, policy initiatives, implementation challenges, and future research directions. A narrative review methodology was adopted through an examination of peer-reviewed journal articles, government reports, and international publications indexed in Scopus, PubMed, Web of Science, Google Scholar, and official government databases. The literature consistently demonstrates that yoga improves flexibility, muscular strength, respiratory efficiency, attention, emotional regulation, stress management, academic performance, and social behaviour among children. Evidence also supports its application in children with neurodevelopmental disorders, including autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD). Nevertheless, disparities in implementation across Indian schools, inadequate instructor training, infrastructural limitations, and the absence of standardized curricula remain major barriers. The review concludes that yoga represents a culturally appropriate, cost-effective, and evidence-based strategy capable of promoting holistic child development in India. Future research should emphasize longitudinal intervention studies, standardized outcome measures, and nationwide implementation frameworks.

Keywords: Yoga Children, School Health, Mental Health, Physical Fitness, Child Development, Holistic Education

Introduction

Children represent one of the most vulnerable populations undergoing rapid physical, cognitive, emotional, and social development. Contemporary childhood in India is increasingly characterized by academic competition, sedentary lifestyles, excessive digital screen exposure, reduced physical activity, psychological stress, obesity, anxiety, and behavioural difficulties (World Health Organization [WHO], 2020). These emerging public health concerns have stimulated interest in complementary approaches that support holistic child development beyond conventional healthcare and educational interventions.

Yoga, an ancient Indian discipline dating back more than 5,000 years, integrates physical postures (Asanas), breathing techniques (Pranayama), meditation (Dhyana), relaxation, and ethical principles to promote harmony between the body and mind (Iyengar, 2005). Traditionally regarded as a spiritual practice, yoga has evolved into a globally recognized health-promoting intervention supported by an expanding body of scientific evidence. Numerous studies indicate that yoga contributes positively to physical health, psychological well-being, emotional resilience, cognitive functioning, behavioural regulation, and quality of life among children (Field, 2016; Telles et al., 2013).

India has taken significant steps to institutionalize yoga through national initiatives such as the International Day of Yoga, the Ministry of AYUSH, the Fit India Movement, and the National Education Policy (NEP) 2020. Yoga is increasingly incorporated into school curricula and extracurricular activities across both government and private educational institutions. However, implementation varies considerably across regions due to differences in infrastructure, trained personnel, institutional commitment, and resource availability.

Despite the increasing popularity of yoga in Indian schools, a comprehensive synthesis of existing evidence remains limited. Most available studies focus on specific physiological or psychological outcomes rather than providing an integrated understanding of yoga's role in child development. Consequently, an exploratory review is warranted to consolidate current knowledge, identify implementation challenges, and highlight future research priorities.

Therefore, the primary objective of this review is to examine the current evidence regarding yoga among children in India, with particular emphasis on its physical, psychological, cognitive, educational, and social benefits, while identifying gaps that require further investigation.

Methodology

This article adopts a narrative exploratory review design. Literature was identified through searches of PubMed, Scopus, Web of Science, Google Scholar, ERIC, and official reports from the Ministry of AYUSH, the Ministry of Education, and the World Health Organization. Keywords included Yoga, Children, India, School Yoga, Mental Health, Child Development, and Yoga Intervention. Peer-reviewed articles published primarily in English between 2000 and 2025 were considered. Government policy documents and international guidelines relevant to yoga and child health were also reviewed.

The selected literature was analysed thematically under six major domains:-

- (1) physical health,**
- (2) psychological well-being,**
- (3) cognitive development,**
- (4) educational outcomes,**
- (5) social and behavioural development, and**
- (6) implementation challenges.**

3. Historical Development of Yoga in India

Yoga occupies a central place in Indian cultural heritage and has evolved from a spiritual discipline into an evidence-based health intervention. Ancient texts such as the Rig Veda, Upanishads, Bhagavad Gita, and Patanjali's Yoga Sutras provide the philosophical foundations of yoga (Feuerstein, 2003). Contemporary school-based yoga primarily draws upon Hatha Yoga, emphasizing physical postures, controlled breathing, and relaxation.

International recognition of yoga expanded following the declaration of 21 June as the International Day of Yoga by the United Nations in 2014. Subsequently, the Government of India strengthened institutional support through the establishment of the Ministry of AYUSH and nationwide school-based yoga programmes.

Today, yoga is recognized not merely as a traditional practice but as an evidence-informed intervention for promoting child health and educational outcomes.

Discussion

Physical Health Benefits

The literature consistently demonstrates that yoga contributes significantly to children's physical health. Regular practice enhances muscular strength, flexibility, postural alignment, balance, coordination, respiratory efficiency, cardiovascular endurance, and overall physical fitness (Galantino et al., 2008). Yoga also addresses childhood obesity by encouraging active lifestyles and improving metabolic functioning.

Breathing exercises, particularly Pranayama, improve lung capacity and respiratory endurance among school-aged children, making yoga beneficial for children with mild respiratory disorders.

Psychological and Emotional Well-being

One of the strongest areas of evidence concerns the positive influence of yoga on children's mental health. Numerous intervention studies report reductions in stress, anxiety, emotional instability, aggression, and depressive symptoms following regular yoga practice (Field, 2016).

Yoga enhances emotional regulation through mindfulness practices that improve children's ability to recognize, understand, and manage emotions. Relaxation techniques activate the parasympathetic nervous system, reducing physiological stress responses and promoting emotional resilience.

Cognitive Development and Academic Performance

Research indicates that yoga positively influences executive functioning, including attention, working memory, inhibitory control, and cognitive flexibility. Improved concentration enables children to participate more effectively in classroom learning.

Several Indian studies have reported improvements in academic achievement, particularly in mathematics, language, and problem-solving abilities following structured yoga interventions.

Social and Behavioural Development

Yoga encourages empathy, cooperation, patience, and positive interpersonal relationships. Children participating in school yoga programmes demonstrate reduced aggression, fewer behavioural problems, improved classroom discipline, and enhanced peer interaction.

These findings are particularly relevant given increasing concerns regarding bullying, classroom misconduct, and emotional dysregulation among school-aged children.

Yoga for Children with Special Needs

Emerging evidence suggests that yoga is beneficial for children diagnosed with ASD, ADHD, learning disabilities, and intellectual disabilities. Improvements have been reported in attention

span, emotional regulation, communication skills, motor coordination, and adaptive behaviour. Although promising, further randomized controlled trials are required to strengthen the evidence base.

Challenges in Implementing Yoga in Indian Schools

Despite policy support, implementation remains inconsistent. Key barriers include:

Shortage of qualified yoga instructors.

Limited infrastructure in rural and government schools.

Inadequate instructional time due to academic demands.

Variability in curriculum content.

Limited monitoring and programme evaluation.

Misconceptions regarding yoga as solely a religious practice.

Lack of longitudinal outcome assessment.

Addressing these challenges requires coordinated efforts from policymakers, educators, healthcare professionals, and researchers.

Future Directions

Future research should prioritize:

Longitudinal studies evaluating sustained effects of yoga.

Standardized intervention protocols.

Randomized controlled trials across diverse populations.

Integration of digital technologies for yoga instruction.

Inclusive programmes for children with disabilities.

Teacher training and professional certification.

Evaluation of policy implementation under NEP 2020.

Cost-effectiveness analyses of nationwide school-based yoga programmes.

Conclusion

Yoga offers a comprehensive and culturally relevant approach to promoting holistic child development in India. The available literature indicates consistent benefits across physical, psychological, cognitive, educational, and behavioural domains. National policy initiatives have created favourable conditions for integrating yoga into school education; however, implementation remains uneven due to infrastructural and human resource constraints. Future research employing rigorous methodologies and standardized evaluation frameworks is essential to strengthen the evidence base and guide policy development. Given its affordability, accessibility, and cultural acceptance, yoga has substantial potential to contribute to healthier, more resilient, and academically successful children in India.

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**Yoga Among Children in Malaysia: An Explorative Review of Current
Evidence, Challenges, and Future Directions**

Revathi Parmasivam ^{1*}, Vishnuram Thennarasan ², Subadhara Priya Thennarasan ², Vedha
Priya Thennarasan ²

1 Pharmacy Assistant, Klinik Kesihatan Kangar, 601000 Perlis, Malaysia.

2 Sekolah Jenis Kebangsaan Tamil Kangar, Perlis, Malaysia.

*Corresponding author: Revathi Parmasivam; email: drsaralah@gmail.com

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Abstract

Yoga has emerged as one of the most widely practised complementary mind–body interventions for promoting physical, psychological, cognitive, and social well-being among children. While extensive research has documented the benefits of yoga in countries such as India, the United States, Australia, and the United Kingdom, evidence from Malaysia remains comparatively limited despite growing public interest and increasing concerns regarding childhood stress, sedentary lifestyles, obesity, and mental health. This explorative review critically synthesises the current evidence regarding yoga among children in Malaysia while integrating international findings to provide a comprehensive understanding of its effectiveness, implementation challenges, and future research priorities. A narrative review methodology was employed through systematic searches of Scopus, PubMed, Web of Science, ScienceDirect, ERIC, PsycINFO, Google Scholar, and relevant government publications. Studies published primarily between 2015 and 2026 were examined together with seminal theoretical literature. The review demonstrates that yoga contributes positively to children's physical fitness, flexibility, balance, emotional regulation, attention, executive functioning, self-esteem, resilience, classroom behaviour, and social competence. Malaysian evidence, although limited, suggests that yoga may reduce stress and anxiety while enhancing children's psychological well-being. However, several barriers continue to hinder broader implementation, including limited school-based programmes, insufficient teacher training, lack of nationally standardised curricula, cultural misconceptions, and a shortage of high-quality longitudinal research. The review concludes that yoga represents a feasible and culturally adaptable complementary intervention that can support holistic child development in Malaysia. Future research should prioritise multicentre intervention studies, culturally appropriate programme development, and policy initiatives to facilitate the integration of yoga into school health and educational programmes. Existing reviews also recommend

stronger Malaysian evidence and suggest that appropriately designed school-based yoga programmes could benefit students' mental health and well-being.

Keywords: Yoga Children, School-Based Yoga, Mental Health, Child Development, Physical Activity, Well-being

Introduction

Children's health and well-being have become major public health priorities worldwide. Rapid urbanisation, technological advancement, increased academic demands, reduced physical activity, and excessive screen exposure have significantly influenced children's physical, psychological, and social development. These changes have contributed to increasing rates of childhood obesity, emotional distress, anxiety, behavioural problems, sleep disturbances, and reduced physical fitness. International organisations such as the World Health Organization have emphasised the importance of adopting holistic health promotion strategies that encourage regular physical activity, emotional resilience, and healthy lifestyle behaviours from early childhood.

Malaysia has experienced similar challenges over the past two decades. The country's rapid socioeconomic development has improved educational opportunities and healthcare services; however, it has also been accompanied by increasingly sedentary lifestyles among children. Many Malaysian children spend considerable time engaged in digital learning, mobile devices, television viewing, and other sedentary activities while participating less frequently in outdoor recreation and structured physical exercise. Consequently, concerns regarding childhood obesity, stress, anxiety, and reduced psychosocial well-being have increased among healthcare professionals, educators, and policymakers. These trends have prompted interest in complementary interventions that promote holistic child development while remaining feasible for implementation within schools and communities.

Yoga has attracted growing international attention as one such intervention. Originating in ancient India, yoga combines physical postures (asanas), breathing techniques (pranayama), meditation (dhyana), relaxation, and mindfulness practices to promote harmony between body and mind. Unlike many conventional exercise programmes, yoga integrates physical fitness with emotional regulation, self-awareness, concentration, and behavioural self-control. This multidimensional approach aligns closely with contemporary concepts of holistic education and child development.

Research conducted over the past two decades has demonstrated that yoga may improve flexibility, muscular strength, balance, posture, respiratory efficiency, emotional regulation, attention, executive functioning, classroom behaviour, resilience, and overall quality of life among children. School-based yoga programmes have also shown promise in reducing stress, anxiety, depressive symptoms, and behavioural difficulties while enhancing social-emotional learning and academic engagement. Nevertheless, many published studies originate from India, North America, and Europe, whereas comparatively few have investigated yoga among Malaysian children.

Within Malaysia, yoga has become increasingly popular through community organisations, wellness centres, universities, private educational institutions, and non-governmental organisations. However, school-based implementation remains limited and is not incorporated systematically into the national curriculum. The most comprehensive Malaysian review to date concluded that yoga appears to be an effective approach for helping school children cope with stress and anxiety and recommended that Malaysian schools consider incorporating yoga within physical education programmes. At the same time, the review emphasised the need for larger, methodologically rigorous studies to strengthen the national evidence base.

Malaysia's multicultural society also requires careful consideration of cultural and religious diversity when implementing yoga programmes. Contemporary educational practice generally presents yoga as a secular, evidence-based health intervention that emphasises breathing, movement, relaxation, and mindfulness rather than religious practice. Such an approach has facilitated broader acceptance while respecting the country's diverse cultural landscape.

Despite growing public interest, no recent comprehensive review has synthesised the available evidence concerning yoga among Malaysian children. Most published reviews either focus on adult populations or examine international studies without considering Malaysia's educational, cultural, and policy context. Addressing this gap is important because evidence-based recommendations can assist educators, healthcare professionals, researchers, and policymakers in designing culturally appropriate interventions that support children's holistic development.

Therefore, this review aims to critically examine current evidence regarding yoga among children in Malaysia by integrating Malaysian and international literature. Specifically, the review explores the physical, psychological, cognitive, educational, and social benefits associated with yoga participation; examines current implementation challenges; identifies research gaps; and proposes future directions for educational practice, health promotion, and policy development within Malaysia.

Methodology

Review Design

This study adopted an explorative narrative review design to synthesise the current evidence regarding yoga among children in Malaysia. A narrative review was considered appropriate because the Malaysian literature remains limited, diverse in methodology, and insufficient for

quantitative meta-analysis. Unlike systematic reviews that focus exclusively on highly comparable intervention studies, an explorative review enables the integration of empirical studies, systematic reviews, scoping reviews, government reports, educational policies, and theoretical literature to provide a comprehensive understanding of an emerging research area (Baumeister & Leary, 1997; Page et al., 2021).

The review was guided by the principles of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) to enhance transparency in the identification, screening, eligibility assessment, and selection of relevant literature (Page et al., 2021). Although this review does not present a formal meta-analysis, the PRISMA framework informed the search and reporting process. A comprehensive literature search was conducted using internationally recognised electronic databases to identify peer-reviewed studies examining yoga among children. The following databases were searched:-

Scopus

PubMed

Web of Science

ScienceDirect

ERIC

PsycINFO

Google Scholar

To complement the academic literature, policy documents and reports from the following organisations were also reviewed:-

Ministry of Health Malaysia

Ministry of Education Malaysia

World Health Organization (WHO)

United Nations Children's Fund (UNICEF)

Ministry of AYUSH (India)

The search covered studies published between January 2015 and June 2026, while seminal publications published before 2015 were included where necessary to provide theoretical and historical context. The following keywords and Boolean operators were used:

"Yoga"

"Children"

"School children"

"Malaysia"

"School-based yoga"

"Mental health"

"Physical health"

"Education"

"Mindfulness"

"Child development"

Inclusion Criteria

Studies were included if they met the following criteria:

Published in peer-reviewed journals.

Written in English.

Focused on children or adolescents aged 5–18 years.

Investigated yoga interventions involving physical postures, breathing exercises, meditation, or mindfulness.

Reported outcomes related to physical health, psychological well-being, cognitive functioning, academic performance, behaviour, or social development.

Included Malaysian studies where available, supplemented by international literature relevant to child populations.

Published between 2015 and 2026, with seminal references included where appropriate.

Exclusion Criteria

The following publications were excluded:

Studies focusing exclusively on adults.

Editorials, commentaries, and opinion papers without empirical data.

Conference abstracts lacking full-text publications.

Studies examining meditation alone without a yoga component.

Duplicate publications.

Non-English articles.

Data Extraction and Synthesis

Information extracted from each study included:

Author(s)

Publication year

Country

Study design

Sample characteristics

Age of participants

Type of yoga intervention

Duration and frequency of practice

Outcome measures

Principal findings

Study limitations

Given the heterogeneity of study designs, intervention protocols, and outcome measures, findings were synthesised narratively rather than statistically. Evidence was organised into thematic categories covering physical health, psychological well-being, cognitive development, academic performance, social development, implementation challenges, and future research priorities.

Quality of the Evidence

Priority was given to high-quality sources, including:

Systematic reviews

Meta-analyses

Randomised controlled trials

Scoping reviews

Longitudinal studies

Government policy documents

Scopus- and PubMed-indexed publications

However, the review also identified several methodological limitations within the existing literature. Many studies involved relatively small sample sizes, short intervention periods, inconsistent yoga protocols, and limited long-term follow-up. These limitations reduce the strength of causal inferences and highlight the need for more rigorous research, particularly within the Malaysian context.

Historical Development of Yoga in Malaysia

Yoga originated in ancient India more than 5,000 years ago and has evolved into one of the world's most widely practised complementary health interventions. Traditionally associated with spiritual and philosophical traditions, contemporary yoga is increasingly recognised as a scientifically supported mind–body practice that promotes physical fitness, emotional regulation, stress reduction, and psychological well-being.

In Malaysia, yoga was initially introduced through the Indian community during the late nineteenth and early twentieth centuries. Early practice was largely confined to Hindu cultural and religious settings. However, over the past four decades, yoga has expanded beyond its traditional roots and has become popular among Malaysians from diverse ethnic and religious backgrounds. Today, yoga is widely offered in wellness centres, fitness clubs, hospitals, universities, rehabilitation centres, and community organisations, particularly within urban areas such as Kuala Lumpur, Penang, Johor Bahru, and Ipoh.

The Malaysian public increasingly views yoga as a health-promoting activity rather than a religious practice. Many yoga programmes focus on physical exercise, breathing techniques, relaxation, and mindfulness while avoiding religious or spiritual instruction. This health-oriented approach has facilitated broader acceptance among educators, healthcare professionals, and parents.

Interest in yoga among children has grown steadily during the past decade. Several community organisations, including the Malaysia Yoga Society, have introduced school-based yoga classes, holiday camps, teacher workshops, and outreach programmes aimed at promoting healthy lifestyles among children. Reports from these initiatives indicate improvements in students' concentration, classroom behaviour, emotional regulation, and interpersonal relationships, although most evidence remains descriptive rather than experimental.

Despite increasing community interest, Malaysia has yet to implement a national school-based yoga curriculum. Unlike India, where yoga forms part of broader educational and health initiatives, Malaysian schools generally incorporate yoga only through individual projects, extracurricular activities, or collaborations with non-governmental organisations. Consequently, access to yoga remains uneven across regions and school types.

The available Malaysian research is also limited. Nanthakumar (2018) reviewed the use of yoga for managing stress and anxiety among school children and concluded that yoga appears to improve emotional well-being while recommending greater integration into school physical education. Nevertheless, the review emphasised that larger, well-designed intervention studies are required before firm conclusions can be drawn regarding effectiveness in Malaysian school settings.

Overall, yoga in Malaysia is transitioning from a predominantly recreational adult activity to a broader health promotion strategy with potential applications in child development, education, and preventive healthcare. Continued collaboration among educational institutions, healthcare providers, researchers, and policymakers will be essential to establish evidence-based programmes that are culturally appropriate and accessible to children from all backgrounds.

Theoretical Framework

Introduction

The benefits of yoga among children can be understood through several complementary theories in psychology, education, and health sciences. Unlike conventional physical exercise, yoga simultaneously influences physical functioning, emotional regulation, cognitive performance, behavioural development, and social relationships. Therefore, its effects extend beyond physical fitness and contribute to holistic child development. This review adopts three

well-established theoretical perspectives that best explain the multidimensional effects of yoga among children: Holistic Child Development Theory, Bronfenbrenner's Ecological Systems Theory, and Positive Psychology Theory.

Holistic Child Development Theory

Holistic Child Development Theory proposes that children's growth occurs through the integration of physical, cognitive, emotional, social, and moral development (Miller, 2007). Rather than viewing these developmental domains independently, the theory argues that improvement in one area positively influences functioning in others.

Yoga aligns closely with this perspective because it combines physical movement (asanas), breathing exercises (pranayama), relaxation, meditation, and mindfulness within a single intervention. Regular participation encourages children to develop physical strength and flexibility while simultaneously enhancing emotional regulation, concentration, self-awareness, and interpersonal skills.

For Malaysian children, this holistic approach is particularly relevant because current educational reforms increasingly emphasise balanced development alongside academic achievement. Integrating yoga into educational settings therefore has the potential to complement existing initiatives promoting student well-being and social-emotional learning.

Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory (1979) explains child development as the result of continuous interactions between children and the multiple environments in which they live. The theory identifies five interconnected environmental systems:

Microsystem: Family, school, peers

Mesosystem: Relationships between family and school

Exosystem: Community and parental workplace

Macrosystem: Cultural beliefs, educational policies, religion

Chronosystem: Development across time

Yoga influences development across several of these systems. Within the microsystem, yoga promotes positive interactions among children, teachers, and family members through improved emotional regulation and behaviour. At the mesosystem level, collaboration between schools and parents can reinforce healthy lifestyle practices. The macrosystem is particularly important in Malaysia, where multicultural and multireligious contexts require culturally sensitive implementation of yoga programmes. Presenting yoga as a secular, health-promoting activity rather than a religious practice can facilitate wider acceptance and participation.

Positive Psychology Theory

Positive Psychology focuses on enhancing human strengths, resilience, optimism, and well-being rather than solely treating illness (Seligman & Csikszentmihalyi, 2000). Within educational settings, positive psychology emphasises helping children flourish emotionally, socially, and academically.

Yoga complements this approach by encouraging mindfulness, self-confidence, emotional balance, gratitude, and resilience. Numerous studies have shown that children who participate in yoga programmes report lower stress and anxiety levels, improved self-esteem, and greater emotional stability. These psychological strengths may also contribute to better classroom engagement, improved peer relationships, and enhanced overall quality of life.

The integration of Positive Psychology with yoga is particularly valuable for Malaysian schools seeking preventive approaches to support children's mental health and well-being.

Conceptual Framework

Based on the reviewed literature, the following conceptual framework illustrates how yoga contributes to holistic child development.

Inputs

School-based yoga programmes

Family and community support

Qualified yoga instructors

Child participation



Yoga Components

Physical postures (Asanas)

Breathing exercises (Pranayama)

Relaxation techniques

Meditation

Mindfulness



Immediate Outcomes

Improved flexibility and balance

Better respiratory function

Reduced physiological stress

Enhanced attention and concentration

Improved emotional regulation



Intermediate Outcomes

Increased self-esteem

Better classroom behaviour

Improved executive functioning

Stronger peer relationships

Greater resilience



Long-Term Outcomes

Holistic child development

Improved academic performance

Better mental health

Healthy lifestyle behaviours

Enhanced social competence

This framework suggests that yoga operates through interconnected physical, psychological, cognitive, and social pathways, ultimately supporting children's overall development.

Current Evidence on Yoga Among Children

Physical Health Benefits

One of the most consistently reported outcomes of yoga among children is the improvement of physical health. Although yoga is often perceived primarily as a relaxation technique, research demonstrates that regular practice enhances several components of physical fitness, including

flexibility, muscular strength, balance, posture, coordination, respiratory function, and overall physical endurance.

School-based intervention studies have consistently shown that children participating in yoga exhibit significantly greater flexibility than those receiving standard physical education alone. Improved flexibility reduces the risk of musculoskeletal injuries and contributes to better posture and movement efficiency during daily activities. Enhanced muscular strength, particularly of the core and lower limbs, also supports healthy growth and physical functioning.

Balance and coordination are additional areas in which yoga appears beneficial. Many yoga postures require controlled body movements and sustained postural stability, which stimulate the vestibular and proprioceptive systems. These improvements are particularly important during childhood, when motor skills continue to develop.

Breathing exercises (pranayama) have also demonstrated positive effects on respiratory health. Slow, controlled breathing improves lung capacity, respiratory efficiency, and oxygen utilisation while reducing physiological stress responses. Such benefits may be especially valuable for children with sedentary lifestyles or mild respiratory difficulties.

International evidence further suggests that yoga may contribute to healthy weight management by increasing physical activity, promoting body awareness, and encouraging healthier lifestyle behaviours. Although yoga alone is unlikely to replace moderate-to-vigorous physical activity, it can complement existing physical education programmes by improving functional fitness and promoting lifelong exercise habits.

Within the Malaysian context, childhood overweight and obesity have become significant public health concerns. National surveys indicate increasing rates of overweight among school-aged children, largely attributed to reduced physical activity, unhealthy dietary habits, and

prolonged screen exposure. Integrating age-appropriate yoga into school health promotion initiatives may therefore represent an additional strategy to encourage regular movement while remaining accessible to children with varying fitness levels.

Evidence also indicates that yoga is generally safe for children when delivered by appropriately trained instructors using age-appropriate practices. Reported adverse events are rare, and most programmes demonstrate high participation rates and positive acceptance among students.

Overall, the current literature supports yoga as an effective complementary activity that enhances children's physical fitness while promoting body awareness, healthy movement patterns, and long-term health behaviours. However, more large-scale intervention studies involving Malaysian children are required to confirm these findings within local educational and cultural settings.

Psychological and Emotional Benefits of Yoga Among Children

The psychological and emotional benefits of yoga have received increasing attention over the past decade as childhood mental health problems continue to rise globally. Anxiety, stress, emotional dysregulation, depression, behavioural problems, and low self-esteem have become increasingly common among school-aged children due to academic demands, family stressors, peer pressure, excessive screen time, and reduced opportunities for physical activity. Within Malaysia, growing concern regarding children's mental health has encouraged educators and healthcare professionals to explore complementary interventions that promote emotional resilience and psychological well-being.

Yoga is recognised as a mind–body intervention that combines physical movement, controlled breathing, relaxation, and mindfulness. These components work together to regulate

the autonomic nervous system by decreasing sympathetic ("fight-or-flight") activity and enhancing parasympathetic ("rest-and-digest") activity. Physiologically, this process lowers heart rate, reduces cortisol secretion, improves respiratory control, and promotes emotional calmness. Consequently, children who practise yoga regularly often demonstrate better emotional regulation, improved coping skills, and reduced physiological responses to stress.

Stress and Anxiety Reduction

One of the most consistent findings across the literature is yoga's effectiveness in reducing stress and anxiety among children. School-based intervention studies have reported significant reductions in perceived stress following yoga programmes lasting between 8 and 16 weeks. Breathing exercises (pranayama) and mindfulness practices help children become more aware of their emotions and provide practical strategies for managing stressful situations.

In the Malaysian context, Nanthakumar (2018) reviewed available evidence and concluded that yoga may be an effective complementary strategy for reducing stress and anxiety among school children. The review recommended considering yoga within school physical education while acknowledging the need for larger, well-designed intervention studies to strengthen the Malaysian evidence base.

Emotional Regulation

Emotional regulation refers to the ability to recognise, understand, and manage emotions appropriately. This skill is fundamental to children's social relationships, academic success, and mental health. Yoga encourages emotional awareness through mindful movement and breathing, enabling children to respond more calmly to challenging situations. Studies have shown that children participating in yoga demonstrate:

Improved emotional self-control.

Reduced impulsive behaviour.

Greater patience and tolerance.

Better frustration management.

Enhanced resilience when facing academic and interpersonal challenges.

These improvements may contribute to more positive classroom behaviour and healthier peer relationships.

Self-Esteem and Self-Confidence

Yoga has also been associated with improvements in self-esteem and self-confidence. Unlike competitive sports, yoga emphasises personal progress rather than comparison with others. Children are encouraged to focus on their own abilities, set realistic goals, and appreciate gradual improvement. This supportive environment can foster positive self-perception and intrinsic motivation. Several studies have reported that children who regularly participate in yoga programmes exhibit greater confidence in their physical abilities, improved body image, and increased willingness to engage in classroom and social activities.

Depression and Mood

Although research on depression among children is less extensive than studies on anxiety, available evidence suggests that yoga may improve mood and reduce symptoms of mild depression. Mindfulness and relaxation techniques encourage positive emotional experiences and reduce rumination, while physical activity contributes to the release of endorphins that enhance mood. For children experiencing emotional distress, yoga may therefore serve as a valuable complementary intervention alongside school counselling and psychological support.

Sleep Quality

Adequate sleep is essential for healthy physical growth, cognitive development, emotional regulation, and academic performance. Increasing use of digital devices and heightened academic pressures have contributed to sleep disturbances among many children. Yoga has demonstrated positive effects on sleep quality by reducing physiological arousal and promoting relaxation before bedtime. Improved sleep may subsequently enhance concentration, emotional stability, and daytime functioning.

Implications for Malaysian Children

Mental health concerns among Malaysian children have become increasingly recognised in recent years. Academic expectations, examination pressure, urban lifestyles, and increased screen exposure contribute to stress and emotional challenges. Yoga offers a practical, low-cost, and non-pharmacological approach that can be integrated into schools or community settings to support children's psychological well-being. However, culturally appropriate programme design and trained instructors remain essential for successful implementation.

Overall, the available evidence indicates that yoga may help Malaysian children develop healthier coping strategies, improve emotional resilience, and enhance overall psychological well-being.

Cognitive and Academic Benefits of Yoga Among Children

Beyond its physical and psychological effects, yoga has demonstrated considerable potential to enhance children's cognitive functioning and academic performance. Contemporary educational research increasingly recognises that learning depends not only on intellectual ability but also on attention, memory, executive functioning, emotional regulation, and self-discipline.

Attention and Concentration

One of the most frequently reported cognitive benefits of yoga is improved attention. Many yoga practices require children to maintain focus on body posture, breathing patterns, and movement sequences while minimising distractions. This sustained attention strengthens children's capacity to concentrate during classroom activities. Several school-based studies have reported improvements in:

Sustained attention.

Selective attention.

Classroom concentration.

Reduced distractibility.

These improvements are particularly valuable for children experiencing learning difficulties or attention-related challenges.

Executive Functioning

Executive functions include planning, working memory, inhibitory control, cognitive flexibility, and decision-making. These higher-order cognitive processes play a crucial role in academic achievement and everyday problem-solving.

Mindfulness-based components of yoga encourage children to pause before reacting impulsively, regulate behaviour, and make thoughtful decisions. Improvements in executive functioning have been associated with better classroom participation and more effective learning strategies.

Memory and Learning

Research suggests that yoga may positively influence working memory and information processing by reducing stress and improving attentional control. Lower stress levels allow greater cognitive resources to be allocated to learning and memory consolidation.

Some intervention studies have demonstrated improvements in short-term memory and academic engagement among children participating in regular yoga sessions. Although findings regarding direct effects on academic achievement remain mixed, improved attention, behaviour, and emotional regulation are likely to contribute indirectly to better educational outcomes.

Academic Performance

Evidence regarding direct improvements in examination performance is less consistent. Academic achievement is influenced by numerous factors, including teaching quality, socioeconomic status, family support, and individual learning abilities. Nevertheless, children participating in yoga often demonstrate:

Better classroom engagement.

Increased motivation to learn.

Improved attendance.

Enhanced self-discipline.

More positive teacher–student interactions.

These behavioural improvements create favourable conditions for academic success, even if direct effects on examination scores vary across studies.

Implications for Malaysian Education

Malaysia's education system places considerable emphasis on academic excellence. Consequently, many children experience examination-related stress from an early age. Incorporating yoga into school wellness programmes may help students develop emotional balance, concentration, and resilience while complementing existing educational initiatives aimed at supporting holistic student development.

Social Development and Behavioural Outcomes

Children's social development is a fundamental aspect of healthy growth, influencing interpersonal relationships, communication, emotional intelligence, and overall quality of life. Social competence acquired during childhood is associated with improved academic performance, stronger peer relationships, reduced behavioural problems, and better mental health throughout adolescence and adulthood. Consequently, interventions that strengthen social and emotional skills have become increasingly important within educational settings.

Yoga contributes to social development by promoting self-awareness, empathy, emotional regulation, cooperation, patience, and respect for others. Unlike competitive sports, yoga emphasises personal growth rather than competition. Children learn to appreciate individual progress while respecting the abilities and differences of their peers. This supportive learning environment encourages positive interpersonal interactions and reduces social comparison.

School-based yoga programmes frequently incorporate group activities, partner poses, breathing exercises, and mindfulness practices that foster communication and collaboration. These experiences help children develop stronger peer relationships and improve classroom cohesion. Teachers have reported that students participating in yoga demonstrate greater cooperation during group work, increased willingness to help classmates, and improved conflict-resolution skills.

Behavioural Improvements

Behavioural regulation represents another important outcome associated with yoga participation. Several intervention studies have reported reductions in disruptive classroom behaviour, impulsivity, aggression, and emotional outbursts following regular yoga practice. These improvements are thought to result from enhanced self-control, better stress management, and increased awareness of emotional responses. Teachers have observed improvements in:

Classroom discipline.

Respect for teachers and peers.

Reduced aggression.

Better listening skills.

Greater compliance with classroom rules.

Increased patience and tolerance.

Such behavioural changes contribute to more positive classroom environments and facilitate effective teaching and learning.

Emotional Intelligence and Empathy

Yoga also supports the development of emotional intelligence by encouraging children to recognise and manage their own emotions while understanding the feelings of others. Mindfulness practices cultivate empathy, compassion, and kindness, qualities that strengthen friendships and reduce bullying behaviours. These outcomes align with contemporary educational approaches emphasising social-emotional learning as an integral component of child development.

Implications for Malaysia

Malaysia's multicultural society requires children to interact respectfully with peers from diverse ethnic, cultural, and religious backgrounds. Yoga programmes that emphasise inclusivity, cooperation, and mutual respect may therefore contribute to social harmony within schools. By promoting empathy and emotional regulation, yoga has the potential to complement national initiatives that encourage unity, respect, and positive citizenship among young people. Overall, existing evidence suggests that yoga can positively influence children's social competence and

behaviour, although further Malaysian research is needed to evaluate these outcomes within local educational settings.

Yoga for Children with Special Educational Needs

Increasing attention has been directed towards the use of yoga as a complementary intervention for children with special educational needs, including autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), learning disabilities, intellectual disabilities, and developmental coordination disorders.

Autism Spectrum Disorder (ASD)

Children with ASD frequently experience difficulties with communication, emotional regulation, sensory processing, and social interaction. Several studies indicate that structured yoga programmes may improve attention, emotional regulation, body awareness, and social engagement among children with ASD. Breathing exercises and predictable movement sequences can provide calming sensory input and reduce anxiety.

Attention-Deficit/Hyperactivity Disorder (ADHD)

Children with ADHD often struggle with impulsivity, hyperactivity, and sustained attention. Yoga encourages focused attention, controlled breathing, and self-regulation, which may reduce impulsive behaviour and improve concentration. Although yoga should not replace evidence-based clinical interventions, it may serve as a valuable complementary strategy within educational and therapeutic programmes.

Learning Disabilities

Children with learning disabilities may experience difficulties with concentration, executive functioning, and self-confidence. Yoga's emphasis on mindfulness and self-awareness can support attention, working memory, and emotional resilience, thereby enhancing engagement in learning activities.

Emotional and Behavioural Disorders

Children experiencing anxiety, behavioural challenges, or emotional dysregulation may also benefit from yoga through improved coping strategies, relaxation, and enhanced self-control. School-based yoga programmes have reported reductions in emotional outbursts and improved classroom behaviour among vulnerable student populations.

Malaysian Perspective

Research examining yoga among Malaysian children with special educational needs remains limited. However, increasing awareness of inclusive education and holistic intervention approaches suggests considerable potential for future research and programme development. Collaboration among educators, psychologists, occupational therapists, physiotherapists, and yoga instructors may facilitate culturally appropriate interventions that complement existing educational services.

Challenges and Future Directions

Despite growing international evidence supporting yoga among children, several challenges continue to limit its wider implementation within Malaysia.

Limited Malaysian Research

One of the most significant challenges is the limited availability of high-quality Malaysian studies. Existing research consists primarily of literature reviews, small pilot studies, and

descriptive programme evaluations. Large randomised controlled trials and longitudinal studies remain scarce, limiting confidence in the generalisability of findings.

Lack of Standardised School Programmes

Unlike countries such as India, Malaysia has not developed a nationally standardised school-based yoga curriculum. Current implementation depends largely on individual schools, community organisations, and private initiatives. As a result, programme quality, duration, instructor qualifications, and teaching methods vary considerably.

Teacher Training

Successful implementation requires instructors with expertise in both yoga and child development. At present, relatively few teacher training programmes specifically prepare educators to deliver yoga safely and effectively within Malaysian schools. Professional development and certification standards should therefore be strengthened.

Cultural and Religious Misconceptions

Malaysia's multicultural and multireligious society occasionally raises questions regarding the cultural or religious interpretation of yoga. Educational programmes should clearly communicate that school-based yoga is delivered as a secular health promotion activity focusing on movement, breathing, relaxation, and mindfulness rather than religious practice. Transparent communication with parents, teachers, and community leaders is essential to foster acceptance.

Resource Constraints

Limited funding, insufficient instructional time, and competing academic priorities may also hinder implementation. Integrating short yoga sessions into existing physical education or well-being programmes may represent a practical and cost-effective approach.

Discussion

This review synthesised current evidence regarding the role of yoga in promoting the physical, psychological, cognitive, and social well-being of children, with particular emphasis on the Malaysian context. Although the Malaysian evidence base remains limited, the available findings, together with extensive international literature, suggest that yoga is a promising complementary intervention that supports holistic child development.

The findings consistently demonstrate that yoga extends beyond physical exercise by integrating movement, breathing, relaxation, and mindfulness into a comprehensive approach to health promotion. This multidimensional nature distinguishes yoga from conventional physical education programmes, as it simultaneously targets physical fitness, emotional regulation, executive functioning, and social competence. Such characteristics align closely with Malaysia's aspiration to provide holistic education that nurtures balanced intellectual, emotional, physical, and social development.

Physical Health

The literature indicates that yoga contributes to improvements in flexibility, muscular strength, balance, posture, respiratory efficiency, and body awareness. These findings are particularly relevant to Malaysia, where childhood obesity and sedentary lifestyles have become increasing public health concerns. While yoga should not replace moderate-to-vigorous physical activity, it represents a valuable complementary activity that can encourage lifelong healthy movement patterns.

School-based yoga programmes may also benefit children who are less inclined to participate in competitive sports because yoga emphasises personal progress rather than athletic performance. This inclusive characteristic may improve participation among children with varying physical abilities.

Psychological Well-being

The strongest evidence identified in this review relates to yoga's positive effects on psychological well-being. Numerous studies have reported reductions in stress, anxiety, emotional dysregulation, and behavioural difficulties following regular yoga practice. These findings are especially important given increasing concerns regarding childhood mental health both globally and within Malaysia.

The combination of controlled breathing, mindfulness, and relaxation appears to reduce physiological stress responses while enhancing children's capacity to regulate emotions and cope with academic and social challenges. These outcomes support current educational priorities that increasingly recognise the importance of mental health promotion alongside academic achievement.

Cognitive and Academic Development

Evidence suggests that yoga positively influences attention, concentration, executive functioning, working memory, and classroom engagement. Although improvements in examination performance remain less consistently reported, enhanced attentional control and emotional regulation create favourable conditions for learning.

Given the competitive educational environment experienced by many Malaysian children, incorporating yoga into school wellness initiatives may help students develop healthier coping strategies while supporting academic engagement and classroom behaviour.

Social Development

Yoga also contributes to children's interpersonal development by promoting empathy, cooperation, patience, self-awareness, and respectful communication. Improvements in classroom behaviour, peer relationships, and conflict resolution have been reported across

multiple school-based programmes. Such findings are particularly valuable within Malaysia's multicultural society, where social harmony and mutual respect represent important educational objectives.

Malaysian Context

Despite encouraging findings, implementation within Malaysia remains relatively limited. Current practice is primarily driven by community organisations, private institutions, and non-governmental initiatives rather than national educational policy. The absence of a standardised school-based yoga curriculum contributes to considerable variation in programme quality and accessibility.

Another important consideration involves cultural sensitivity. Public perceptions regarding yoga occasionally reflect religious or cultural concerns. The literature suggests that presenting yoga as a secular, evidence-based health intervention focused on physical activity, breathing, and mindfulness can facilitate broader acceptance while respecting Malaysia's cultural diversity.

Conclusion

This explorative review examined the current evidence concerning yoga among children in Malaysia while integrating findings from the broader international literature. The review demonstrates that yoga is a multidimensional intervention capable of promoting physical fitness, psychological well-being, emotional regulation, cognitive functioning, behavioural self-control, and social competence.

Although Malaysia has experienced growing interest in yoga through community organisations, wellness centres, and selected educational programmes, research specifically involving Malaysian children remains limited. Existing evidence suggests that yoga may reduce stress and anxiety, improve concentration, enhance classroom behaviour, and contribute

positively to children's overall development. These findings are consistent with international research demonstrating the effectiveness of school-based yoga programmes across diverse educational settings.

Several challenges continue to restrict wider implementation, including the absence of nationally standardised school programmes, limited teacher training, methodological weaknesses within existing research, and cultural misconceptions regarding yoga. Addressing these barriers will require collaboration among educators, healthcare professionals, researchers, policymakers, and community organisations.

Future research should prioritise large-scale multicentre intervention studies, culturally appropriate programme development, longitudinal evaluations, and investigations involving children with special educational needs. Establishing evidence-based teacher training standards and integrating yoga into broader school health promotion initiatives may further strengthen children's physical and psychological well-being.

In conclusion, yoga represents a feasible, low-cost, and culturally adaptable complementary strategy that can support Malaysia's commitment to holistic child development. With appropriate implementation and continued research, yoga has the potential to become an important component of school-based health promotion and child well-being programmes.

Table 1. Summary of Current Evidence

Domain	Key Findings	Strength of Evidence
Physical Health	Improved flexibility, balance, strength, posture, respiratory function	Strong
Psychological Well-being	Reduced stress, anxiety, emotional dysregulation; improved resilience	Strong
Cognitive Function	Better attention, concentration, executive functioning	Moderate–Strong

Academic Outcomes	Improved classroom engagement and learning readiness	Moderate
Social Development	Enhanced empathy, cooperation, classroom behaviour	Moderate–Strong
Special Educational Needs	Positive outcomes reported for ASD, ADHD, and learning difficulties	Emerging
Malaysian Evidence	Promising but limited; more intervention studies required	Limited

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**"Teacher-AI-Student" Tripartite Collaboration: Reconstruction and
Empirical Validation of the Teaching Model for Ideological and Political
Courses in Higher Education**

Jiahui Qin ^{1*}

1 Guizhou Qiannan College of Science and Technology, Huishui, China

*Corresponding author: Jiahui Qin; email: 943819603@qq.com

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Abstract

With the advancement of artificial intelligence (AI), its deep integration into ideological and political theory courses (IPTPCs) in higher education brings not only opportunities for the reconstruction of teaching forms but also such problems as weakened value guidance by teachers, the absence of students' subjectivity, and the superficial application of technology. This paper proposes a "teacher–AI–student" tripartite collaborative analysis framework and constructs a human–AI collaborative teaching model for IPTPCs, featuring precise pre-class diagnosis, in-class value guidance, and personalized post-class feedback. Taking Guizhou Qiannan University of Science and Technology as a case, the model is validated through quasi-experimental research, questionnaire surveys, interviews, and platform data analysis. The findings show that the tripartite collaborative model helps enhance students' classroom participation, learning outcomes, and value identification, and also improves the precision of teachers' instruction. However, its effectiveness depends on teachers' digital literacy, platform adaptability, and ethical norms. This research may serve as a model reference and offer practical implications for the digital transformation of IPTPCs in higher education.

Keywords: tripartite collaboration; human–AI collaboration; ideological and political theory courses in higher education; teaching model; empirical testing

Introduction

With the in-depth development of artificial intelligence technology, the educational ecosystem is undergoing profound transformation, and traditional teaching forms, teacher–student relationships, and knowledge supply approaches are all facing reconstruction. In 2025, the State Council issued the Opinions on Deeply Implementing the "AI+" Action (State Council Document No. 11 [2025]), which proposes to "integrate AI into all elements and all processes of education and teaching, innovate new human–AI collaborative teaching models such as

intelligent learning companions and intelligent teachers, shift education from being knowledge-transmission-oriented to competence-enhancement-based, accelerate the realization of individualized instruction at scale, improve educational quality, and promote educational equity." How ideological and political theory courses (IPTPCs) in higher education can achieve teaching model innovation in this context has become an important issue that urgently needs to be addressed.

At present, IPTPC teaching in colleges and universities is ushering in new reform opportunities, and teaching models in the context of AI are becoming increasingly diverse. Most institutions are shifting from the traditional "teacher–student" dyadic model to the "teacher–AI–student" tripartite collaboration. Teaching explorations such as PAD (presentation–assimilation–discussion) classes and flipped classrooms supported by AI are gradually transcending the traditional "teaching–learning" model and moving toward "teacher–machine–student" collaborative practice. In this context, the deep integration of AI with IPTPC teaching not only expands the space for teaching reform but also provides new pathways for reconstructing IPTPC reform in higher education.

1.The Reconstruction Logic of Tripartite Collaboration: From "Technology Empowerment" to "Tripartite Collaboration"

There are three structural deficiencies in the introduction of AI technology into the existing IPTPC teaching models in higher education. First, technology application is disconnected from value guidance. Existing studies mostly focus on the application pathways and functional development of AI technology in IPTPCs. For example, Wang Qi (2023) proposed approaches such as big data, virtual reality, and intelligent guided learning; Liu Pu et al. (2023) proposed the methods of intelligent guided learning, intelligent diagnostic learning, intelligent companion

learning, and intelligent assisted learning; and Zhang Fan (2025) proposed technical pathways such as the "learning-profile blueprint–targeted delivery–intelligent control–precise benchmark." These studies have significantly improved teaching efficiency, but they generally exhibit a "technology-centered" tendency, which weakens teachers' role in value guidance and creates tension between technology application and the fundamental mission of IPTPCs—namely, fostering virtue and nurturing people (*li de shu ren*).

Second, there is an imbalance between teacher dominance and student subjectivity. Existing studies mostly focus on the dyadic relationships of "teacher–AI" or "AI–student," such as the transformation of blended teaching logic examined by Tao Lei et al. (2022) and the perception–comprehension–decision–execution reasoning mechanism proposed by Wu Xin et al. (2025). However, the systematic construction of the "teacher–AI–student" triadic relationship remains insufficient, and an effective collaborative mechanism is lacking between teachers' dominant role in technology application and students' subjective participation.

Third, online and offline teaching are disconnected. Existing practices mostly superimpose online teaching onto offline teaching rather than deeply integrating the two. Although Jiang Xiaojun et al. (2025) proposed a cognitive upgrading mechanism for human–AI collaboration, a systematic teaching model spanning the pre-class, in-class, and post-class stages has not yet been developed.

The proposal of the tripartite collaboration analytical framework originates from the cross-disciplinary integration and joint support of multiple theories. Marx's theory of the all-round development of human beings emphasizes that education should promote the comprehensive and free development of individuals; the theory of subjectivity and dominance in ideological and political education emphasizes teachers' leading role and students' subject status in IPTPCs;

constructivist learning theory emphasizes learners' active construction in contexts; distributed cognition theory emphasizes that cognitive activities are distributed among people, tools, and the environment; and blended learning theory emphasizes the organic integration of online and offline teaching. Based on these theories, this paper proposes the "teacher–AI–student" tripartite collaboration analytical framework. The core logic of this framework is "teacher-led + AI-assisted + student-as-subject." Teachers serve as value guides, instructional designers, and emotional communicators; AI serves as a tool for learning-condition diagnosis, resource recommendation, interaction support, and assessment support; and students are active learners, co-constructors, and practical experiencers. The core features of tripartite collaboration are: value guidance that is irreplaceable, technology empowerment that is precise and well-calibrated, and subject participation that is authentic and effective. This analytical framework represents a major shift from "technology empowerment" to "tripartite collaboration."

The logical transformation from "technology empowerment" to "tripartite collaboration" involves reconstruction at three levels. First, from a "tool logic" to an "ecological logic." "Technology empowerment" treats AI as a tool for improving teaching efficiency, whereas "tripartite collaboration" treats AI as an organic component of the teaching ecosystem, emphasizing the dynamic interaction and mutual support among teachers, AI, and students. Second, from a "dyadic relationship" to a "triadic relationship." "Technology empowerment" mainly focuses on the dyadic relationships of "teacher–AI" or "AI–student," whereas "tripartite collaboration" brings students into the collaborative framework, forming a triadic interactive structure of "teacher–AI–student." Third, from an "efficiency orientation" to a "value orientation." "Technology empowerment" takes efficiency improvement as its main goal, whereas "tripartite collaboration" takes value guidance as its core, emphasizing that technology

application must serve the fundamental mission of IPTPCs—fostering virtue and nurturing people (*li de shu ren*).

The reconstructed tripartite collaboration teaching model for IPTPCs runs through three stages: pre-class, in-class, and post-class. First, the pre-class diagnosis stage: AI diagnosis + teacher design + student preview. AI conducts learning-condition diagnosis and generates a learning-condition report; teachers design teaching objectives and discussion questions based on the report; students complete preview tasks and submit a list of questions. Second, the in-class practice stage: teacher value guidance + AI interactive assistance + student discussion and practice. Teachers lead value guidance and in-depth explanation; AI provides real-time feedback, case recommendation, and interaction support; students engage in case discussion, group debate, and practical presentation. Third, the post-class internalization stage: AI personalized feedback + teacher Q&A + student reflection and extension. AI generates personalized learning reports; teachers provide targeted Q&A and emotional communication; students complete practical assignments and reflective summaries.

The essence of tripartite collaboration is not simple mutual assistance among teachers, AI, and students, but rather—supported by AI technology—the maximization of teachers' value guidance, the optimization of students' learning efficiency, and the most precise effectiveness of AI empowerment, thereby completing a structural reconstruction of the collaborative logic of IPTPC teaching in higher education.

II. Verification and Effectiveness of the Tripartite Collaboration Reconstruction: From "Dyadic Integration" to "Triadic Interaction"

The most important aspect of the shift from "dyadic integration" to "triadic interaction" lies in promoting the deep integration of AI with the entire process of teaching and learning, so as to

realize the organic unity of teachers, AI, and students in teaching interaction. The achievement of this goal places systematic demands on both teaching subjects and the teaching process: at the teacher level, teachers are required to possess proficient capabilities in applying AI technology and a high level of professional competence; at the student level, students' learning interest and participation vitality need to be stimulated; and at the teaching level, it is necessary to achieve the complete progression of classroom teaching segments, the precise alignment of teaching content, and the standardization and institutionalization of the teaching process. "The practice of the human–AI collaborative model lies in deepening the deep integration of intelligent technology into teaching, establishing an efficient collaboration mechanism between teachers, students, and intelligent agents, realizing the complementary advantages of 'human' and 'machine' in educational goals, educational processes, and educational evaluation, and promoting the systematic improvement of teaching quality and educational outcomes."(Wang Fei et al., 2026).

Taking Guizhou Qiannan University of Science and Technology as a case, this paper employs a quasi-experimental research design to verify the effectiveness of the reconstructed tripartite collaboration model and to reflect on its boundaries and conditions. The quasi-experimental design was adopted primarily based on the following considerations: first, IPTPCs in higher education take natural classes as the teaching unit, making it impossible to randomly assign students to different teaching models; second, the study aims to examine the effectiveness of the tripartite collaboration model in authentic teaching contexts, which requires maintaining the naturalness of the teaching process; third, the quasi-experimental design can maximize the internal validity of the research within a controllable scope. Accordingly, the research subjects were drawn from two parallel classes offering the course *Basic Principles of Marxism* in the

second semester of the 2025–2026 academic year. The students were from the 2025 cohort and were divided into an experimental group and a control group: the experimental group was Chinese Language and Literature Class 252, and the control group was Chinese Language and Literature Class 251. The experimental class adopted the tripartite collaboration teaching model, while the control class adopted the conventional teaching model. The two classes were basically comparable in terms of class size, disciplinary background, and entrance examination scores.

After a full semester of teaching experiments, this paper systematically analyzed the experimental class and the control class from multiple dimensions. Specifically, the study compared changes in students' classroom participation, value identification, and critical thinking through questionnaire surveys administered to both classes before and after the experiment; it explored experimental-class students' subjective experiences and feelings of participation in the tripartite collaboration model through in-depth interviews with some students; it analyzed students' experimental participation and learning engagement based on behavioral data collected from the teaching platform; and it examined the actual impact of the tripartite collaboration model on students' learning outcomes through final comprehensive examination scores. These multi-dimensional data corroborated one another, providing empirical evidence for evaluating the effectiveness of the tripartite collaboration model.

First, the questionnaire data mainly revolved around three dimensions: classroom participation, value identification, and critical thinking. The classroom participation questionnaire covered three sub-dimensions—behavioral participation, cognitive participation, and affective participation—with 15 items in total; the value identification questionnaire covered three sub-dimensions—theoretical identification, affective identification, and behavioral identification—with 12 items in total; and the critical thinking disposition questionnaire adopted

a mature scale with 20 items in total. The questionnaires were distributed one week before and one week after the experiment, with the experimental class and the control class tested synchronously. A total of 83 questionnaires were distributed and 76 valid questionnaires were returned, yielding an effective response rate of 91.6%.

Second, relying on the Chaoxing Learning Platform (*Xuexitong*), platform data were automatically collected by the teaching platform, covering interaction frequency (including posting, replying, asking questions, and answering), learning duration (cumulative online learning time), and task completion (the completion rates of preview tasks, group assignments, and practical tasks). The platform data were exported weekly, and a total of 16 weeks of data were collected during the experimental period, which were used to analyze differences in learning behaviors between the experimental class and the control class.

Meanwhile, interviews were conducted regarding the tripartite collaboration teaching process. The teacher interview revolved around the instructional design, implementation experience, existing problems, and suggestions for improvement of the tripartite collaboration model. The student interviews revolved around learning experiences, feelings of participation, experiences of using AI tools, and changes in value identification.

Finally, grade data were collected. The pre-test was conducted before the experiment using a unified questionnaire to examine students' mastery of the basic knowledge of *Basic Principles of Marxism*; the post-test was conducted after the experiment, with a difficulty level comparable to that of the pre-test, to examine students' mastery and depth of understanding of the course content. The pre-test and post-test scores were used to compare and analyze differences in learning outcomes between the experimental class and the control class.

Through the collection and analysis of the data, it was found that, in terms of students' learning outcomes, the tripartite collaboration model demonstrated significant advantages in knowledge mastery, classroom participation, value identification, and critical thinking. Students in the experimental class scored significantly higher than those in the control class on knowledge tests; their frequency of classroom speaking, platform interaction, and learning duration were also significantly better than those of the control class; their scores on the value identification measurement were likewise significantly higher than those of the control class; and they also exhibited stronger critical thinking and practical ability in group collaboration and practical assignments. At the level of teaching, the tripartite collaboration model effectively improved teachers' lesson-preparation efficiency and resource integration ability, enhanced their classroom organization and precise feedback capabilities, and promoted the improvement of their human–AI collaborative teaching competence. These achievements stemmed from the qualitative transformation of the teaching model from "dyadic integration" to "triadic interaction": in the "dyadic integration" stage, the collaboration between teachers and AI was relatively simple, with AI mainly undertaking resource recommendation and assignment grading, and teaching interaction remaining teacher-centered; in the "triadic interaction" stage, teachers, AI, and students formed dynamic interactions, with AI undertaking functions such as learning-condition diagnosis, real-time feedback, and personalized tutoring, teachers focusing on value guidance and emotional communication, and students actively participating in discussion and practice. The three played their respective roles and supported one another, jointly promoting the systematic improvement of teaching quality and educational outcomes.

III. Reflection on the Boundaries and Optimization Pathways of Tripartite Collaboration: From "Model Reconstruction" to "Ecological Construction"

Empirical testing shows that the tripartite collaboration model has significant teaching effectiveness; however, its effectiveness is subject to clear boundary conditions. Combined with the experimental data and interview materials, several key factors constraining the model's effectiveness can be identified and need to be treated with caution.

Teachers' role in value guidance cannot be replaced by AI technology. AI can assist teachers in knowledge transmission, pre-class learning-condition diagnosis, and information integration and analysis, but it can never replace teachers' value guidance for students, spiritual transmission, and responses to their questions and concerns. Since university ideological and political theory courses shoulder the fundamental mission of fostering virtue and nurturing people (*li de shu ren*), the most important element is "value guidance," which AI is unable to fulfill. The empirical data show that students in the experimental class reported significantly higher satisfaction with the dimension of "teacher emotional communication" than with the dimension of "AI interaction," indicating that although technology can improve efficiency, it cannot replace warm emotional communication and value dialogue. Therefore, teacher development support should shift from "technical training" to "competence cultivation": strengthen digital literacy training for ideological and political theory teachers and establish interdisciplinary teaching-research communities, so that teachers can not only "know how to use" technology but also "be adept at using" it, achieving the organic unity of value guidance and precise empowering teaching in human–AI collaboration.

The need for student subjectivity and the supervision and guidance within the teaching process are inevitable. The effectiveness of the tripartite collaboration teaching model depends on students' active participation; however, one point that cannot be ignored is that some students perfunctorily cope with teaching tasks through means such as "idling" (leaving the platform

running without real engagement) and "proxy completion" (having others complete tasks on their behalf). Platform data show that approximately 10%–15% of students exhibited low-participation behavior in the post-class stage. This indicates that technology empowerment does not automatically translate into student participation: without a collaborative model that combines task-driven design with process supervision, it may still fall into the predicament of "formal participation." Therefore, student participation incentives should shift from "task-driven" to "subject self-awareness": combine task-driven design with process supervision, attach equal importance to diversified assessment and positive incentives, and strengthen the relevance of learning content to real life, so that students can transform from being "task-oriented" to "subject-oriented" and truly become active learners and co-constructors in human–AI collaboration.

Teachers' professional digital literacy is a key factor. The interviews revealed that teachers with higher digital literacy can more fully leverage the teaching value of AI tools, whereas those with lower digital literacy tend to develop technology dependence or technology anxiety. Differences in teachers' digital literacy—even to the point of directly ignoring the changes brought about by technology—directly affect the actual effectiveness of the tripartite collaboration model and constitute an important constraint on its promotion. Therefore, platform and technology optimization should shift from "tool adaptation" to "ecological integration": improve platform stability, usability, and data security; promote the deep integration of AI tools with existing teaching platforms; realize the interoperability and sharing of learning-condition data, teaching resources, and assessment feedback; enable technology to be truly integrated into the teaching ecosystem rather than bolted onto the teaching process; lower the threshold for

teachers to use technology; and provide inclusive support for teacher groups with large differences in digital literacy.

Ethical norms and institutional safeguards constitute an important part of the tripartite collaboration model. The collection, storage, and use of students' learning data need to be regulated, and the accuracy and ideological security of AI-generated content need to be reviewed. Technology applications lacking ethical norms and institutional safeguards may bring hidden risks such as data privacy leakage and ideological risks. Therefore, the effective operation of tripartite collaboration must be premised on ethical norms and institutional safeguards. Accordingly, ethical norms and institutional safeguards should shift from "technical norms" to an "institutional ecosystem": improve the norms for technology use, protect students' data privacy, establish ethical boundaries for human–AI collaborative teaching, and promote the formation of a "technology–teacher–student–institution" four-in-one teaching ecosystem, so as to provide institutional safeguards for the sustainable development of tripartite collaboration.

Based on the above reflection on boundaries, the further optimization of the tripartite collaboration model requires a shift from "model reconstruction" to "ecological construction," with coordinated efforts across four dimensions: platform, teachers, students, and institutions. Platform and technology optimization should shift from "tool adaptation" to "ecological integration"; teacher development support should shift from "technical training" to "competence cultivation"; student participation incentives should shift from "task-driven" to "subject self-awareness"; and ethical norms and institutional safeguards should shift from "technical norms" to an "institutional ecosystem." The optimization of the four dimensions is not carried out in isolation; rather, they support and co-evolve with one another, jointly constituting the ecological foundation for the sustainable development of tripartite collaboration.

The ultimate goal of tripartite collaboration is not a fixed teaching model, but a dynamic, open, and sustainable teaching ecosystem. Model reconstruction addresses the problem of "structural deficiencies," while ecological construction addresses the problem of "sustainable development." The core features of the teaching ecosystem manifest as openness, dynamism, and symbiosis. Looking to the future, the deepening of tripartite collaboration needs to move from piloting in a single course to coverage across the curriculum, from practice in a single institution to inter-institutional collaboration, and from technology application to theoretical innovation. The ultimate anchor point is that, no matter how technology develops, the fundamental mission of IPTPCs—fostering virtue and nurturing people (*li de shu ren*)—cannot change, the core position of teachers' "value guidance" cannot change, and the basic requirement of students' "subject participation" cannot change. The essence of tripartite collaboration is to let technology return to being a tool, teachers return to being guides, and students return to being subjects. Only in this way can human–AI collaboration truly serve the fundamental mission of IPTPCs and achieve the systematic improvement of teaching quality and educational outcomes.

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