



DESIGNING A LOCAL WISDOM-BASED LEARNING MODEL GROUNDED IN KI HADJAR DEWANTARA'S TRIKON PRINCIPLES FOR ELEMENTARY SCHOOL LITERACY: A NEEDS ANALYSIS AND DESIGN STUDY

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Abstract. Many elementary school students still struggle with reading and writing, and few instructional models systematically link literacy learning to students' local culture. This study aimed to (1) analyze the needs for local wisdom-based literacy learning at an Islamic elementary school and (2) design a learning model grounded in Ki Hadjar Dewantara's Trikon principles of continuity, convergence, and concentricity. The study followed the define and design stages of the 4D development model. Data were collected at MI Muhammadiyah PK Kartasura, Indonesia, through a semi-structured interview with a teacher, classroom observation, and analysis of student literacy products, and were analyzed using the interactive model of Miles, Huberman, and Saldaña with technique triangulation. The teacher already linked lessons to students' prior experiences and to local contexts such as the traditional market, and the school ran extensive literacy programs; however, the teacher was not familiar with the Trikon concept, local wisdom was introduced mainly through cultural programs rather than through reading and writing, and practice depended on individual teachers' creativity without a shared instructional sequence. On this basis, a model was designed comprising a six-stage syntax (experience orientation, local wisdom-based literacy exploration, analysis and conceptual development, literacy product creation, environment-based implementation, and reflection and environmental reinforcement), a social system, principles of reaction, a support system, a literacy assessment, and expected instructional and nurturant effects. The model targets reading comprehension and the writing of local culture-based texts. It has not yet been validated and is offered as a theoretically grounded prototype for subsequent expert validation and classroom trials.

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INTRODUCTION

Literacy is one of the fundamental competencies that students must possess to face the challenges of twenty-first-century education. It is no longer limited to decoding and encoding written language; it encompasses the ability to understand, use, evaluate, reflect on, and engage with texts in order to achieve one's goals and participate in society (OECD, 2023). Literacy therefore underpins critical thinking, communication, and problem solving (Hartono et al., 2024; Putri et al., 2024). In this study, literacy refers specifically to *reading literacy*, namely students' ability to comprehend and interpret texts, and *writing literacy*, namely their ability to express ideas in written products, both examined in relation to texts and contexts drawn from students' local culture. This focus determines how the model is designed and how its outcomes should later be assessed.

Despite its importance, the literacy of Indonesian students remains a serious concern. In PISA 2022, Indonesian 15-year-olds scored 359 points in reading, far below the OECD average of 476 (OECD, 2023), and in PISA 2025, only 27% of Indonesian students reached the baseline proficiency level (Level 2) in reading, compared with 69% across OECD countries (OECD, 2026). Because these students completed elementary school several years earlier, the results suggest that literacy difficulties begin in the early grades. Studies of Indonesian elementary schools point to low reading interest, limited independent reading habits, and underuse of learning resources, shaped by internal

factors such as motivation and external factors such as limited access to reading materials, family support, school facilities, and a growing preference for digital media (Ananda et al., 2025; Muti'ah et al., 2025; Ramadhani et al., 2025). These conditions call for instructional strategies that develop students' thinking skills and connect texts with their lived experiences (Istiq'faroh et al., 2026; Novianti et al., 2025; Saputra et al., 2025).

Connecting texts with students' experiences is grounded in constructivist and contextual learning theories. From a sociocultural constructivist perspective, learners build new understanding on what they already know, through interaction with more knowledgeable others and with the cultural tools of their community (Vygotsky, 1978). Contextual teaching and learning similarly holds that students find meaning in academic content when it is connected to the circumstances of their daily lives (Johnson, 2002), and research on funds of knowledge shows that the knowledge and practices of students' households and communities are a resource for classroom learning rather than a deficit to be corrected (Moll et al., 1992). For literacy, these perspectives imply that texts rooted in familiar cultural settings lower the barrier to comprehension and give students meaningful material to write about.

Internationally, these ideas are developed in culturally relevant and culturally responsive pedagogy, which uses students' cultural references as vehicles for academic learning and for affirming cultural identity (Gay, 2018; Ladson-Billings, 1995); in culturally sustaining pedagogy, which seeks to sustain rather than merely use students' cultural practices (Paris, 2012); and in place-based education, which treats the local community and environment as the starting point of learning (Gruenewald, 2003; Sobel, 2004). In Indonesia, comparable ideas are expressed through local wisdom-based learning and ethnopedagogy. Local wisdom refers to the values, knowledge, traditions, and practices developed within communities and transmitted across generations (Mutiah et al., 2024; Septina, 2025). Integrating it into instruction makes content more contextual (Ramadani, 2025) and has been reported to strengthen cultural identity, social and environmental awareness, and character (Asrial et al., 2022; Kamal et al., 2025). Students have also been found to be highly enthusiastic about learning that incorporates local wisdom, which serves as a valuable asset for both students and teachers in fostering character traits aligned with the *Profil Pelajar Pancasila* (Pancasila Student Profile) (Syaharani & Fathoni, 2023). At the elementary level, local wisdom-based teaching materials and local culture-based learning have also been linked to improved literacy (Ardiyatama et al., 2026; Eliyanti et al., 2024; Hanipah & Day, 2025; Yonanda et al., 2023).

Ki Hadjar Dewantara, the founder of Taman Siswa, offers an Indonesian philosophical foundation for these ideas. In his writings on culture, he formulated the Trikon principles as a strategy for cultural development: *continuity* (*kontinuitas*), meaning that a nation's culture should develop from its own roots rather than imitate others; *convergence* (*konvergensi*), meaning that it should be open to and interact with other cultures toward a shared human civilization; and *concentricity* (*konsentrisitas*), meaning that while converging, it should retain its own identity, like concentric circles that share a center yet keep their own circumference (Dewantara, 2011b; Kurniansyah et al., 2023). Trikon is thus primarily a principle of cultural development rather than a pedagogical framework. However, Dewantara regarded education as a cultural process in which children are guided to grow within their own natural and cultural environment (Dewantara, 2011a) a view that continues to inform contemporary educational practice (Purbonuswanto et al., 2024), and several scholars have argued that the Trikon principles can be applied to schooling (Kurniansyah et al., 2023; Rais et al., 2026; Sari et al., 2024). Following this line, the present study reinterprets the three principles at the level of classroom learning: continuity as building new learning on students' prior experiences and cultural knowledge; convergence as opening local knowledge to dialogue with science, technology, and information from wider sources; and concentricity as keeping students' own environment and cultural identity at the center of learning. Each pedagogical meaning preserves the logic of the original cultural principle but applies it to the learner rather than to the nation.

Several local wisdom-based or culturally responsive learning models have already been developed in Indonesia. Yanti et al. (2022) used the ADDIE model to develop a science learning



model based on the *Piil Pesenggiri* local wisdom of Lampung to improve process skills and character. Sumardjoko and Musyiam (2018) developed a civic education learning model based on local wisdom that improved students' character and national identity scores by 80% and achieved mastery learning of at least 75%. Nugraha and Abidin (2026) developed a culturally responsive teaching model with nine learning stages that improved elementary students' attitudes toward the Indonesian language and culture. Mas'ad et al. (2026) developed an ethnopedagogical model based on the *Merangkat* tradition of Lombok to strengthen junior secondary students' social cohesion, and Minsih et al. (2025) described how culturally responsive teaching integrated *Palolai* local wisdom into science and social studies lessons in Baubau. Other studies have used local wisdom mainly as teaching materials or learning resources (Hanipah & Day, 2025; Qudwatullathifah et al., 2025; Rahmawati et al., 2025; Yonanda et al., 2023). These models target science process skills, character and national identity, attitudes, or social cohesion rather than reading and writing literacy, and none derives its syntax from Dewantara's thought. Conversely, existing studies on Trikon are largely conceptual or descriptive (Kurniansyah et al., 2023; Rais et al., 2026; Sari et al., 2024) and do not translate the principles into an operational instructional sequence. A literacy learning model whose syntax is explicitly derived from the Trikon principles therefore remains absent.

A learning model, as distinct from a strategy or a set of teaching materials, specifies five components: a syntax (the sequence of phases), a social system (the roles and relationships of teachers and students), principles of reaction (how the teacher responds to students), a support system (the resources and conditions required), and instructional and nurturant effects (the direct outcomes and the accompanying effects of the learning environment) (Joyce et al., 2015). Designing a model therefore requires each of these components to be specified and justified, not only the sequence of activities.

Preliminary interviews and classroom observations at MI Muhammadiyah PK Kartasura revealed that the school had implemented various literacy activities, including reading, writing, classroom discussions, student book writing, poster creation, school magazine publication, and journalism programs. Teachers also drew on students' prior experiences, the surrounding environment, and local cultural values through apperception, discussions, and hands-on activities. However, these practices were implemented situationally, depended largely on individual teachers' creativity, and had not been organized into a structured instructional model with a clearly defined syntax.

Accordingly, this study aimed to (1) analyze teachers' practices and needs regarding local wisdom-based literacy learning at MI Muhammadiyah PK Kartasura and (2) design a learning model grounded in the Trikon principles, comprising a syntax, social system, principles of reaction, support system, literacy assessment, and expected instructional and nurturant effects. The study reports the needs analysis and design stages; validation and effectiveness testing are left to subsequent stages of development.

RESEARCH METHODS

Research Design

This study constitutes the first phase of a development study and followed the define and design stages of the 4D model (Thiagarajan et al., 1974). The develop stage (expert validation and limited trials) and the disseminate stage are planned for subsequent studies. Within the define stage, a qualitative descriptive approach was used to describe the school's practices and identify needs; its results then served as the input for the design stage.

The define stage consisted of (a) a front-end analysis of literacy practices and the integration of local wisdom at the school; (b) a learner analysis of the characteristics of students in the lower grades; (c) a concept analysis of the Trikon principles and of the literacy competencies targeted; and (d) the specification of design objectives. The design stage consisted of (a) mapping each identified need to a design decision and to one of the Trikon principles; (b) formulating the syntax; (c) specifying the other model components following Joyce et al. (2015); and (d) designing the literacy assessment. The mapping is reported in Table 3 so that each stage of the syntax can be traced back to the data.



Setting and Participants

The study was conducted at MI Muhammadiyah PK Kartasura, Sukoharjo Regency, Central Java, Indonesia, an Islamic elementary school that runs structured school literacy programs, including student book publication, a school magazine, literacy competitions, and a journalism extracurricular program. The key informant was the Grade 1 classroom teacher, who was actively involved in teaching and in the school's literacy programs and was therefore selected purposively; the teacher is coded T1 in the Results. Data were collected in April 2026.

Instruments and Data Collection

Data were collected through a semi-structured interview, classroom observation, and document analysis. The interview guide contained 25 items in five aspects: conceptual understanding of literacy and higher-order creativity (items 1–9), implementation of the Trikon principles (items 10–13), literacy and higher-order creativity (items 14–18), local wisdom (items 19–23), and reflection (items 24–25). The observation guide comprised a teacher activity sheet with six indicators (continuity, concentricity, convergence, literacy, creativity, and reflection), a student activity sheet with five indicators (literacy, creativity, collaboration, confidence, and local connection), a student product analysis sheet, and a creativity checklist with five indicators. Both instruments were developed from the Trikon concept (Dewantara, 2011b; Kurniansyah et al., 2023). The documents analyzed were student literacy products, namely anthology books written by students, the school magazine *Ceria* (Edition 9, May 2023), posters and comics from a school literacy competition, and student content published on the school's social media, together with photographs of literacy activities.

Data Analysis

Data were analyzed using the interactive model of Miles et al. (2014), consisting of data condensation, data display, and conclusion drawing and verification. Interview responses, observation notes, and documents were coded deductively using the three Trikon principles and the literacy categories, and inductively for emerging needs and challenges. Credibility was supported through technique triangulation, comparing interview, observation, and document data (Lincoln & Guba, 1985). Interview responses were translated from Indonesian into English by the authors. The coded needs were synthesized into a list of design requirements that served as the input for the design stage.

RESULTS AND DISCUSSION

1. Needs Analysis (Define Stage)

a. Literacy Practices and Programs

The interview showed that literacy is implemented progressively according to students' developmental stages (Table 1). As T1 explained, "Grade 1 focuses more on reading, writing, and arithmetic, Grade 2 on comprehension, and Grade 3 on making more real works from what they practice every day" (item 14). Beyond lessons, the school supports literacy through student book writing, a school magazine, comic posters, literacy competitions, and a journalism extracurricular program in which students "are trained to make a kind of news" by interviewing people around them (item 15).

Table 1. Summary of the Teacher Interview (Selected Items)

Item	Aspect	Question	Summary of T1's response
1	Conceptual understanding	How do you understand literacy in 21st-century elementary learning?	Literacy is developed through school programs with targets for each grade: storytelling and basic reading, writing, and arithmetic in Grade 1, followed by reading literacy and reading habits supported by student affairs programs.
2	Conceptual understanding	Which types of literacy are important for elementary students?	Reading and writing, so that students can understand texts, express ideas in writing, and build reading habits early.
3	Conceptual understanding	Does literacy only involve reading and writing?	Literacy is extended to producing works, such as stories that are compiled into books.



Item	Aspect	Question	Summary of T1's response
9	Conceptual understanding	Are you familiar with the Trikon concept?	Not yet familiar with Trikon learning; some of its new terms are already applied in practice.
10	Trikon implementation	How do you link new learning with students' prior knowledge?	Through apperception in the form of questions and answers about students' experiences, followed by explanation of the new concept, practice, and product making.
11	Trikon implementation	How is learning developed from students' immediate environment toward broader concepts?	Learning starts from what is closest to students (personal experiences, family, home, school), including outing classes, and is then linked to the subject matter.
13	Trikon implementation	How do you integrate local values with modern knowledge?	Traditional practices from the local community are connected with scientific concepts and current technology, especially in science and social studies, through discussion and local projects.
14	Literacy and creativity	What activities encourage students to create works?	Activities differ by grade (Grade 1 basic literacy, Grade 2 comprehension, Grade 3 real works from daily life); literacy has its own timetable slot.
15	Literacy and creativity	Are students free to develop their own ideas?	Through the school magazine, posters, literacy competitions, and a journalism extracurricular program in which students conduct interviews and produce news.
16	Literacy and creativity	What works do students most often create?	Books, literary works, and comic posters.
19	Local wisdom	What local wisdom have you integrated into learning?	Batik is worn on Thursdays to introduce batik culture; a special Kartasura palace (<i>keraton</i>) batik uniform is being planned.
20	Local wisdom	Which folktales, cultural practices, traditional games, or regional language do you use?	Traditional dress and cultural introduction on certain Thursdays.
21	Local wisdom	How are these values included in the material?	The teacher introduces differences between Islamic teachings and local cultural practices.
22	Local wisdom	Are students more interested when material relates to their culture?	Yes, because they learn to recognize cultural heritage sites.
23	Local wisdom	Do students understand material more easily with local examples?	Yes; for example, students shop in the traditional Kartasura market and learn Javanese culture and etiquette.
24	Reflection	What are the main challenges?	Not all material can be linked to local culture; packaging values into lessons requires creativity, and teachers differ in mindset and strategy.
25	Reflection	What are your expectations for the model?	Strengthening local culture in both school programs and classroom learning.

b. Awareness of the Trikon Principles

When asked whether he was familiar with the Trikon concept, T1 answered that he was “not yet familiar with Trikon learning,” although “some of its new terms are already applied” (item 9). Nevertheless, the teacher's descriptions of practice corresponded to each principle. For continuity, the teacher used “apperception in the form of questions and answers” to lead students to “use experiences they have seen and done” (item 10). For concentricity, learning started “from the things closest and most familiar to students, such as personal experiences, family, home, and school” (item 11). For convergence, the teacher brought up “examples of traditional practices in the students' surroundings” and connected them “with modern theories or approaches” (item 13). Because items 10, 11, 13, and 24 named the Trikon principles, these responses are treated as descriptions of practice



rather than as evidence of conscious Trikon-based teaching, and they were interpreted together with the observation and document data.

c. Integration of Local Wisdom

Local wisdom was introduced mainly through school cultural programs and direct experiences rather than through reading and writing activities. The school introduces batik culture by having students wear batik on Thursdays and plans a special batik uniform based on the Kartasura palace (item 19); students also wear traditional dress on certain days (item 20) and learn to recognize cultural heritage sites (item 22). In lessons, “the teacher introduces the culture of the Kartasura market, where children are invited to shop in the traditional way,” so that, besides learning Javanese culture, they learn “the etiquette of the culture” (item 23). The teacher also discusses differences between Islamic teachings and local cultural practices (item 21). When asked about folktales, traditional games, or regional language, however, the teacher mentioned only traditional dress and cultural introduction (item 20). The main challenge was that “not all material can be linked,” and that teachers must be “more creative in packaging [values] because not all teachers have the same mindset and the same strategies” (item 24).

d. Classroom Observations

On the teacher activity sheet, all six indicators were marked as observed (Table 2). Continuity was evident in apperception, concentricity in the use of students’ familiar settings as the starting point of learning, and convergence in connecting traditional practices with modern perspectives. On the student activity sheet, students were observed telling stories and expressing opinions according to their abilities, producing books, magazines, and posters, and interviewing people around them as part of journalism activities; no notes were recorded for students’ confidence or for their connection of material to the local environment. The observation notes for the Trikon indicators closely mirror the interview responses, so the observation data mainly corroborate rather than independently extend the interview data.

Table 2. Results of the Teacher Activity Observation

Aspect	Indicator	Yes	No	Observation notes
Continuity	The teacher connects the material with students’ experiences.	Yes		Apperception linking new material to students’ prior knowledge.
Concentricity	The teacher uses the local context as the center of learning.	Yes		Learning starts from what is closest and most familiar to students (personal experiences, family, home, school), including outing classes.
Convergence	The teacher relates local values to global concepts.	Yes		Traditional practices from the students’ surroundings are connected with modern theories so that students see that local values remain relevant.
Literacy	The teacher facilitates reading, writing, or discussion.	Yes		Reading, writing, and discussion are facilitated; students produce books, magazines, and posters.
Creativity	The teacher assigns the creation of original products.	Yes		Students create original works and products that are kept by the school.
Reflection	The teacher invites students to reflect on learning outcomes.	Yes		No notes recorded.

e. Analysis of Student Literacy Products

The documents examined included anthology books written by students, such as *Detektif Sekolah* [School Detective] and *Tahu Gejrot Favoritku* [My Favorite Tahu Gejrot], the school magazine *Ceria* (Edition 9, May 2023), and posters and comics from a school literacy competition published in the magazine. The school also reported student content on its social media. These products show that students regularly produce substantial written and visual works. Their themes, however, center mainly on school life, everyday experiences, food, and the promotion of reading, as in “Detektif Sekolah” and “Tahu Gejrot Favoritku”. No lesson plans or assessment rubrics linking



literacy products to local wisdom were available for analysis. On the creativity checklist, the observer marked all five indicators as present, including the production of local culture-based project products.

f. Synthesis of Needs

Taken together, the data show that the school does not lack literacy activities or awareness of local culture. What it lacks is a shared and explicit instructional sequence linking the two. Four needs were identified: (N1) a common syntax that connects students' prior experiences, local wisdom, and literacy activities, since the teacher was unfamiliar with the Trikon concept and integration depends on individual teachers' creativity; (N2) guidance for linking topics that are not obviously related to local culture with local contexts and with wider knowledge; (N3) a systematic route from local culture to reading and writing, since local wisdom is introduced mainly through cultural programs and outings while students' literacy products rarely draw on local culture; and (N4) a means of assessing reading and writing outcomes in local wisdom-based lessons, since no such assessment was reported or found in the documents.

2. Model Design (Design Stage)

a. From Needs to Design Decisions

Table 3 shows how each finding and need was translated into a design decision and assigned to a stage of the syntax and to one of the Trikon principles.

Table 3. Derivation of the Syntax from the Needs Analysis

Finding / need (data source)	Design decision	Stage	Trikon principle
Apperception through questions and answers about students' experiences (item 10; observation)	Formalize apperception as an opening stage that elicits students' experiences related to the local culture of the topic	1	Continuity
Local contexts such as the traditional market and outing classes aid understanding (items 11, 23; observation)	Use texts and sources drawn from local wisdom as the main reading material	2	Continuity
Teacher unfamiliar with Trikon; integration depends on individual creativity; some topics are not obviously related to local culture (N1, N2; items 9, 24)	Add a stage in which students analyze local texts against science, technology, and wider sources, giving teachers a fixed bridge for any topic	3	Convergence
Rich literacy products, but their themes rarely draw on local culture (N3; items 14–16, 19–20; documents)	Integrate the creation of local culture-based literacy products into the lesson sequence	4	Convergence
Students interview people around them; learning starts from family, home, and community (items 11, 15; observation)	Students present and apply their products in their surrounding environment	5	Concentricity
The school expects the model to strengthen local culture (item 25); no literacy assessment linked to local wisdom (N4)	Close with reflection on cultural values and with assessment of reading and writing	6	Concentricity

b. Syntax of the Model

The resulting six-stage syntax is presented in Table 4 and Figure 1. The first two stages apply continuity by building on what students already know about their own culture; the third and fourth apply convergence by opening local knowledge to wider information and transforming it into new texts; and the last two apply concentricity by returning learning to students' own environment and identity. Reflection in Stage 6 feeds into the experience orientation of the next learning cycle.



Table 4. Syntax of the Trikon Learning Model Based on Local Wisdom

Stage	Main activities	Teacher	Students	Literacy focus	Trikon principle
1. Experience Orientation	Connecting the topic with students' daily experiences of local culture	Elicits students' prior experiences through apperception	Share relevant personal experiences	Oral language; activating background knowledge	Continuity
2. Local Wisdom-Based Literacy Exploration	Reading and understanding texts based on local wisdom and culture	Provides local wisdom-based texts and sources	Read, identify, and comprehend information	Reading comprehension	Continuity
3. Analysis and Conceptual Development	Relating information from local texts to science, technology, and other sources	Facilitates discussion and guides analysis	Compare, analyze, and develop understanding	Critical reading; information literacy	Convergence
4. Literacy Product Creation	Transforming understanding into written or multimodal literacy products	Guides drafting and gives feedback	Produce texts, posters, booklets, or news reports	Writing	Convergence
5. Environment-Based Implementation	Applying and presenting learning outcomes in the social and cultural environment	Guides application in authentic contexts	Present products to peers, families, or the community	Oral and written presentation	Concentricity
6. Reflection and Environmental Reinforcement	Reflecting on the learning experience and on the value of local culture	Facilitates reflection and assessment	Reflect, self-assess, and evaluate learning	Reflective writing; self-assessment	Concentricity

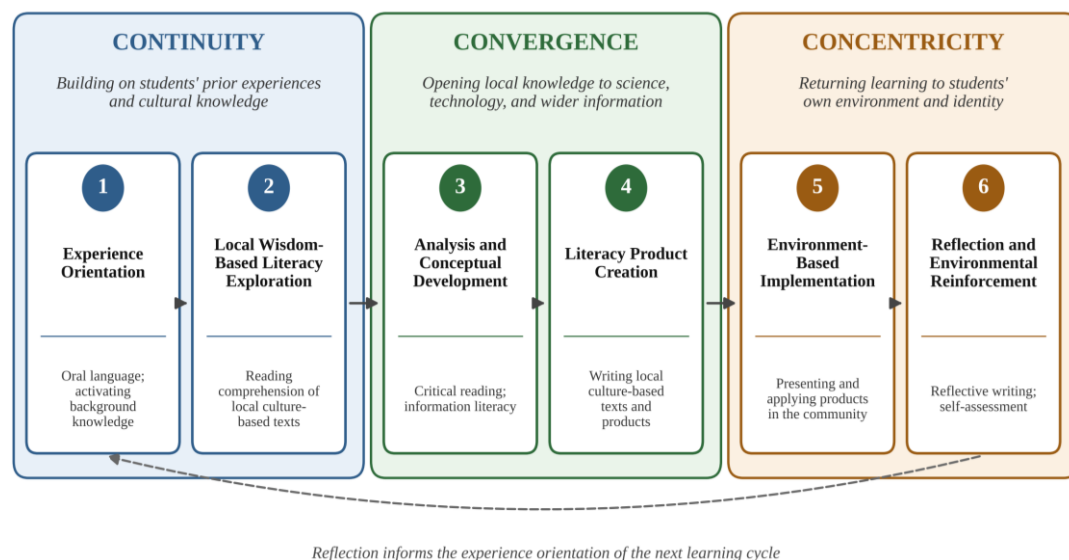


Figure 1. Syntax Flow of the Trikon Learning Model Based on Local Wisdom

c. Other Components of the Model

Following Joyce et al. (2015), the remaining components of the model are specified in Table 5.

Table 5. Components of the Model Other than the Syntax

Component	Description
Social system	Moderately structured. The teacher sequences the stages and acts as facilitator in the spirit of Dewantara's <i>among</i> system; students work individually and in small groups; family and community members (e.g., traders, elders, artisans) may act as informants in Stages 2 and 5.
Principles of reaction	The teacher values students' cultural experiences without judgment, asks probing questions that link local and wider knowledge, gives feedback on drafts that addresses meaning before form, and provides additional scaffolding for students with lower reading proficiency.
Support system	Local culture-based texts at appropriate readability levels (folktales, descriptions of traditions, interviews with community members); access to library and digital sources; local sites such as the traditional market; a teacher guide and student worksheets; collaboration with parents and the community.
Literacy assessment	Reading: comprehension questions and retelling at literal, inferential, and evaluative levels on local culture-based texts. Writing: an analytic rubric for literacy products (content accuracy, organization, language use, and integration of local and wider knowledge). Process: observation of participation and reflection journals. The instruments will be developed and validated in the develop stage.
Instructional effects	Reading comprehension of local culture-based texts; writing of narrative and informational texts; information literacy.
Nurturant effects (expected)	Appreciation of local culture and cultural identity; openness to science and technology; collaboration; character values such as mutual cooperation (<i>gotong royong</i>) and politeness.

3. Discussion

a. Theoretical Grounding of the Model

The model translates Dewantara's cultural principles into an instructional sequence and thereby connects them with international learning theories. Continuity in Stages 1 and 2 corresponds to the constructivist view that new knowledge is built on prior knowledge (Vygotsky, 1978) and to the use of students' funds of knowledge (Moll et al., 1992). In literacy terms, activating cultural background knowledge before reading supports comprehension, while local texts make reading materials familiar and meaningful (Misfa et al., 2025).

Convergence in Stages 3 and 4 distinguishes the model from approaches that use local culture only as content. Students compare local knowledge with information from other sources, including science and technology, and transform the result into their own texts (Ardiyatama et al., 2026; Emda & Hanim, 2024). This mirrors Dewantara's view that a culture must interact with others in order to develop, and it extends literacy from comprehension to the evaluation and production of information.

Concentricity in Stages 5 and 6 returns learning to students' environment and identity. Applying and presenting products in the community reflects place-based education (Gruenewald, 2003; Sobel, 2004) and environment-based learning (Handiyati et al., 2023), while reflection on cultural values echoes the aim of culturally sustaining pedagogy to sustain, not merely use, students' cultural practices (Paris, 2012). The model thus offers an Indonesian philosophical grounding for principles widely discussed in the international literature.

b. Comparison with Other Local Wisdom-Based Learning Models

Table 6 compares the proposed model with other local wisdom-based and culturally responsive learning models developed in Indonesia.



Table 6. Comparison with Other Local Wisdom-Based and Culturally Responsive Learning Models

Model	Cultural / theoretical basis	Target outcome	Level	Syntax	Development stage reached
Yanti et al. (2022)	<i>Piil Pesenggiri</i> local wisdom (Lampung); scientific approach	Science process skills and character	Elementary (Grade IV)	Scientific steps (observe, ask, collect data, communicate)	ADDIE; validation and trial
Nugraha & Abidin (2026)	Culturally responsive teaching	Attitudes toward Indonesian language and culture	Elementary	Nine stages	Design and development research; usability assessment and limited trial
Mas'ad et al. (2026)	Ethnopedagogy; <i>Merangkat</i> tradition (Sasak)	Social cohesion	Junior secondary	Five stages, from cultural orientation to social internalization	Plomp model; expert validation and limited pilot
Minsih et al. (2025)	Culturally responsive teaching; <i>Palolai</i> local wisdom (Baubau)	Participation and cultural identity in science and social studies	Elementary	Teacher strategies; no fixed syntax	Ethnographic study
This study	Ki Hadjar Dewantara's Trikon principles	Reading and writing literacy	Elementary (Islamic school)	Six stages linked to three principles	4D define and design; not yet validated

The proposed model shares with these models the use of local culture as a starting point and the inclusion of reflection, which also appears in the value reflection stage of Mas'ad et al. (2026). It differs in three respects. First, its syntax is derived from an Indonesian educational philosophy rather than from a generic scientific or culturally responsive framework, so each stage has an explicit philosophical rationale. Second, it targets reading and writing literacy and therefore includes a dedicated product-creation stage and a literacy assessment, an element also emphasized in culturally responsive language learning (Rumiyanto et al., 2024), whereas the other models focus on process skills, character, attitudes, or social cohesion. Third, its convergence stages require students to connect local knowledge with science, technology, and wider information, which guards against a purely celebratory or inward-looking treatment of local culture. The model also operationalizes the conceptual argument of Rais et al. (2026) that the Trikon principles remain relevant for local wisdom-based education. The comparison also exposes the model's main weakness: unlike the models of Yanti et al. (2022), Sumardjoko and Musyiam (2018), Nugraha and Abidin (2026), and Mas'ad et al. (2026), it has not yet undergone expert validation or classroom trials.

c. Expected Implications

If validated, the model would give teachers a shared, operational sequence for integrating local wisdom into literacy lessons, reducing the dependence on individual creativity identified in the needs analysis. The model is expected to support students' reading and writing and may also foster critical thinking, collaboration, and appreciation of local culture (Jubaedah et al., 2025; Minsih et al., 2025). These effects are expectations derived from the design and the literature; they were not tested in this study.

d. Limitations

This study has several limitations. First, the needs analysis relied on a single key informant in one school, so the identified needs may not represent other teachers or schools. Second, no student literacy data were collected and the student interview guide was not administered, so the need for the model rests mainly on the teacher's account, school documents, and national data. Third, several interview items named the Trikon principles, and the observation notes closely mirror the interview responses; these limitations were partly mitigated by triangulation with student products. Fourth,



the model has not undergone expert validation or classroom testing, so its validity, practicality, and effectiveness remain to be established.

CONCLUSIONS AND SUGGESTIONS

The needs analysis at MI Muhammadiyah PK Kartasura showed that the school ran rich literacy programs and that the teacher already used students' prior experiences and local contexts, but without knowledge of the Trikon concept, without a shared instructional sequence, and with local wisdom introduced mainly outside reading and writing. On this basis, the study designed a Trikon Learning Model Based on Local Wisdom that reinterprets Ki Hadjar Dewantara's principles of continuity, convergence, and concentricity as a six-stage literacy syntax supported by a social system, principles of reaction, a support system, and a literacy assessment. The model is expected to help teachers integrate local culture into reading and writing instruction more systematically, but these benefits have yet to be demonstrated. The following next steps are recommended: (1) expert validation of the model and its instruments by experts in elementary education, literacy, and local culture, using content validity indices such as Aiken's V; (2) limited trials in two classes to assess practicality for teachers and students and to refine the syntax; (3) effectiveness testing with a quasi-experimental design using reading comprehension and writing measures; and (4) adaptation of the model to other cultural regions and school types.

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