

Multiple Intelligences–Based Learning and 21st-Century Skills: A Qualitative Multi-Site Study in Indonesian Elementary Schools

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ABSTRACT

This study examines how multiple intelligences (MI)–based learning is planned, enacted, and assessed in five elementary schools (SD/MI) in Kudus, Central Java, and how these practices align with 21st-century skills. Using a descriptive qualitative multi-site design, data were collected through interviews, observations, and document analysis. Thematic analysis revealed that lesson planning reflects students’ varied strengths, classroom practices integrate nine intelligences through low-cost strategies, and assessments are largely authentic, capturing cognitive, psychomotor, and affective outcomes. Structural and cultural barriers – curricular rigidity, limited facilities, and test-driven instruction – restrict consistent implementation. The study contributes a context-sensitive framework linking MI pedagogy to 21st-century competencies such as critical thinking, creativity, collaboration, and communication in Indonesian elementary education.

INTRODUCTION

Education has long been recognized as a systematic effort to actualize human potential (Balaguer et al., 2025; Cao, 2025; Ellyatt, 2022; Jamaludin & Kosslyn, 2025). In Islamic philosophy, human beings are described as *fi ahsani taqwim* – the most excellent of creation – endowed with reason (*ta'aqul*), reflection (*tafakkur*), and contemplation (*tadabbur*) as emphasized in more than one hundred Qur'anic verses (QS al-Tin:4; QS al-Baqarah:30) (Abdel-Maguid & Abdel-Halim, 2015; Amirudin, 2023). These intellectual capacities distinguish humans from other creatures and provide the foundation for their role as *khalīfatullāh fī al-ardh*. Classical and modern philosophy alike affirm this perspective: Descartes' "cogito ergo sum" and the Islamic dictum *al-insān ḥayawān nāṭiq* converge on the idea that human existence is realized through thought, reasoning, and problem solving (Ali et al., 2019; Alwishah, 2016; De Diego González, 2023; Mills & Presley, 1999; Morvarid, 2024; Newman, 2015).

Traditionally, intelligence has been narrowly interpreted as logical and linguistic ability, often measured through Intelligence Quotient (IQ) tests (Kaufman, 2015; Sternberg, 2015). While IQ is useful in predicting specific academic outcomes, it cannot explain success in complex real-life contexts requiring broader competencies (Akubuilu et al., 2020; Ganuthula & Sinha, 2019; Pishghadam et al., 2022). Howard Gardner's theory of Multiple Intelligences (MI) redefined intelligence as a plural construct, encompassing linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, naturalist, and the later-proposed existential intelligences (Davis et al., 2011; Ferrero et al., 2021; Gardner & Hatch, 1989; Kornhaber, 2019; Moran, 2011). This paradigm rejects the dichotomy of "intelligent versus not intelligent" and affirms that every learner possesses diverse potentials that can be nurtured through appropriate pedagogical strategies (Clarke, 2006; Wahed & Pitterson, 2024).

Building on this foundation, MI has been widely adopted as a framework for differentiated instruction and student-centered Learning. Research demonstrates that MI-based practices enhance engagement, self-awareness, and creativity by aligning pedagogy with learners' strengths (Ghaznavi, Haddad Narafshan, et al., 2021; Gunawan & Shieh, 2023). However, the application of MI in developing higher-order thinking skills (HOTS) – analysis, evaluation, and creation in Bloom's revised taxonomy – remains underexplored, especially in elementary school settings. This gap becomes more pressing in the context of the 21st century, where global frameworks such as the World Economic Forum's *16 Skills for 21st Century Learners* and the Partnership for 21st Century Learning (P21) emphasize critical thinking, creativity, collaboration, communication (4C), and socio-emotional competencies (Karacaoğlu, 2025; OECD, 2018; Okros, 2020; Susilo et al., 2020).

As a developing country facing the challenges of the Fourth Industrial Revolution, Indonesia is under increasing pressure to equip young learners with these competencies. Elementary education (SD/MI) holds strategic importance as the stage where foundational literacies and character traits are first cultivated (Anwas et al., 2022; Muzakkir et al., 2024; M. S. I. Taufikin et al., 2024; T. Taufikin, 2021). However, existing studies in Indonesia have focused mainly on the

theoretical exposition of MI or its classroom application in single sites, with limited evidence connecting MI-based pedagogy to measurable 21st-century skill outcomes (Gebremeskel et al., 2024; Shearer, 2018). Moreover, structural constraints such as a standardized national curriculum, cultural emphasis on academic achievement, and limited teacher training further complicate the integration of MI into daily teaching practices.

Against this backdrop, the present study investigates how MI-based Learning is planned, enacted, and assessed in five diverse elementary schools in Kudus, Central Java. Using a qualitative, multi-site design, the study maps classroom practices across different types of intelligences and examines how these practices align with 21st-century skill frameworks. Specifically, it seeks to reveal (1) how teachers identify students' intelligence profiles and incorporate them into lesson planning, (2) how MI dimensions are implemented through classroom and extracurricular activities, and (3) how authentic assessments capture cognitive, psychomotor, and affective outcomes. The study further explores structural and cultural barriers that shape the enactment of MI in Indonesian elementary schools.

This research contributes to the literature in two ways. First, it provides empirical evidence from a multi-site Indonesian context where MI is systematically linked to 21st-century outcomes. Second, it offers a practical framework that maps MI-based activities onto the competencies required in the 21st century, thereby enriching theoretical discourse and educational practice in developing-country settings.

LITERATURE REVIEW

Multiple Intelligences in Education

Howard Gardner's theory of Multiple Intelligences (MI) reframes intelligence as a plural construct rather than a single dimension measured by IQ (Davis et al., 2011; Gardner & Hatch, 1989). It asserts that every individual possesses nine distinct intelligences—linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, naturalist, and the later-proposed existential—each of which can be nurtured through contextually responsive pedagogy (Clarke, 2006; Gardner & Hatch, 1989; Wahed & Pitterson, 2024). This model challenges the dichotomy of “intelligent versus not intelligent” by affirming that all learners have strengths that can be developed through differentiated instruction. In practice, teachers can identify students' MI profiles through systematic observation, reflective journals, peer sharing, and interaction with parents, and then design lesson plans and tasks that align with these strengths.

In the Indonesian context, MI-based pedagogy has been shown to promote learner engagement, self-awareness, and creativity through activities such as storytelling, experiments, role-playing, collaborative projects, and reflective journaling (Ghaznavi, Narafshan, et al., 2021; Lei et al., 2021; Widiana & Jampel, 2016; Winarti et al., 2019; Yaumi et al., 2018). However, debates remain over the conceptual status of existential intelligence, which some scholars regard as

tentative. Positioning it as an “emerging domain” allows it to serve as a valuable entry point for discussing ethics, meaning, and spirituality in education without overstating its empirical validation.

21st-Century Competencies: Global Frameworks

The 21st century has brought unprecedented educational demands, driven by the Fourth Industrial Revolution and global interconnectedness (González-Pérez & Ramírez-Montoya, 2022; Penprase, 2018; Teo et al., 2021). International frameworks highlight competencies that extend beyond academic literacies. The World Economic Forum (WEF, 2015) proposes a set of 16 skills grouped into three domains: (a) foundational literacies such as numeracy, scientific literacy, and ICT literacy; (b) competencies, particularly the "4Cs" (critical thinking, creativity, collaboration, and communication); and (c) character qualities, including curiosity, adaptability, persistence, leadership, and social awareness. Similarly, the Partnership for 21st Century Learning (P21) emphasizes the 4Cs as the cornerstone of 21st-century readiness, supported by life and career skills and information, media, and technology literacy (Bailey et al., 2015; World Economic Forum, 2015).

OECD's Education 2030 framework complements these perspectives by introducing transformative competencies and learner agency, underscoring the importance of balancing knowledge, skills, attitudes, and values for future-ready citizens (OECD, 2018). Together, these frameworks provide benchmarks against which MI-based pedagogical practices can be mapped, allowing schools in developing countries such as Indonesia to align localized innovations with global expectations.

Higher-Order Thinking Skills (HOTS) as a Mediator

Bloom's revised taxonomy identifies higher-order thinking skills (HOTS) – analysis, evaluation, and creation – central to 21st-century Learning (Karacaoğlu, 2025; Teo et al., 2021). HOTS provide an operational bridge between MI and the 4Cs, translating MI-oriented activities into measurable outcomes. For example, logical-mathematical tasks such as problem-solving games develop critical thinking, while linguistic tasks such as debates foster communication and evaluative reasoning. Similarly, spatial or kinesthetic projects cultivate creativity through design iteration and prototyping. Thus, HOTS function as a mediator, ensuring that MI-based Learning is engaging, rigorous, and aligned with global skill demands.

Authentic Assessment for MI and 21st-Century Learning

Assessment practices are critical in determining whether MI-based Learning translates into genuine 21st-century outcomes. Traditional standardized tests are insufficient, as they privilege linguistic and logical abilities at the expense of other domains (Clarke, 2006; Wahed & Pitterson, 2024). Authentic assessment – comprising performance tasks, portfolios, projects, and reflective observations – offers a holistic alternative by capturing cognitive, psychomotor, and affective domains (Mauizdati, 2020). UNESCO's transversal

competencies initiative similarly emphasizes assessment strategies that move beyond grades to include observable behaviors, social collaboration, and problem-solving abilities (UNESCO, 2023). Evidence from Indonesian elementary schools suggests that when assessment is aligned with MI and HOTS, it documents achievement and reinforces self-regulation, collaboration, and lifelong learning dispositions.

Barriers to MI Implementation in Indonesia

Despite its promise, MI-based Learning in Indonesian elementary schools faces structural, cultural, and resource-related barriers. The rigid national curriculum prioritizes standardized outcomes, limiting teachers' autonomy to innovate. Societal and parental emphasis on academic achievement perpetuates a bias toward linguistic and logical intelligences. Moreover, many teachers lack adequate training in MI pedagogy and rely primarily on IQ or Bloom's taxonomy frameworks. Limited facilities and time further constrain opportunities to explore students' hidden potentials. These factors act as moderators that shape the extent to which MI practices can lead to 21st-century skill development. Addressing these barriers requires systemic reforms, teacher professional development, and culturally sensitive strategies that reconcile academic expectations with broader educational goals.

Theoretical Framework

This study assumes that MI-based lesson planning and enactment, when supported by authentic assessment, can cultivate 21st-century competencies in elementary education. The framework posits a sequential pathway (see Figure 1):

1. **Inputs (Planning and Context):** Teachers observe students' MI profiles and integrate them into daily lesson plans. Cultural and religious values, community expectations, and parental involvement inform planning.
2. **Processes (Learning Activities):** Instructional practices integrate the nine intelligences through authentic, collaborative, and context-sensitive activities. These practices promote learner engagement, self-regulation, and a sense of agency.
3. **Mediators (Psychological and Pedagogical):** Engagement, motivation, and agency mediate MI-based activities to higher-level competencies.
4. **Proximal Outcomes (Classroom-Level):** Students demonstrate HOTS (analysis, evaluation, creation) and 4C skills (critical thinking, creativity, collaboration, communication).
5. **Distal Outcomes (Global Competence):** Outcomes extend to WEF's 16 skills, including foundational literacies and character qualities such as adaptability, initiative, and cultural awareness.
6. **Moderators:** Structural, cultural, and resource-related factors (e.g., national curriculum, parental academic bias, teacher capacity, facilities) moderate the strength of these relationships.

- Assessment:** Authentic assessments (cognitive, psychomotor, and affective) reinforce and validate these processes, ensuring that learning outcomes are captured holistically.

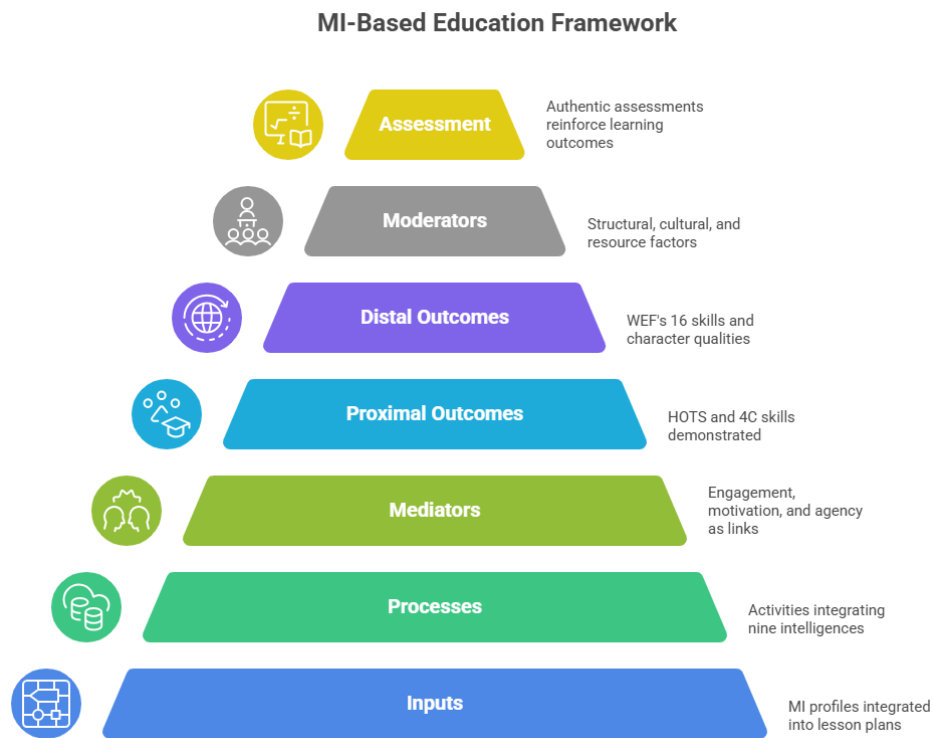


Figure 1. Theoretical Framework

METHODOLOGY

Research Design

This study employed a descriptive qualitative design with phenomenological orientation to capture teachers' and principals' lived experiences of implementing Multiple Intelligences (MI) in elementary education. A qualitative approach was selected because it allows for an in-depth understanding of planning, enactment, and assessment processes in their natural context, without imposing predetermined categories (Creswell & Creswell, 2022; Rogo, 2024). The focus was not to test hypotheses but to explore practices and meanings, making it consistent with the interpretivist paradigm.

Research Sites and Participants

The study was conducted in five elementary schools (SD/MI) in Kudus, Central Java, purposively selected based on three criteria: (a) classified as "advanced schools" within local education offices, (b) known for innovative programs, and (c) representing diverse organizational backgrounds (state, Muhammadiyah, Nahdlatul Ulama, integrated Islamic, and Christian schools). The selected institutions were: MIN Prambatan (state school), SD al-Islam Glantengan (integrated model), SD Islam Nawakartika Langgardalem (NU-based), MI Muhammadiyah Damaran (Muhammadiyah-based), and SD Kristen Cahaya Nur Barongan (Christian-based).

Five principals, 15 teachers, and 20 students (grades 4–6) participated, yielding 40 primary participants. Principals and teachers were selected for their direct involvement in lesson planning and classroom instruction, while students were chosen purposively to capture learning experiences across gender and grade levels. Parental input was also sought informally during school visits to contextualize cultural expectations.

Data Collection

Three techniques were employed to ensure data richness and triangulation (Bowen, 2009; Knott et al., 2022; Walsh, 2020): first, Semi-structured interviews. Conducted with principals and teachers (30–60 minutes each), interviews explored how MI was integrated into lesson planning, instructional activities, and assessment practices. Sample guiding questions included: How do you identify students' MI profiles? What strategies do you use to integrate different intelligences into daily lessons? How do you assess students' Learning beyond traditional tests? Student interviews were shorter (15–20 minutes) and focused on learning experiences, favorite activities, and perceived challenges.

Second, Classroom observations. Researchers observed lessons across different subjects and grades, focusing on (a) entry routines, (b) enactment of MI-related activities, and (c) assessment practices. Fieldnotes recorded interactions, teaching aids, and student engagement. Third, Document analysis. School lesson plans (Daily Lesson Plans/DLPs), student portfolios, and teacher notes were collected and reviewed. These documents served to verify interview and observation data and provided evidence of planning, assessment, and extracurricular integration. All data were collected over three months (June–August 2024) to capture variation across subjects and activities.

Data Analysis

Data were analyzed using thematic analysis (Braun & Clarke, 2006, 2019), following six iterative steps: (1) data familiarization, (2) initial coding, (3) theme generation, (4) theme review, (5) theme definition and naming, and (6) reporting. Two researchers independently coded 20% of transcripts and compared results, yielding inter-coder agreement (Cohen's $\kappa = 0.78$), which indicates substantial reliability. Discrepancies were reconciled through discussion until consensus was reached. To ensure credibility and trustworthiness, the following strategies were employed: triangulation across interviews, observations, and documents; member checking with five participants (teachers and principals) to verify interpretations; peer debriefing with two colleagues familiar with MI pedagogy; and Audit trail of coding and analytic decisions.

RESEARCH RESULTS

The analysis generated five major themes that address how MI-based Learning is planned, enacted, and assessed in Indonesian elementary schools and the constraints that shape its implementation. Findings are presented thematically, supported by verbatim excerpts from teachers, principals, and students (coded for anonymity).

Planning Based on Multiple Intelligences

Across the five schools, lesson planning consistently reflected an awareness of student diversity. Teachers used observations and informal assessments to identify learners' strengths in different intelligences. In practice, however, the translation of MI profiles into lesson plans was uneven. While some teachers documented detailed strategies in their daily lesson plans (DLPs), others relied on general assumptions about students' abilities.

"I know some students are very visual, so I prepare charts and diagrams. But in the lesson plan, I only write 'media: pictures,' not the full detail" (T07, teacher at SD al-Islam).

This pattern indicates that MI-based planning was more implicit than formalized, suggesting a gap between teachers' intuitive practices and systematic documentation.

Enactment of Nine Intelligences

Classroom enactment demonstrated a rich variety of activities linked to all nine intelligences. Linguistic and logical-mathematical tasks dominated core subjects, while kinesthetic, musical, and spatial intelligences emerged more frequently in extracurricular or project-based contexts. Existential intelligence was addressed through value discussions and religious reflections, though its use was less consistent.

For example, a mathematics lesson included a collaborative problem-solving game (logical-mathematical, interpersonal), while a science project on plants integrated naturalist and spatial intelligences.

"We asked students to make a mini-garden in recycled bottles. They had to explain the growth process, draw diagrams, and present in groups" (T12, science teacher, MIN Prambatan).

Students expressed appreciation for activities beyond traditional lectures, emphasizing enjoyment and personal relevance:

"I like when we make posters or act out stories, not just reading the book" (S05, grade 5 student).

Authentic Assessment Practices

Assessment practices extended beyond standardized written tests, including performance tasks, projects, portfolios, and teacher observations. Teachers reported using rubrics to evaluate oral presentations, group work, and creative products. This approach captured cognitive, psychomotor, and affective domains, aligning with authentic assessment principles.

"For the debate activity, I don't only check the content but also teamwork, confidence, and respect for others' opinions" (T03, language teacher, SD Kristen Cahaya Nur).

Nevertheless, the level of rigor varied. Some schools used structured rubrics, while others relied on general impressions. Students valued assessments that recognized their non-academic talents:

"When my teacher scored my drawing, I felt proud. Usually I am not the best in tests, but here I got high marks" (S11, grade 6 student).

Structural and Cultural Barriers

Systemic challenges tempered implementation. Teachers highlighted limited time due to a dense curriculum, inadequate facilities (e.g., science labs, art materials), and the dominance of academic achievement in parental expectations.

“Parents still ask about exam scores first. They rarely ask how creative or collaborative their child is” (P02, principal, MI Muhammadiyah).

Standardized exams also constrained experimentation, as teachers prioritized test preparation. These barriers reflect structural (policy, curriculum) and cultural (achievement-oriented mindset) factors that moderated the effectiveness of MI-based pedagogy.

Mapping MI to 21st-Century Skills

Despite constraints, evidence showed clear linkages between MI-oriented activities and 21st-century outcomes. Linguistic tasks (storytelling, debate) enhanced communication; logical-mathematical games developed critical thinking; spatial and kinesthetic projects fostered creativity; and group-based tasks strengthened collaboration. Intrapersonal journaling and naturalist inquiry supported self-regulation and curiosity. Table 1 below illustrates this mapping as observed in the study.

Table 1. Mapping Multiple Intelligences to 21st-Century Outcomes

MI Domain	Representative Activity	HOTS (Analysis/Eval. Creation)	4C Skill	Observable Outcome	Evidence Source
Linguistic	Storytelling, debate	Evaluation	Communication	Clarity, argumentation	Obs T2; Intv T07
Logical-Math.	Problem-solving games, experiments	Analysis/Creation	Critical thinking	Hypothesis framing	Obs S3; Doc LP
Spatial	Poster design, model-building	Creation	Creativity	Design iteration	Student portfolio
Musical	Rhythm-based mnemonics	Analysis	Communication	Accurate recall	Intv T09
Kinesthetic	Role-play, group drama	Creation	Collaboration	Coordinated roles	Obs P5
Interpersonal	Peer feedback, group project	Evaluation	Collaboration/Comm.	Negotiation, empathy	Intv S08
Intrapersonal	Reflective journaling, goal-setting	Evaluation	–	Self-regulation	Student journals
Naturalist	Outdoor inquiry, classification	Analysis/Eval.	Critical thinking	Categorization on accuracy	Fieldnote N2

Existential*	Ethical/value discussion	Evaluation	Communication	Perspective-taking	Intv T02
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In sum, the study found that MI-based pedagogy in Indonesian elementary schools (1) was partially embedded in planning but often informally documented, (2) was richly enacted through diverse activities engaging all nine intelligences, (3) incorporated authentic assessments that valued non-academic talents, (4) was constrained by structural and cultural barriers, and (5) demonstrated clear connections between MI-based practices and 21st-century skill development.

DISCUSSION

This study aimed to examine how Multiple Intelligences (MI)-based learning is planned, enacted, and assessed in Indonesian elementary schools, and how these practices align with 21st-century skills. Findings reveal a nuanced picture: while teachers demonstrate commitment to recognizing students' diverse strengths, implementation is uneven and constrained by structural and cultural factors. This section situates these findings within broader theoretical debates, compares them to existing research, and outlines implications for policy and practice.

MI-Based Planning: From Intuition to Systematization

The finding that teachers often identify student strengths intuitively rather than systematically aligns with earlier observations by (Clarke, 2006; Wahed & Pitterson, 2024, 2024) that MI practices frequently remain at the level of teacher awareness rather than formalized documentation. This study's lesson plans contained references to visual aids or group work, but rarely articulated a deliberate mapping of MI domains. This gap suggests a need for teacher professional development that introduces MI concepts and provides tools for systematic integration into planning and assessment frameworks.

(Davis et al., 2011; Gardner & Hatch, 1989) emphasized that MI is not a checklist but a way of conceptualizing Learning. The present findings reinforce this by showing that intuitive recognition of intelligence is a valuable starting point. However, without structured support, teachers risk reducing MI to sporadic practices rather than coherent pedagogy.

Enactment of Nine Intelligences: Evidence of Rich but Uneven Practice

Classroom observations revealed diverse MI enactments – from linguistic debates to naturalist mini-gardens and kinesthetic role-plays. These activities demonstrate the flexibility of MI in fostering creativity, collaboration, and problem-solving, consistent with Nicholson-Nelson's claim that MI enhances engagement through varied entry points (Jung & Chang, 2017; Nicholson-Nelson & Moss, 1998). At the same time, linguistic and logical-mathematical intelligences remained dominant, reflecting both the curricular emphasis on tested subjects and cultural biases toward academic achievement.

The treatment of existential intelligence illustrates both potential and debate. While value discussions and reflections resonate with Indonesia's

religious and moral education traditions, the inconsistency of implementation echoes scholarly concerns over whether existential intelligence should be regarded as a legitimate category (Gardner & Moran, 2006; Lei et al., 2021; Waterhouse, 2006). By treating it as an “emerging domain,” this study avoids reifying its status while acknowledging its pragmatic contribution to ethical reasoning and perspective-taking in classrooms.

Authentic Assessment: Expanding the Meaning of Achievement

Using projects, performances, and portfolios highlights a promising shift toward authentic assessment. This echoes UNESCO's (2023) call for assessment strategies that capture transversal competencies beyond standardized tests. Importantly, students felt valued when their creative or artistic abilities were recognized – an affective outcome often overlooked in test-driven systems. However, variability in rigor raises questions of equity and reliability. Teachers who employed structured rubrics could better justify grading and provide feedback, while others relied on subjective impressions. This finding confirms previous critiques that, without clear frameworks, authentic assessment risks inconsistency (Kim, 2024; Koh, 2017). Strengthening assessment literacy among teachers is therefore essential for ensuring fairness and credibility.

Structural and Cultural Constraints: Moderating Factors

The barriers identified – curricular density, limited facilities, and parental emphasis on exam scores – mirror challenges documented in other developing-country contexts (Sahlberg, 2016). In Indonesia, the high-stakes nature of national exams incentivizes teachers to prioritize linguistic and logical-mathematical skills at the expense of other intelligences (Eidenskog et al., 2023). Parental expectations further reinforce this bias, as illustrated by principals' observations that parents rarely ask about creativity or collaboration.

These constraints function as moderators in the theoretical framework, weakening the translation of MI pedagogy into 21st-century outcomes. Addressing them requires systemic reforms, including greater curricular flexibility, investment in teacher training, and strategies to engage parents in valuing broader competencies.

Mapping MI to 21st-Century Competencies: A Contribution from the Global South

Perhaps the most significant contribution of this study is the empirical mapping of MI-based practices onto 21st-century skills frameworks (Karacaoğlu, 2025; OECD, 2018; World Economic Forum, 2015). While prior literature has theorized about such connections, evidence from multi-site elementary schools in Indonesia demonstrates how specific activities – storytelling, role-play, poster design, inquiry projects – activate MI domains that support the 4Cs (critical thinking, creativity, collaboration, communication) and higher-order thinking.

This mapping not only validates the relevance of MI in a global skills agenda but also highlights its contextual adaptability in resource-limited settings. By employing low-cost, culturally embedded strategies (e.g., using

recycled bottles for science projects), teachers created meaningful learning experiences aligned with international competencies. This addresses a gap in the literature, which has often overlooked how schools in the Global South innovate under constraints.

Implications for Policy and Practice

The findings suggest three key implications: first, **Teacher Development:** Professional development programs should focus on translating MI theory into systematic planning and authentic assessment, with practical tools and exemplars. Second, **Curricular Flexibility:** Policymakers should provide space for teachers to balance exam preparation with skill development through project-based modules or alternative assessments. Third, **Parental Engagement:** Schools should involve parents in dialogues about 21st-century competencies, reframing “achievement” to include collaboration, creativity, and ethical reasoning alongside test scores.

Novelty and Contribution

This study advances the literature by (a) providing multi-site qualitative evidence from Indonesian elementary schools, a context underrepresented in MI research, (b) empirically mapping MI-based practices onto 21st-century skill frameworks, and (c) theorizing structural and cultural barriers as moderators in the MI–skills pathway. Together, these contributions extend theoretical discourse and practical application, offering insights relevant to scholars, practitioners, and policymakers seeking to integrate MI with global skill agendas.

CONCLUSIONS AND RECOMMENDATIONS

This study examined how Multiple Intelligences (MI)–based learning is planned, enacted, and assessed across five elementary schools in Kudus, Central Java, and how these practices align with 21st-century skill frameworks. Findings demonstrate that while teachers consistently acknowledge students' diverse strengths, integrating MI into lesson planning remains intuitive mainly and informal. Classroom enactment, however, reflects a broad spectrum of activities across all nine intelligences, with particular emphasis on linguistic and logical–mathematical domains. Authentic assessment practices, including projects, portfolios, and performance tasks, further validate student learning beyond standardized tests, though their rigor varies across schools.

These findings carry significant implications for educational policy and practice. MI-based pedagogy offers a viable pathway for cultivating higher-order thinking skills (HOTS) and the 4Cs—critical thinking, creativity, collaboration, and communication—central to global 21st-century frameworks. Schools in resource-limited settings can meaningfully connect localized innovations with international agendas by employing low-cost, context-appropriate strategies. However, systemic reforms are required to maximize impact. Teacher professional development must emphasize systematic planning and assessment, curricular structures must provide greater flexibility, and parents need to be

engaged in redefining academic success to include creative and collaborative competencies.

At the same time, structural and cultural constraints – curricular rigidity, parental emphasis on exam scores, and limited teacher training – act as moderators that temper the effectiveness of MI in achieving these outcomes. Addressing these barriers will be crucial if MI-based Learning is to fulfill its promise as a transformative pedagogy in developing contexts such as Indonesia.

This research contributes novelty by empirically mapping MI-based practices onto 21st-century skill frameworks, theorizing systemic constraints as moderating variables, and documenting evidence from a multi-site study in the Global South. Nonetheless, limitations must be acknowledged. The study is restricted to one district, relies on cross-sectional qualitative data, and lacks longitudinal or quantitative validation. Future research should adopt mixed-methods designs, extend to diverse regions, and examine longitudinal trajectories of how MI-based Learning influences student outcomes over time. By doing so, scholars and practitioners can more fully realize the potential of MI as both a theoretical lens and a practical framework for cultivating globally relevant competencies in local educational systems.

ADVANCED RESEARCH

This study is limited to five schools in one district. It uses cross-sectional qualitative data, which may restrict generalizability and cannot capture the long-term effects of MI-based Learning. Future research should employ mixed-methods designs, incorporate longitudinal perspectives, and compare diverse regions or school types to strengthen evidence on how MI pedagogy fosters 21st-century skills in varied contexts.

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