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Riau Malay culture-based literacy education in elementary schools: a mixed-methods structural equation modeling study of literacy habits, character values, cultural interest, and learning needs

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Abstract

This study examined how elementary school students' literacy habits, understanding of character values, interest in local culture, and learning needs shape their readiness for Riau Malay culture-based literacy education. The study addresses a practical problem in Indonesian elementary schools: many students enjoy reading and recognize moral lessons in stories, yet classroom literacy activities do not consistently draw on local cultural narratives. An explanatory sequential mixed-methods design was used. In the quantitative phase, 67 students from elementary schools in two regencies and two municipalities in Riau Province completed a Likert-scale questionnaire. The data were analyzed through structural equation modeling. In the qualitative phase, semi-structured interviews explored students' reading preferences, cultural knowledge, and interpretations of character values. The structural model showed acceptable fit (chi-square/df = 1.04, CFI = 0.983, TLI = 0.975, RMSEA = 0.021, SRMR = 0.034). Literacy habits had the strongest effect on readiness for Riau Malay culture-based literacy education (beta = .45, $p < .001$), followed by understanding of character values (beta = .32, $p < .01$), learning needs (beta = .31, $p < .01$), and interest in local culture (beta = .28, $p < .05$). Interview data showed that students preferred folklore, legends, comics, historical stories, and familiar cultural narratives such as Putri Tujuh and Malin Kundang. They associated these readings with honesty, responsibility, courage, discipline, helpfulness, and respect for parents. The findings suggest that Riau Malay cultural narratives can serve as pedagogical bridges between reading engagement, moral formation, and local cultural identity in elementary literacy education.

1. Introduction

Literacy education in elementary schools is more than the mastery of decoding, fluency, and written expression. Children read within social worlds shaped by family language, oral tradition, local history, religious norms, peer relations, and the stories through which communities judge conduct. Street [74] treated literacy as a social practice rather than an autonomous technical skill; the New London Group [59] later expanded this view through multiliteracies, where meaning is built across linguistic, visual, cultural, and social modes. Luke [51] adds that literacy pedagogy should also attend to text, power, and participation. For elementary classrooms, the implication is clear: reading instruction deepens when texts are connected to the cultural knowledge children use to interpret meaning.

This study is grounded in culturally relevant, culturally responsive, and culturally sustaining pedagogy. Ladson-Billings [47] links academic success with cultural competence and critical consciousness, while Gay [20, 21] argues that learners' cultural knowledge, prior experience, and communicative patterns can make instruction more demanding rather than less rigorous. Paris [66] extends this argument by asking schools to sustain students' language and cultural practices. In Riau Malay culture-based literacy education, this means that local stories, pantuns, proverbs, customary expressions, and moral teachings should serve as literacy resources rather than decorative additions to a textbook.

Research syntheses clarify how such pedagogy becomes visible in classrooms. Aronson and Laughter [2] found that culturally relevant education supports learning when culture is translated into curriculum, classroom tasks, and teacher practice. Morrison et al. [56] describe text selection, student voice, and instructional routines as practical sites where culturally relevant pedagogy operates. Sleeter [73] warns that the approach loses force when culture is confined to ceremonies or heritage displays, and Lim et al. [50] emphasize the need to describe how culture actually shapes teaching. These findings place a clear demand on Riau Malay literacy instruction: local culture needs to appear in routine reading, interpretation, discussion, and writing.

Literacy research also shows that culturally meaningful texts can support comprehension, engagement, and identity formation. Kelly et al. [29] found that culturally responsive literacy instruction in P-5 settings typically combines relevant texts, dialogic classroom talk, and respect for children's knowledge. McIntyre and Hulan [54] showed that reading practice becomes more responsive when teachers connect instruction to community experience. May [52] demonstrated how culturally relevant read-alouds can animate classroom discussion, while Ebe [17] found that culturally relevant texts can support English language learners' reading development. Bishop's metaphor of books as mirrors, windows, and sliding glass doors remains useful: children need texts that reflect their own worlds while opening paths to other experiences [9].

Reading motivation research explains why literacy habits matter in a culture-based model. Guthrie et al. [24] showed that reading amount predicts text comprehension even after earlier performance is taken into account, and Taboada et al. [76] found that motivation and cognitive variables jointly explain comprehension among fourth-grade readers. Schiefele et al. [71] present reading motivation as multidimensional, while Unrau and Quirk [77] distinguish motivation from engagement to explain why students begin, sustain, and deepen their reading. Stutz et al. [75] further reported that intrinsic motivation can influence comprehension through the amount of reading. These findings justify treating literacy habits as a central pathway into Riau Malay culture-based literacy education, not merely as background information.

The funds-of-knowledge tradition supports this view from another direction. Moll et al. [55] showed that households and communities hold intellectual resources that can enrich classroom learning, and Gonzalez et al. [22] elaborated how teachers can make those resources pedagogically productive. Yosso [81] challenges deficit views of students' communities by framing cultural wealth through aspirational, linguistic, familial, social, navigational, and resistant forms of capital. In Riau, local Malay narratives contain vocabulary, narrative structure, moral reasoning, social memory, and communal values. They can therefore support comprehension and reflective writing while strengthening cultural identity.

Curriculum and achievement studies point in the same direction. Dee and Penner [14] reported positive effects of a culturally relevant curriculum when cultural content was academically rigorous and institutionally supported. Bonilla et al. [10] found longer-term gains in engagement and attainment among students who participated in ethnic studies. Sharif Matthews and Lopez [72] showed that cultural

content integration and heritage language can make learning more accessible because school knowledge becomes connected to familiar meanings. Although these studies were conducted outside Riau, their core lesson travels well: culture matters most when it structures learning, not when it appears as an occasional illustration.

International work with Indigenous, migrant, and minoritized communities adds further weight to this argument. Castagno and Brayboy [12] show that culturally responsive schooling must address curriculum, power, community knowledge, and accountability. McCarty and Lee [53] argue that schools should sustain and revitalize Indigenous knowledge systems and languages while supporting academic achievement. Ladson-Billings [48] later describes culturally relevant pedagogy as a living theory that must respond to changing communities, and Paris and Alim [67] ask educators to be precise about the cultural and linguistic practices they seek to sustain. For Indonesian elementary schools, these studies show that local knowledge can be academically rigorous when it becomes a source for inquiry, language development, and social interpretation.

In Indonesia, culture-based literacy is closely tied to character education. Nurasiah et al. [65] showed that integrating cultural values into elementary learning can strengthen character development, and Winarni et al. [80] found that Indonesian-language textbooks incorporating multicultural and character-oriented content can support literacy tasks and traditional poetry writing. Noviana et al. [63] demonstrate that Tunjuk Ajar Melayu Riau carries environmental, social, and disaster education values that can be translated into contemporary schooling. Kurnia et al. [30] also found that Riau Malay folktale books can support children's cultural literacy. These studies position Riau Malay texts as both reading materials and ethical resources.

The character-education literature reinforces this connection. Lickona [49] argues that character education requires moral knowledge, moral feeling, and moral action across school life. Berkowitz and Bier [8] add that character education should be research-based and embedded in school practices rather than delivered as isolated moral advice. Durlak et al. [16], through a large meta-analysis of social and emotional learning programs, showed that well-designed school interventions can improve social-emotional skills, attitudes, behavior, and academic outcomes. Arthur [3] notes that students often understand teachers as moral models. These findings justify the use of Riau Malay narratives as literacy texts through which children can read, discuss, and evaluate character values in concrete narrative situations.

Riau Malay culture provides a rich foundation for literacy because its oral traditions, folklore, pantun, legends, customary advice, and local historical narratives carry values of respect, responsibility, honesty, deliberation, perseverance, mutual assistance, and social harmony. These values do not stand as abstract labels. They appear through characters, conflicts, consequences, and choices. When students read a local story, retell its events, discuss a character's decision, or write a reflective response, they practice literacy while interpreting moral action. Riau Malay culture-based literacy education, therefore, organizes reading around meaningful narratives rather than merely adding local terms to worksheets.

The authors' previous and related local studies provide an empirical basis for this work. Kurniaman and Noviana [32] reported that the SAS reading method supported early reading skills in elementary classrooms, and Kurniaman and Noviana [33] examined curriculum implementation in relation to skills, attitudes, and knowledge. Kurniaman et al. [42] used cooperative learning to improve students' analysis of intrinsic elements in legend stories, which is directly relevant to folklore-based literacy. Sari and Kurniaman [69] also showed that picture-card media can support reading ability in lower elementary grades. Taken together, these studies show that reading instruction in Riau elementary schools has long been linked to classroom media, student engagement, and narrative comprehension.

Other studies by Kurniaman and colleagues strengthen the literacy foundation of this manuscript. Kurniaman et al. [45] examined the Directed Reading Thinking Activity strategy in elementary reading, and Kurniaman et al. [44] developed DRTA-based teaching materials for reading comprehension. Kurniaman et al. [39] found that a study-room blog could improve elementary reading literacy, while Kurniaman et al. [38] linked critical reading interest with learning management system use. Kurniaman et al. [37] reviewed trends in elementary learning and reading assessment across Indonesia and reported that classroom practice, assessment, and policy uptake still need stronger alignment. These findings support the decision to treat literacy habits as a central predictor of readiness for culture-based literacy.

Studies from Riau and adjacent educational settings also support the local culture dimension. Noviana et al. [62] developed an elementary social studies learning pattern based on local wisdom in Siak, and Noviana and Bakri [61] implemented local-wisdom-based social studies teaching materials in the same context. Mulyani et al. [57] designed digital materials for Indonesian language skills based on Malay culture and project-based learning, while Guslinda et al. [23] developed Malay culture-based IPAS teaching materials for elementary schools. Putri and Kurniaman [68] developed a folklore comic based on Asal Mula Desa Aliantan, and Azimah and Kurniaman [6] documented school literacy movement activities in upper elementary classes. These studies show that local culture, literacy, media, and elementary education have a well-established foundation in Riau educational research.

Even with this evidence, the field still lacks studies examining how literacy habits, character-value understanding, cultural interests, and learning needs interact in students' perceptions. Many studies describe culture-based learning, develop instructional products, or report classroom interventions. Fewer test a structural model to identify which student factors most strongly predict readiness for local culture-based literacy education. This gap matters for teachers because readiness may stem from different sources: reading routines, moral-value awareness, cultural curiosity, or perceived learning needs. The present study uses structural equation modeling and interview data to examine these relationships in elementary schools in Riau Province.

The study addresses four research questions: (1) How do students' literacy habits influence readiness for Riau Malay culture-based literacy education? (2) How does understanding of character values influence that readiness? (3) How does interest in local culture influence that readiness? (4) How do students' learning needs contribute to that readiness?

2. Methods

2.1 Study design

This study used an explanatory sequential mixed-methods design to examine quantitative relationships among the research variables and then interpret those relationships through students' accounts of reading and cultural learning. Creswell and Plano Clark [13] describe this design as appropriate when statistical results require qualitative explanation. Here, the quantitative phase identified the strength and direction of relationships among latent constructs, while the qualitative phase clarified how students understood reading, character values, and Riau Malay cultural narratives in everyday school experience.

The quantitative phase used a cross-sectional survey analyzed through structural equation modeling (SEM). Hair et al. [25] explain that SEM is suitable when researchers work with latent variables measured by several indicators and when relationships among constructs are tested simultaneously. The qualitative phase used semi-structured interviews. These interviews were not treated as a substitute for the statistical analysis; they helped interpret why students with stronger literacy habits, character-value awareness, or cultural interest might show higher readiness for Riau Malay culture-based literacy education.

2.2 Research setting and participants

The study was conducted in elementary schools in Riau Province, Indonesia. Schools were selected from two regencies and two municipalities to represent both rural and urban educational settings. This sampling logic was necessary because access to reading materials, school literacy programs, local cultural activities, and community-based cultural exposure may vary across geographic contexts.

The participants were 67 elementary school students. Purposive sampling was used because the study required participants who could complete a questionnaire, participate in interviews, and provide information about reading preferences, character values, and cultural stories. The inclusion criteria were as follows: students were enrolled in elementary schools in the selected Riau contexts; they had participated in school literacy activities; they could respond to the questionnaire with teacher support when needed; they had at least some exposure to local stories or cultural materials; and their schools represented varied socio-cultural settings. Because the participants were children, school permission and parental or guardian consent were obtained before data collection.

2.3 Variables and hypotheses

The conceptual framework positions Riau Malay culture-based literacy education as a pedagogical orientation that combines reading engagement, culturally meaningful texts, character-value reflection, and local cultural identity. Four exogenous latent variables were examined: literacy habits (LH), understanding of character values (UCV), interest in local culture (ILC), and learning needs (LN). The endogenous latent variable was students' readiness for Riau Malay culture-based literacy education (RMCBLE). Readiness refers to students' perceived need, acceptance, and learning orientation toward

literacy instruction that uses Riau Malay cultural narratives and moral values as reading and discussion materials.

Four hypotheses were tested. H1 predicted that literacy habits would positively influence RMCBLE readiness. H2 predicted that understanding of character values would positively influence RMCBLE readiness. H3 predicted that interest in local culture would positively influence RMCBLE readiness. H4 predicted that learning needs would positively influence RMCBLE readiness. Ajzen's [1] theory of planned behavior informed the interpretation of readiness as an orientation shaped by beliefs, perceived relevance, and learning intention, although the study did not test a full planned-behavior model.

Table 1
Latent variables and measurement indicators

Latent variable	Code	Number of indicators	Indicator focus
Literacy habits	LH	4	Reading frequency, enjoyment, persistence, and use for learning
Understanding of character values	UCV	4	Honesty, responsibility, discipline, respect, and social care
Interest in local culture	ILC	4	Folklore, local history, cultural practices, Riau Malay narratives
Learning needs	LN	4	Contextual materials, story-based activities, teacher guidance, and local content
Riau Malay culture-based literacy education readiness	RMCBLE	5	Acceptance of Riau Malay narratives, literacy tasks, character reflection, and identity learning

2.4 Instruments

Quantitative data were collected using a five-point Likert-scale questionnaire ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was developed from indicators related to reading habits, character education, cultural understanding, and learning needs. The wording of the items was adjusted for elementary students so that statements were brief, concrete, and connected to familiar classroom practices. Before administration, the indicators were reviewed for content relevance and clarity. The review focused on whether each item matched the intended construct and whether students could understand the item without extensive explanation.

Qualitative data were collected through semi-structured interviews. The interview guide asked students about four areas: reasons for enjoying or not enjoying reading, preferred story types, character values learned from stories, and knowledge of Riau Malay cultural stories. The interview format allowed students to answer in their own words. Follow-up prompts were used only when clarification was needed, for example, when a student mentioned a story title but did not explain why the story was interesting or what value was learned from it.

2.5 Data collection procedures

Data collection proceeded in five stages. The research team first prepared the questionnaire and interview guide, aligned the items with the study constructs, and obtained permission from participating schools. Parents or legal guardians then received information about the study and provided consent for student participation. The questionnaire was administered in a supervised classroom setting; researchers and teachers clarified instructions but did not direct students toward particular answers. After the survey, selected students joined semi-structured interviews. Questionnaire responses and interview notes were then organized, checked, and coded for analysis.

Fourth, selected students participated in semi-structured interviews after completing the questionnaire. Fifth, questionnaire responses and interview notes were organized, checked, and coded for analysis. The sequence protected the logic of the mixed-methods design: quantitative data were analyzed first to identify the main structural relationships, and interview data were then used to explain and enrich the statistical results.

2.6 Quantitative data analysis

Quantitative data were analyzed using SEM in four steps: descriptive analysis, measurement-model assessment, model fit evaluation, and structural path testing. Descriptive analysis used means and standard deviations to describe students' literacy habits, character-value understanding, cultural interest, and learning needs. The measurement model was assessed through standardized factor loadings, composite reliability (CR), and average variance extracted (AVE). Loadings of .70 or above were interpreted as acceptable indicator contribution, CR values above .70 as internal consistency, and AVE values above .50 as convergent validity [18, 25].

Discriminant validity was interpreted by comparing the square root of AVE with interconstruct correlations. Henseler et al. [27] recommend more rigorous evaluation of discriminant validity in variance-based structural models; therefore, the present analysis treated discriminant evidence cautiously and interpreted the model in relation to theory and qualitative findings. Model fit was evaluated using chi-square/df, comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Values of chi-square/df below 3.00, CFI and TLI above .90, and RMSEA and SRMR below .08 were interpreted as acceptable. Structural paths were examined through standardized beta coefficients and significance levels.

2.7 Qualitative data analysis and integration

Interview data were analyzed thematically through familiarization, coding, theme development, review, and interpretation. Braun and Clarke [11] define thematic analysis as a flexible method for identifying patterns of meaning in qualitative data. In this study, the analysis focused on students' explanations of reading enjoyment, story preferences, character-value learning, and cultural understanding. Codes were

grouped into themes such as reading as knowledge acquisition, preference for narrative and visual texts, moral lessons in stories, and limited exposure to Riau Malay cultural materials.

Integration occurred at the interpretation stage. Quantitative results were used to identify the strongest and weakest structural effects. Qualitative themes were then used to explain these statistical patterns. For example, the strong effect of literacy habits was interpreted alongside students' statements that reading helped them gain knowledge and enjoy learning. The positive effect of cultural interest was interpreted alongside students' references to folklore, legends, and familiar cultural narratives, as well as their admission that local cultural stories were not yet consistently available in classroom literacy activities.

2.8 Ethical considerations

This study received ethical approval from the Research Ethics Committee of the Lembaga Penelitian dan Pengabdian kepada Masyarakat, Universitas Riau, under protocol number 245/UN19.5.1.3/AL.04/2026. The research procedures followed relevant Indonesian national regulations for educational research involving human participants, as well as the ethical principles of the Declaration of Helsinki and the Belmont Report. Because the participants were elementary school students, the research team treated consent, assent, confidentiality, and school permission as central parts of the research procedure.

The consent procedure consisted of two complementary parts: an oral information statement and a written consent form. Before data collection, the research team, with assistance from the participating school, provided oral information to students and their parents or legal guardians regarding the study purpose, learning activities, types of data to be collected, confidentiality and anonymity protections, voluntary participation, potential minimal risk, and the right to decline or withdraw at any time without academic consequences. Written informed consent was then obtained from all parents or legal guardians through a signed consent form before student participation. Students also provided oral assent after receiving an age-appropriate explanation of the study. Student data were collected only when written parental or legal guardian consent and student oral assent were both obtained. Permission to conduct the study was obtained from the participating school, and all reported data were anonymized.

3. Results

The descriptive results indicate that students held generally positive orientations toward culture-based literacy learning. Understanding of character values had the highest mean ($M = 3.93$, $SD = 1.19$), followed by learning needs ($M = 3.79$, $SD = 1.22$) and interest in local culture ($M = 3.66$, $SD = 1.29$). Literacy habits were at a moderate level ($M = 3.40$, $SD = 1.21$). This pattern suggests that students already recognized moral values and wanted contextual learning, but their routine reading practices still needed deliberate support.

Table 2
Descriptive statistics of research variables

Variable	Mean	Standard deviation	Interpretation
Literacy habits (LH)	3.40	1.21	Moderate
Understanding of character values (UCV)	3.93	1.19	High
Interest in local culture (ILC)	3.66	1.29	High
Learning needs (LN)	3.79	1.22	High

The measurement model showed acceptable construct quality. Standardized indicator loadings ranged from .70 to .82. Composite reliability values ranged from .833 to .889, exceeding the recommended .70 threshold. AVE values ranged from .556 to .615, above the recommended .50 threshold. The indicators, therefore, adequately contributed to their respective constructs, and the constructs demonstrated acceptable convergent validity.

Table 3
Measurement quality summary

Construct	Standardized loading range	Composite reliability	Average variance extracted	Square root of AVE
LH	.71-.80	.840	.567	.753
UCV	.75-.82	.864	.613	.783
ILC	.71-.79	.838	.564	.751
LN	.70-.78	.833	.556	.746
RMCBLE	.76-.82	.889	.615	.784

Table 4
Goodness-of-fit indices

Fit index	Obtained value	Recommended criterion	Interpretation
chi-square/df	1.04	< 3.00	Good fit
CFI	0.983	> .90	Good fit
TLI	0.975	> .90	Good fit
RMSEA	0.021	< .08	Good fit
SRMR	0.034	< .08	Good fit

The structural model showed acceptable fit. The obtained values were chi-square/df = 1.04, CFI = 0.983, TLI = 0.975, RMSEA = 0.021, and SRMR = 0.034. These values met the recommended criteria, indicating that the model was suitable for explaining the observed relationships among the latent variables. The

interconstruct correlations among the exogenous variables were moderate and remained below the square roots of the AVEs, supporting a cautious interpretation of discriminant validity.

The SEM results supported all four hypotheses. Literacy habits had the strongest effect on readiness for Riau Malay culture-based literacy education (beta = .45, $p < .001$), which means that students with stronger reading routines tended to show greater readiness for literacy learning using Riau Malay narratives. Understanding of character values also showed a positive effect (beta = .32, $p < .01$), indicating that students who recognized moral lessons in stories were more receptive to culture-based literacy activities. Learning needs contributed positively (beta = .31, $p < .01$), and interest in local culture had a smaller but still supported effect (beta = .28, $p < .05$).

Table 5
Structural path coefficients

Hypothesis	Structural path	beta	Significance	Result
H1	LH -> RMCBLE	.45	$p < .001$	Supported
H2	UCV -> RMCBLE	.32	$p < .01$	Supported
H3	ILC -> RMCBLE	.28	$p < .05$	Supported
H4	LN -> RMCBLE	.31	$p < .01$	Supported

The interview findings clarified these statistical patterns. The first theme concerned reading as a route to knowledge and school confidence. Many students described reading as enjoyable because it helped them learn new information, become smarter, and understand school lessons. These responses explain why literacy habits had the strongest structural effect. Students who already associated reading with knowledge and enjoyment were better prepared to engage with literacy activities that introduced Riau Malay cultural materials.

The second theme concerned preferred texts. Students mentioned folklore, legends, cartoons, comics, historical stories, adventure narratives, and familiar cultural stories. Putri Tujuh was frequently identified as an interesting local narrative, while Malin Kundang was mentioned as a familiar Indonesian regional story with strong moral lessons. Students were attracted to stories with clear conflicts, memorable characters, and visible consequences for good or bad behavior. This preference suggests that narrative remains pedagogically powerful in elementary literacy instruction.

The third theme involved character-value interpretation. Students reported learning honesty, responsibility, bravery, helpfulness, discipline, cooperation, kindness, and respect for parents from stories. They did not explain these values as isolated definitions. Instead, they linked values to narrative events: a character who disobeys parents, a person who helps others, or a child who becomes brave in a difficult situation. This pattern supports the quantitative effect of character-value understanding on RMCBLE readiness.

The fourth theme was limited exposure to Riau Malay cultural heritage in school literacy activities. Although students showed interest in cultural stories, many knew only a few Riau Malay narratives and rarely encountered local cultural materials in routine literacy lessons. This helps explain why cultural interest had a positive but smaller effect than literacy habits. Curiosity alone was insufficient; students also needed appropriate texts, guided discussion, and classroom activities that made local culture visible in literacy learning.

4. Discussion

This study shows that reading practice, moral understanding, cultural interest, and perceived learning need jointly shape readiness for Riau Malay culture-based literacy education. The strongest predictor was literacy habits, a result that fits international evidence on reading engagement. Guthrie et al. [24] and Wigfield and Guthrie [78] show that students who read more often encounter a wider range of vocabulary, genres, and comprehension demands. Taboada et al. [76] add that comprehension is not explained solely by cognition; motivation, background knowledge, and strategy use also matter. Schiefele et al. [71], Unrau and Quirk [77], and Wigfield et al. [79] refine this argument by showing that reading motivation and engagement operate through distinct but connected processes. In the present study, Riau Malay cultural narratives appear most promising when they are embedded in regular reading routines rather than introduced as occasional local content.

The moderate mean score for literacy habits, therefore, serves as a pedagogical signal. Kurniaman et al. [37] found that Indonesian elementary reading research still needs stronger links between classroom practice, assessment, and policy uptake. Kurniaman et al. [45] and Kurniaman et al. [44] show that structured reading strategies such as DRTA can support comprehension by inviting students to predict, confirm, revise, and interpret textual meaning. Kurniaman et al. [39] similarly found that digital blog-based learning can increase reading literacy when media are integrated into classroom tasks. Riau Malay cultural narratives can become meaningful reading materials when these deliberate routines are in place.

The findings also resonate with studies conducted in different educational systems. Stutz et al. [75] found in German early elementary classrooms that reading amount can mediate the relationship between motivation and comprehension. Schaffner et al. [70] reported that intrinsic and extrinsic motivation work differently through reading amount, whereas Duke and Cartwright [15] argue, in the active view of reading, that comprehension involves word recognition, language comprehension, bridging processes, and self-regulation. These studies caution against a narrow view of reading habits as mere frequency. For Riau students, habit also means confidence with stories, willingness to infer motives, and familiarity with classroom discussion around texts.

Understanding of character values also predicted readiness for Riau Malay culture-based literacy education. Stories make values visible through action, conflict, and consequence, which allows literacy and character education to reinforce one another in elementary classrooms. Nurasiah et al. [65] show

that cultural-value integration can strengthen character development, and Winarni et al. [80] demonstrate how language materials can carry multicultural and character education aims. In this study, students recognized honesty, responsibility, courage, discipline, helpfulness, and respect for parents through narrative situations. Moral vocabulary became more meaningful when attached to characters and story events.

This result is compatible with broader research on moral and social-emotional learning. Lickona [49] stresses that character education should connect knowing, feeling, and action; Berkowitz and Bier [8] identify school-wide practice and relational climate as conditions for effective character education. Durlak et al. [16] provide meta-analytic evidence that school-based social and emotional learning can improve students' social behavior and academic outcomes when programs are sequenced, active, focused, and explicit. Arthur [3] adds that students often expect teachers to model values in classroom interaction. These studies help explain why students in the interviews spoke about honesty, responsibility, courage, and respect through characters, conflicts, and consequences rather than through detached definitions.

For Riau Malay culture, the connection between literacy and character formation is particularly productive. Noviana et al. [63] show that Tunjuk Ajar Melayu Riau contains local knowledge related to environmental conservation, disaster education, and social responsibility. Kurniaman et al. [40] indicate that local folk games can carry character education values for elementary students. Putri and Kurniaman [68] demonstrate the potential of folklore comics for elementary learning, while Kurniaman et al. [42] show that legend stories can strengthen students' analysis of intrinsic story elements. These findings support a literacy design in which students read Riau Malay narratives, identify character decisions, discuss cultural values, and produce oral or written responses.

Interest in local culture had a positive effect, though it was weaker than the effect of literacy habits. The interview data explain this pattern. Students were curious about cultural stories, but their curiosity was constrained by limited exposure. Sleeter [73] warns that culturally responsive pedagogy becomes marginal when culture remains peripheral to the curriculum. Paris [66] makes a related point: schools should sustain students' cultural and linguistic practices rather than merely recognize them. Noviana et al. [62] and Noviana and Bakri [61] demonstrate that local-wisdom-based teaching materials can be organized systematically in elementary social studies. The same principle applies to literacy: Riau Malay narratives need to appear in planned reading sequences, not only as occasional examples.

The weaker coefficient for cultural interest should not be interpreted as evidence that culture is unimportant. It indicates that curiosity requires curricular support. Castagno and Brayboy [12] show that culturally responsive schooling needs structural commitment; otherwise, culture remains symbolically present but pedagogically weak. McCarty and Lee [53] argue from a sovereignty-oriented perspective that schools must sustain and revitalize community knowledge systems. Paris and Alim [67] further caution that educators should be precise about the cultural practices they intend to sustain. In Riau, this

requires selecting local narratives, pantun, proverbs, and oral traditions for guided reading, interpretation, and writing.

Learning needs also contributed to readiness. Students recognized the value of contextual materials, story-based activities, and teacher guidance. Mulyani et al. [57] show that digital materials grounded in Malay culture and project-based learning can be designed to develop Indonesian language skills. Guslinda et al. [23] similarly report that Malay culture-based IPAS teaching materials for elementary schools were judged feasible by experts. These local findings align with broader work on culturally responsive teaching, which emphasizes that meaningful instruction requires selecting texts, designing tasks, and interpreting culture [21, 56]. Students need readable, culturally resonant texts, but they also need teachers who can guide comprehension, moral reflection, and discussions of identity.

The results clarify the difference between local content and culture-based literacy pedagogy. Local content often asks students to remember facts about regional culture. Culture-based literacy pedagogy asks students to use culture as a source of meaning-making. Bishop [9] describes reading materials as mirrors and windows; in Riau, Malay stories can mirror local identity while opening windows into ethical questions that children can discuss. Moll et al. [55] and Gonzalez et al. [22] suggest that community knowledge should be brought into the intellectual life of the classroom. Students can therefore read a legend, identify conflict, infer motives, compare values with everyday life, write a response, and retell the story in their own language.

Studies by Kurniaman and Noviana, Sari and Kurniaman, Azimah and Kurniaman, Hayati and colleagues, and Asmar and colleagues strengthen this contextual interpretation. Kurniaman and Noviana [32] show that early reading needs a method suited to young learners, while Sari and Kurniaman [69] found that visual media can support reading ability. Azimah and Kurniaman [6] documented school literacy movement practices in upper elementary classes, and Hayati et al. [26] examined students' writing of compound sentences. Asmar et al. [4] focused on intrinsic learning motivation, another factor closely related to reading routines. These studies locate the present manuscript within a sustained Riau research trajectory on literacy, media, motivation, and elementary classroom practice.

The study contributes to international research in three ways. First, it brings evidence from a Southeast Asian elementary setting into a field often shaped by North American, European, and other multicultural research traditions. Second, it empirically links literacy habits, character-value understanding, cultural interest, and learning needs within a single structural model, complementing qualitative and curriculum development studies of culture-based education. Third, it frames local culture-based literacy as both an academic and identity-oriented practice. This contribution is consistent with evidence that culturally relevant curricula can improve engagement and attainment when they are academically serious and institutionally supported [10, 14, 72]. It extends that argument to a Riau Malay literacy context where local narratives are linked to reading practice and character reasoning.

Several practical implications follow from these findings. Teachers can begin by mapping Riau Malay cultural resources suitable for elementary students, such as Putri Tujuh, local legends, pantun,

customary expressions, and community stories. These materials can then be connected with reading objectives: identifying main ideas, sequencing events, describing characters, making inferences, comparing values, and writing reflections. Kurniaman et al. [46] show that creative reading materials based on Riau Malay culture can influence student learning in higher education, while Kurniaman et al. [38] connect critical reading interest with digital learning. For elementary schools, the same logic can be adapted through illustrated stories, reading corners, storytelling sessions, and locally grounded writing tasks.

The study has several limitations. The sample included 67 students, which is suitable for exploratory modeling but limited for broad generalization. The data were cross-sectional, so the structural paths should be interpreted as associations rather than causal effects. The questionnaire relied on student self-reports, which may be influenced by social desirability or differences in reading confidence. The qualitative phase clarified students' perspectives, but classroom observation would provide stronger evidence about how culture-based literacy practices are enacted. Future research should use larger samples, include more districts in Riau, compare grade levels, and examine the effect of an implemented Riau Malay culture-based literacy program on reading comprehension, writing quality, cultural knowledge, and character-value reasoning over time.

5. Conclusion

This study examined the structural relationships among literacy habits, understanding of character values, interest in local culture, learning needs, and students' readiness for Riau Malay culture-based literacy education in elementary schools. All four predictors contributed positively to readiness, with literacy habits exerting the strongest effect. Students who were more accustomed to reading were better prepared to engage with literacy activities that integrate Riau Malay cultural narratives and character values.

The interview findings add depth to the statistical results. Students valued reading because it expanded knowledge and supported learning. They enjoyed folklore, legends, comics, historical stories, and culturally familiar narratives, and they associated stories with honesty, responsibility, courage, discipline, helpfulness, cooperation, and respect for parents. At the same time, many students still had limited knowledge of Riau Malay cultural heritage because local cultural materials were not consistently embedded in classroom literacy instruction.

The study calls for a more systematic approach to Riau Malay culture-based literacy education. Local culture should not remain supplementary content. Riau Malay narratives, values, language expressions, and oral traditions can become meaningful reading materials through which students practice comprehension, discussion, reflection, and writing. When carefully designed, culture-based literacy education can simultaneously strengthen reading engagement, character development, and local cultural identity.

Declarations

Ethics approval and consent to participate

This study received ethical approval from the Research Ethics Committee of the Lembaga Penelitian dan Pengabdian kepada Masyarakat, Universitas Riau, under protocol number 245/UN19.5.1.3/AL.04/2026. The study was conducted in accordance with relevant Indonesian national regulations for educational research involving human participants, and the ethical principles of the Declaration of Helsinki and the Belmont Report. The consent procedure consisted of two complementary parts: an oral information statement and a written consent form. Before data collection, the research team, with assistance from the participating school, provided oral information to students and their parents or legal guardians regarding the study purpose, learning activities, types of data to be collected, confidentiality and anonymity protections, voluntary participation, potential minimal risk, and the right to decline or withdraw at any time without academic consequences. Written informed consent was then obtained from all parents or legal guardians through a signed consent form before student participation. Students also provided oral assent after receiving an age-appropriate explanation of the study. Student data were collected only when written parental or legal guardian consent and student oral assent were both obtained. Permission to conduct the study was obtained from the participating school, and all reported data were anonymized.

Consent for publication

Not applicable. The manuscript does not contain individual personal data.

Availability of data and materials

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request, subject to ethical restrictions related to child participants and school confidentiality.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

OK and EN conceptualized the study. R, FAR, ZU, BAF, and Z contributed to instrument preparation, data collection, and field coordination. OK, R, and EN contributed to data analysis and interpretation. OK, FAR, ZU, BAF, EN, and Z contributed to the drafting and critical revision of the manuscript. All authors read and approved the final manuscript.

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Declaration of generative AI and AI-assisted technologies

During manuscript preparation, AI-assisted language editing tools were used solely to improve grammar, clarity, and readability. The authors reviewed, revised, and approved the final content and remain fully responsible for the accuracy and integrity of the manuscript.

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Figures

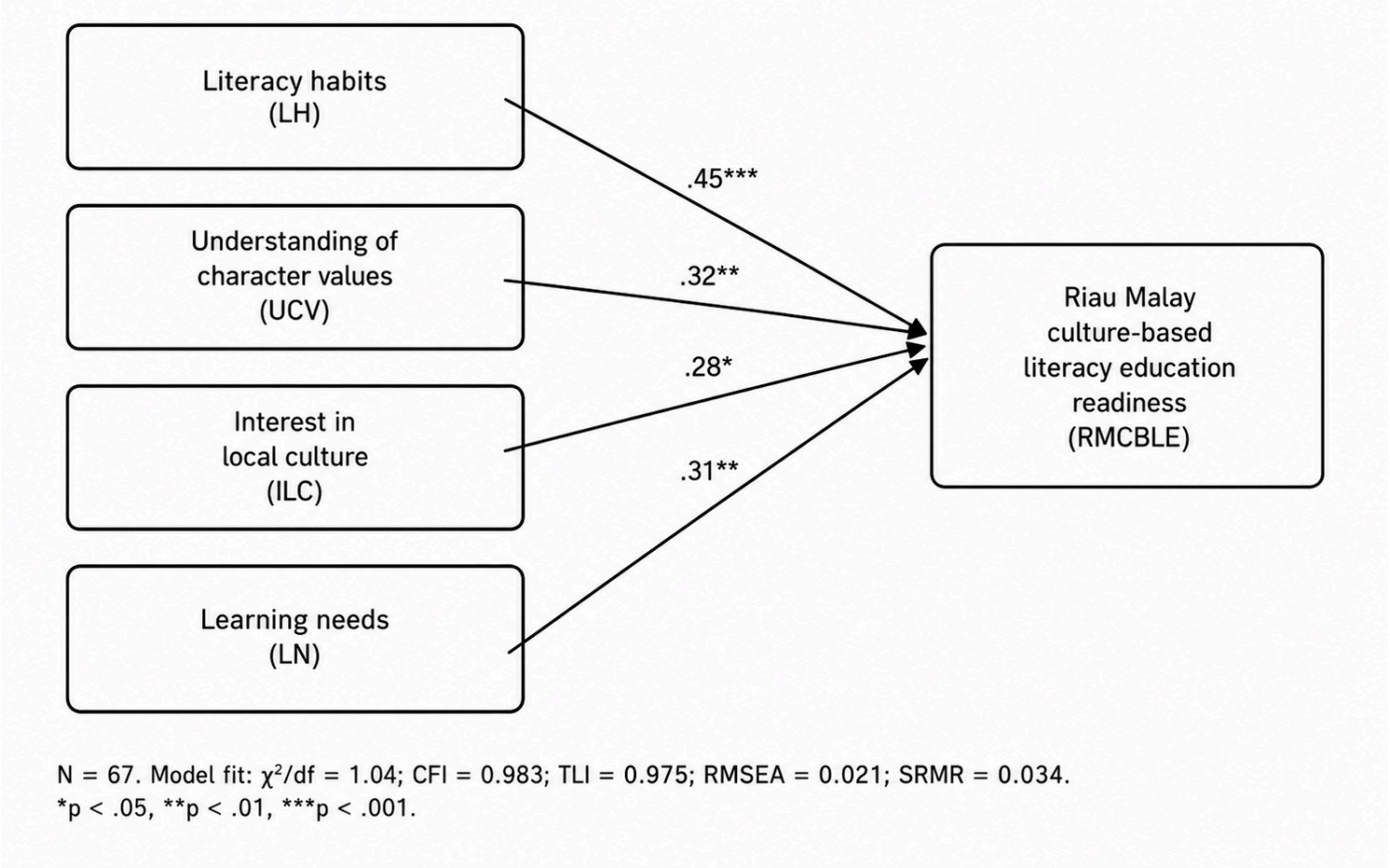


Figure 1

Structural model of students' readiness for Riau Malay culture-based literacy education