

Need analysis of holistic reading literacy teaching module integrating critical thinking and character

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ABSTRACT

The low levels of reading literacy and character development remain significant educational challenges among Indonesian students in the 21st century. Despite emphasizing higher-order thinking skills (HOTS) and character education in the national curriculum, elementary teachers struggle to effectively integrate these aspects into reading literacy teaching in the Bahasa Indonesia subject. This study identifies teachers' challenges, difficult literacy topics, and the need for a structured module integrating HOTS and character. Using a design and development research (DDR) approach, an online survey of 287 grade 4 teachers from 171 elementary schools in Depok, West Java, was conducted. This study is the first to develop a grade-4-tailored holistic-HOTS-character (H2C) framework for reading literacy instruction, integrating cognitive, social, emotional, psychomotor, and moral elements. Additionally, teachers found independently retrieving and synthesizing information from multiple sources (22.30%) and teaching main ideas and supporting details (21.95%) to be the most challenging topics. Teachers strongly supported the development of an H2C teaching module ($M=4.28$ out of 5). The study also presents a visual H2C conceptual model to guide classroom implementation. This needs-analysis study confirms that teachers perceive a structured, holistic reading literacy teaching module as essential for enhancing student engagement, HOTS, and character development.

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1. INTRODUCTION

Reading literacy is an essential skill for academic success and lifelong learning, preparing students to meet the challenges of the 21st century [1]. However, reading literacy in Indonesia is in a critical condition, as the Programme for International Student Assessment (PISA) has consistently revealed that Indonesian students struggle with reading comprehension and higher-order thinking skills (HOTS). PISA findings in 2022 indicated that Indonesia's achievement ranked 70th out of 80 countries [2], reflecting that students' ability to analyze, evaluate, and synthesize textual material was severely low [3]. This poor performance is largely attributed to limited engagement with diverse text types [4]. As the literacy gap persists, there is a greater need

for an educational approach that promotes literacy, HOTS, and character education, which are crucial for any 21st-century student to face academic and professional challenges [5], [6].

HOTS in literacy: although HOTS was already embedded in the national curriculum, its integration into teaching reading literacy in elementary schools remains inconsistent [7]. Many teachers have difficulty implementing HOTS into classroom activities due to limited pedagogical training, limited resources, and the dominance of traditional rote learning methods [8]. Several innovative models such as the flipped learning model and project-based learning have proved effective in increasing students' engagement with the learning environment and strengthening creative thinking [9]. Additionally, gamification strategies offer engaging experiences for students to discover, understand, and apply the concepts in a lesson [10] and the use of questioning and the Socratic method has a documented positive impact on literacy development [7], offering hope for the future. Nevertheless, these approaches require an appropriate implementation framework to be effective in Indonesian elementary schools. Without well-structured teaching guidance and best practice models, HOTS risks remaining an abstract concept rather than a practical teaching strategy. This highlights the necessity for a structured framework for integrating HOTS into the existing curriculum, which can guide teachers in applying these approaches effectively.

Character integration: integrating character education into reading literacy teaching can be a potential solution to the literacy problem, particularly the challenge of fostering deep comprehension and critical analysis skills [11]. Character education cultivates essential traits, including perseverance, curiosity, and moral reasoning, subsequently improving students' interaction with reading resources [12]. Research has shown that students who engage with texts through moral dilemmas and reflective discussions demonstrate deeper comprehension and critical thinking skills [11], [13]. It encourages students to internalize and apply these moral values when interpreting texts [14], [15]. This integration creates a holistic learning environment that develops HOTS and character, providing students with the analytical competencies to interpret texts. Such integrative approaches have been shown to enhance academic and moral growth [3], [16].

Numerous challenges hamper the effective implementation of HOTS and character education, despite their many advantages. Teachers often struggle to design assessments that measure students' HOTS and frequently revert to lower-order questions due to their familiarity and time constraints [16]. Teachers' resistance to shifting from conventional instruction to HOTS-oriented teaching also hinders adoption [17]. Inadequate professional development and lack of structured teaching resources are critical barriers. Structured, system-level supports (e.g., pacing guidance, curated materials, and ongoing professional development) are therefore needed to embed HOTS and character education into reading literacy.

Addressing these challenges, the proposed solution in this study is the development of a comprehensive teaching module that integrates HOTS with character education through a holistic learning approach (HLA), or holistic-HOTS-character (H2C) teaching module. Previous studies have indicated that a HLA, like project-based learning and multidisciplinary literacy teaching, improves student engagement, understanding, and moral reflection [17], [18]. These models encourage critical engagement with text by providing students with tools to engage with texts more deeply and critically, thus promoting cognitive competence and moral reflection. Despite ongoing advancements in educational theory, Indonesia continues to lack a structure with evidence-based teaching modules that operationalize these principles, resulting in a gap between theoretical frameworks and classroom implementation.

Holistic pedagogy: the HLA is an effective approach to developing reading literacy modules because it emphasizes the development of reading literacy skills using a comprehensive approach involving cognitive, emotional, social, psychomotor, linguistic, and moral aspects. A structured framework for integrating HLA into reading literacy is essential. Previous research explains that integrating physical activity, art, and language into literacy teaching improves motor skills, emotional maturity, and creative thinking [19]. By integrating HOTS and character education through varied and dynamic learning activities, HLA prepares students to become collaborative, responsible, and critical thinkers who are ready to succeed in the 21st century [9], [20]. HLA's contribution to literacy teaching will significantly enhance students' academic excellence and personal development.

Several studies have identified the essential components of a reading literacy teaching implementation module. A well-designed module should have clear learning objectives that align with HOTS principles, engaging reading materials that address the varied needs of all students, and a comprehensive set of assessment instruments to evaluate HOTS effectively [21]. Interactive activities that foster collaboration and discussion are vital in enhancing critical literacy skills [18]. In addition, teachers' professional development is important for successfully implementing such modules, as it equips educators with the requisite skills to deliver HOTS-driven literacy instruction [22].

This needs analysis study aims to identify the challenges faced by elementary teachers in integrating HOTS and character education into reading literacy instruction. It provides empirical evidence to inform the development of a structured, holistic framework by identifying instructional constraints and assessing teachers' perceptions of an integrated module. Grade 4 is targeted because students at this level demonstrate

growing capacities for critical, analytical, and abstract thinking [1], [23]. The findings are expected to inform stakeholders and educators in enhancing reading literacy practices.

This study presents a novel contribution by introducing the H2C model, which integrates HOTS, character education, and holistic learning into a unified instructional framework. While prior studies have addressed these components separately, limited research has combined reading comprehension, critical thinking, and character development within a single model. The proposed H2C model addresses this gap by offering a structured, evidence-based reading literacy module for grade 4 that integrates cognitive, social, emotional, psychomotor, and moral dimensions. The H2C conceptual framework, as seen in Figure 1, further illustrates the interaction among HOTS, character education, and holistic learning strategies to guide instructional practice.

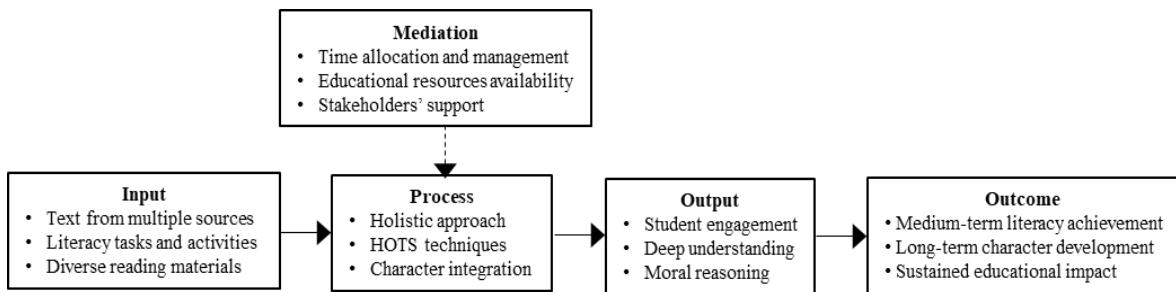


Figure 1. The H2C visual conceptual framework

2. METHOD

2.1. Research design

This research utilized the design and development research (DDR) methodology, which provides a systematic approach to developing educational tools and interventions such as models and modules [24]. The DDR method, as developed by Richey and Klein [25], follows three phases: i) needs analysis; ii) development design phase; and iii) evaluation. Each phase involves specific methods in sampling, instrumentation, and data analysis. This study focuses on the needs analysis phase, aiming to examine teachers' difficulties in integrating HOTS and character education into reading literacy teaching and determine essential topics for the development of a reading literacy module from teachers' perspectives [11].

2.2. Population and sampling

This study surveyed 287 grade 4 elementary school teachers in Depok, West Java, Indonesia. According to data from the Indonesian Ministry of Primary and Secondary Education (dikdasmen.go.id), there were 943 grade 4 teachers in Depok City during the 2024/2025 academic year. The minimum required sample size was set at 274, as determined by the Krejcie and Morgan [26] sample size table. Teachers were selected randomly and volunteered according to set criteria, minimizing selection bias. The sample comprised 199 public and 88 private school teachers across 171 schools in all 11 districts. This sample, with 69.34% from public schools and 30.66% from private schools, reflected the distribution of school types and teacher backgrounds.

2.3. Research instruments

This research employed a structured online questionnaire administered via Google Forms, selected for its efficiency, cost effectiveness, and sustainability [27]. The instrument was developed by the research team based on a comprehensive review of literature on HOTS, character education, and holistic reading literacy. No items were adopted verbatim from existing scales; however, wording and construct boundaries were informed by prior instruments to enhance content validity. The mapping of items to key constructs and theoretical sources is summarized in Table 1 (HOTS challenges), Table 2 (character-integration challenges), Table 3 (need for an H2C module), and Table 4 (priority topics), providing content-validity evidence for the instrument. The questionnaire consists of three main objectives: i) identifying teachers' challenges in reading literacy teaching to foster HOTS, character education and implementing a holistic approach; ii) assessing teachers' needs for a literacy module; and iii) identifying essential topics for the module. This study used a five-point Likert scale, a validated tool for measuring perceptions in educational research [9].

Table 1. Mapping of questionnaire items on teachers' challenges in implementing HOTS in reading literacy to theoretical sources

No	Item	Theoretical rationale/source(s)
1	Limited teaching time	Excessive curricular load restricts inquiry-based learning and deeper cognitive engagement required for HOTS [1], [28].
2	Limited teaching materials	Heavy reliance on conventional textbooks hampers innovative HOTS instruction [29].
3	Limited teacher experience	Limited exposure to effective PD lowers confidence and competence in HOTS strategies [8], [30].
4	Limited knowledge and ideas of teachers	Conceptual gaps hinder effective classroom implementation of HOTS [1], [4], [8].
5	Teachers' limited ability to create activities that involve different levels of thought	Teachers lack training to craft multi-level cognitive tasks and assessments [21], [30], [31].
6	Lack of school support in improving teachers' abilities in mastering HOTS	Systemic support and teacher training programs are crucial for HOTS adoption [29].

Table 2. Mapping of questionnaire items on teachers' challenges in integrating character into reading literacy to theoretical sources

No	Item	Theoretical rationale/source(s)
1	Limited teaching time	Insufficient instructional time hinders the joint pursuit of academic and character goals [13].
2	Limited teaching materials	Reliance on narrow textbook resources restricts dynamic character-infused literacy instruction [4], [29].
3	Limited knowledge and ideas of teachers	Professional-development participation increases teachers' capability to embed character values and HOTS in literacy tasks [8], [13], [29].
4	Skills of teachers who are not good at it	Teacher self-efficacy and training deficits reduce the quality of character-focused literacy pedagogy; traditional methods prevail [15], [16], [21], [30], [32].

Table 3. Mapping of questionnaire items on teachers' perspectives on the need for developing the H2C reading literacy teaching modules to theoretical sources

No	Item	Theoretical rationale/source(s)
1	Reading literacy mastery in primary schools is indispensable	Mastery of early literacy underpins later learning and personal development [16], [21].
2	Students need to master HOTS	HOTS promote analytical and evaluative skills required for modern challenges [1], [16].
3	Need to develop a teaching module that contains the application of HOTS for primary schools	Purpose-built HOTS modules improve learning outcomes and engagement [21].
4	It is necessary to apply a holistic approach to reading literacy lessons	Integrating emotional, cognitive, and social dimensions enhances literacy [17], [31].
5	There is a need to develop teaching modules that use a holistic approach to reading literacy lessons	Holistic modules promote transformative learning and greater engagement [17].
6	Reading literacy instruction should integrate character values such as resilience, curiosity, critical thinking, creativity, and empathy	Embedding character values enriches comprehension and moral growth [13].
7	Primary schools require reading literacy teaching modules that embed character education	Contextual, value-based modules support holistic student development [13], [16].
8	Teachers need an H2C reading literacy module that contextually integrates HOTS and character education.	HOTS with character education produces resilient, critical readers [1], [21], [31].

Table 4. Mapping of questionnaire items on topics to be addressed in the reading literacy module to theoretical sources

No	Item	Theoretical rationale/source(s)
1	Understanding and using various reading sources (e.g., encyclopedias, dictionaries, articles, and non-fiction reading) for independent information search through online or not	Independent information search and digital literacy are essential for 21st-century competence [15], [17].
2	Determine the main idea, supporting ideas, flow and message in the text	Identifying key ideas nurtures analytical thinking—a core HOTS component [31].
3	Understand the messages and information contained in narrative texts in the form of printed or electronic reading materials.	Linking narrative meaning across formats supports contextualized literacy [1], [15], [33].
4	Comprehend messages and data related to daily life from printed or electronic reading materials.	Contextual texts help students relate literacy to everyday experiences [16], [21], [29].
5	Read novel words or vocabulary with familiar letter combination patterns fluently, quickly, and precisely	Reciprocal-teaching and vocabulary strategies improve fluency and comprehension [4], [29].
6	Understand the messages and information contained in children's poems from materials in print or electronic form.	Diverse literary forms foster interpretive skills and critical engagement [15], [16], [21].
7	Examine new vocabulary from the text analyzed and the impression that is reviewed according to the topic	Context-based vocabulary learning boosts comprehension and engagement [1], [21].
8	Explain with an understanding of everything that the characters experience in narrative reading sources	HOTS-oriented character analysis fosters critical thinking about motives and ethics [11], [16], [21].

2.4. Instrument validation and reliability

Experts in elementary school education validated the questionnaire used in this research. It comprised one expert on pedagogy, two on literacy, and two on the curriculum. Experts ensured that the content and language used in the instrument accurately measured what it was intended to measure [28]. The instrument was developed specifically for this study. Item construction drew on literature insights to ensure relevance and alignment with the study's objectives. Expert validation enhanced the instrument's content, structure, and clarity, ensuring the research's credibility [30], [33]. A pilot study was carried out on 30 grade 4 teachers outside of Depok City whose characteristics are similar to the study population. The reliability coefficients are shown in Table 5, indicating that the instrument has a high overall reliability. Cronbach's alpha value indicates internal consistency; values ≥ 0.70 are acceptable [1].

Table 5. Cronbach's alpha reliability scores

No.	Element	Cronbach's alpha	Items
1	Teachers' challenges in reading literacy teaching for HOTS, character development and holistic approach	0.945	15
2	Need for a reading literacy module	0.936	8

2.5. Data analysis

All data were analyzed using descriptive quantitative methods to generate frequency distributions, percentages, means, and standard deviations, with statistical analysis conducted using Jeffrey's amazing statistics program (JASP) v0.18.3. The analysis was divided into three components: i) teachers' challenges: examining difficulties in fostering HOTS, building character, and applying holistic approaches in reading literacy; ii) needs assessment: assessing teachers' perceptions on the need for an H2C module; and iii) identification of essential topics: identifying topics challenging to teach in Bahasa Indonesia lessons.

Mean values were interpreted according to Wiersma [34], with ranges indicating low (1.00–2.33), moderate (2.34–3.67), and high (3.68–5.00) levels. These findings will guide the next phase of the study, focusing on designing and developing the reading literacy module through a DDR approach. It aligned with teachers' and students' needs, based on best practices in educational research [24].

3. RESULTS AND DISCUSSION

3.1. Teacher challenges in implementing HOTS in reading literacy teaching

Table 6 presents elementary teachers' challenges in implementing HOTS in reading literacy. The primary constraint was limited teaching time, with 74.91% of teachers reporting insufficient time for HOTS-based instruction ($M=3.37$, $SD=0.99$). This reinforces previous research showing that teachers are constrained by the demands of the existing curriculum and time constraints, and teachers often revert to lower-level thinking skills because of these problems [28], [31].

Table 6 indicates that insufficient teaching materials were reported by 65.85% of teachers ($M=3.19$, $SD=1.05$), supporting prior findings that limited resources hinder effective implementation [4]. The next challenge was the lack of teaching experience, with 58.88% of teachers stating difficulties in implementing various teaching strategies ($M=2.93$, $SD=1.02$). Teachers in Indonesia stated that they felt inadequate and lacked the experience needed to create HOTS-based lesson plans [8]. The data in Table 6 highlight that an effective curriculum development plan is needed alongside professional development to improve teachers' pedagogical methods and foster higher-order thinking. In line with the instrument's content validity, HOTS challenge indicators are operationalized in Table 1.

Table 6. Teachers' challenges in implementing HOTS in reading literacy teaching

No	Teacher problems	Agree (%)	Disagree (%)	Mean (M)	Standard deviation (SD)
1	Limited teaching time	74.91	25.09	3.37	0.99
2	Limited teaching materials	65.85	34.15	3.19	1.05
3	Limited teacher experience	58.88	41.12	2.93	1.02
4	Limited knowledge and ideas of teachers	54.00	46.00	2.83	0.99
5	Teachers' limited ability to create activities that involve different levels of thought	53.66	46.34	2.83	0.99
6	Lack of school support in improving teachers' abilities in mastering HOTS	34.15	65.85	2.53	0.97

The "disagree" category in the table combines the "strongly disagree" and "disagree" answer options, while the "agree" category combines "somewhat agree", "agree", and "strongly agree"

3.2. Teachers' challenges in integrating character into reading literacy

The integration of character education into reading literacy also posed challenges for teachers. The data in Table 7 shows that 73.52% of teachers identified limited teaching time as a significant barrier ($M=3.25$, $SD=0.95$). In addition, 63.07% of teachers reported a lack of suitable teaching materials ($M=3.06$, $SD=0.99$), and 50.87% noted that their limited knowledge and ideas about integrating character education into reading literacy teaching prevented their efforts ($M=2.77$, $SD=0.93$). Mahanani *et al.* [11] stated that teachers' skills in integrating character education with reading literacy into lesson plans are still limited. Teachers still face significant challenges in developing reading literacy teaching materials that effectively integrate various language skills [28]. These difficulties arise primarily from the need to instill character values in real-life contexts [1]. This gap in knowledge and skills directly impacts the implementation of character education in reading literacy learning. Even though teachers have not applied character consistently in learning, teachers have shown support for balancing character formation with literacy teaching. The questionnaire's character-integration items and their theoretical linkages are detailed in Table 7, supporting interpretation of these findings. Equal emphasis on reading comprehension and moral reasoning should be applied when designing assessment standards.

Teacher responses highlight the need for structured modules that integrate character-building activities. Previous research shows that effective character education depends on dedicated teaching materials and consistent teacher professional development [12]. Without these supports, many teachers feel unequipped to address both cognitive and moral development in reading literacy instruction [28].

Table 7. Teachers' challenges in integrating character into reading literacy

No	Teacher challenges	Agree (%)	Disagree (%)	Mean (M)	Standard deviation (SD)
1	Limited teaching time	73.52	26.48	3.25	0.95
2	Limited teaching materials	63.07	36.93	3.06	0.99
3	Limited knowledge and ideas of teachers	50.87	49.13	2.77	0.93
4	Skills of teachers who are not good at it	48.43	51.57	2.75	0.97

The "disagree" category in the table combines the "strongly disagree" and "disagree" answer options, while the "agree" category combines "somewhat agree", "agree" and "strongly agree".

3.3. Teachers' perceptions on the need for a reading literacy teaching module

Statistical data from Table 8 shows that 99.29% of teachers strongly support the development of an H2C reading literacy teaching module ($M=4.28$, $SD=0.55$) as an essential solution to addressing reading literacy challenges. Moreover, 99.65% of teachers agree that such a teaching module must involve a holistic approach with varied activities ($M=4.24$, $SD=0.53$), and 100% of teachers strongly support the development of teaching modules that integrate character values for reading literacy lessons. These findings suggest a perception among teachers that a structured reading literacy teaching module with a holistic approach is essential for fostering students' HOTS and character.

Table 8. Teachers' perspective on the need in developing the H2C reading literacy teaching modules

No	Teacher problems	Agree (%)	Disagree (%)	Mean (M)	Standard deviation (SD)
1	Reading literacy mastery in primary schools is indispensable.	98.96	1.04	4.44	0.62
2	Students need to master HOTS.	97.56	2.44	4.20	0.65
3	Need to develop a teaching module that contains the application of HOTS for primary schools.	99.30	0.67	4.26	0.56
4	It is necessary to apply a holistic approach to reading literacy lessons.	99.65	0.35	4.26	0.51
5	There is a need to develop teaching modules that use a holistic approach to reading literacy lessons.	99.65	0.35	4.24	0.53
6	Character values need to be integrated (such as not easily discouraged, curious, critical, creative, and empathetic) in reading literacy lessons.	99.65	0.35	4.30	0.52
7	It is necessary to develop teaching modules that integrate character values for reading literacy lessons in primary schools.	100.00	0.00	4.27	0.51
8	It is necessary to develop a teaching module for teachers that integrates HOTS and character education contextually in reading literacy lesson or an H2C reading literacy teaching module.	99.65	0.35	4.28	0.51
Average		99.29	0.71	4.28	0.55

The "disagree" category in the table combines the "strongly disagree" and "disagree" answer options, while the "agree" category combines "somewhat agree", "agree" and "strongly agree".

This confirms previous studies which stated that teachers often lack innovative ideas in implementing HOTS in their literacy teaching due to their limited understanding of HOTS [35] and teachers face several challenges in creating lesson plans that integrate characters into reading literacy instruction due to insufficient knowledge and ideas regarding integration strategies [30]. Operationalization details for the need-assessment items are provided in Table 3, aligning constructs with theory to support interpretation. Table 8 shows that 99.65% of teachers report a strong need for modules linked to real-world contexts ($M=4.28$, $SD=0.51$) and for clear guidance in integrating HOTS and character education [4], consistent with evidence that moral dilemmas in literacy activities enhance students' critical thinking and moral awareness [18], [36], and that well-designed literacy modules improve comprehension, engagement, and moral reasoning [37]. In line with the H2C conceptual model (Figure 1), these needs underscore the importance of structured reading literacy modules that embed HOTS and character education within a holistic approach to strengthen literacy education in elementary schools. Consequently, the implementation of such modules at the elementary level can improve instructional quality and support both academic achievement and character development.

3.4. Difficult reading literacy topics for elementary students

The research also examined the most challenging topic in reading literacy to teach. The two challenges most frequently cited were:

- Understanding and using various reading sources (e.g., encyclopaedias, dictionaries, articles, and non-fiction reading) for independent information searches, both online and offline (22.30%).
- Determining main ideas, supporting details, and messages in the texts (21.95%).

The results reinforce previous studies showing that elementary students often struggle with critical comprehension tasks involving synthesizing several sources [15], [21]. Teachers stated that while students could memorize factual information, they struggle to analyze and integrate different perspectives from various texts [3]. Table 4 outlines the priority topics guiding the module design. Table 9 shows that 16.38% of teachers experience difficulty supporting students' interpretation of print and digital narrative texts, highlighting the need for instructional strategies that emphasize intertextual and inferential comprehension [38]. Developing these skills enables students to integrate multiple texts and enhances higher-order thinking in reading.

Table 9. Topics to be addressed in the reading literacy module

No	Activities	Frequencies	Percent (%)
1	Understanding and using various reading sources (e.g., encyclopaedias, dictionaries, articles, non-fiction text) for independent information searches, both online and offline.	64	22.30
2	Determine the main idea, supporting ideas, flow, and message in the text.	63	21.95
3	Understand the messages and information from narrative texts in printed or electronic formats.	47	16.38
4	Comprehend messages and data related to daily life from printed or electronic reading materials.	30	10.45
5	Understand the messages and information in children's poems from print or electronic materials.	25	8.71
6	Examine new vocabulary from the text studied and describe impressions relevant to the topic.	22	7.67
7	Read novel vocabulary with familiar letter combination patterns fluently, quickly, and precisely.	21	7.32
8	Demonstrate comprehension of characters' experiences in narrative texts.	15	5.23
Total		287	100

3.5. Effectiveness of holistic approach strategies

Statistical analysis indicates that 99.26% of teachers recognize the importance of a holistic approach in fostering HOTS and character in reading literacy ($M=4.26$, $SD=0.51$). Teachers believed that using a holistic strategy that combines cognitive, social, and emotional learning in reading literacy teaching would help significantly improve student engagement, motivation, comprehension, and moral reasoning. This approach would be effective in promoting HOTS, as students actively participate in discussions and critically analyze texts through diverse learning activities or instructional activities that encompass various dimensions of student development. This finding is consistent with previous studies highlighting the value of an integrated instructional model in literacy development [16], [18]. An illustrative example that operationalizes the H2C dimensions in Figure 1 is a storybook-based holistic reading lesson: the teacher guides shared reading of a narrative with explicit character values, then uses HOTS prompts to analyze characters, main idea, and messages, followed by group mind maps or short dramas. This sequence jointly applies HOTS, character reflection, and holistic development in regular grade 4 literacy instruction.

This study further supports the idea that holistic education promotes cognitive, emotional, and social learning outcomes by providing a comprehensive framework that connects literacy instruction to real-world applications [1], [32]. The holistic approach will help teachers integrate HOTS and character

education into reading literacy teaching through diverse learning activities that accommodate students' preferences and multiple intelligences. Integrating real-world applications and diverse instructional activities into reading literacy teaching promotes deeper comprehension and encourages students to engage with texts more critically and enthusiastically [39]. This model strengthens both cognitive and moral reasoning outcomes.

Previous research found that holistic reading strategies enhance text retention and analytical reasoning [20], while integrating character education strengthens moral reasoning and empathy [36]. Given these advantages, teachers strongly support the implementation of holistic reading literacy in grade 4 to promote critical thinking and character development. Targeted teacher training remains essential to ensure educators can deliver holistic reading literacy teaching modules effectively.

3.6. Practical implications

Teachers' primary barriers in implementing HOTS, character education and holistic approach in reading literacy instruction are related to time constraints, lack of resources, and difficulty in integrating HOTS and character education as reported by over half of the 287 teachers surveyed. The practical solutions proposed to address these challenges are: i) curriculum planners should allocate 35-70-minute weekly block for HOTS activities within reading literacy instruction, as recommended by Kosasih *et al.* [1]; ii) the local education office should provide comprehensive teaching materials including sample texts, lesson plans, and assessment rubrics to support teachers [21]; iii) schools should ensure high fidelity in implementing the H2C reading literacy module through comprehensive teacher training and continuous monitoring to maximize its effectiveness in improving students' critical thinking, literacy, and character development [4], [6]. At the policy level, protected pacing guides, curated resource banks, and sustained professional development with coaching directly address the time–material cluster reported by teachers [30], [31]. Government support is essential to recommend and distribute this comprehensive, evidence-based resource, ensuring teachers have the tools to improve instruction and student outcomes.

4. CONCLUSION

This study identifies a critical need for a H2C reading literacy module within the grade 4 Bahasa Indonesia curriculum. The findings highlight that current practices, still dominated by rote learning, should be reformed to incorporate more holistic methods aligned with the H2C conceptual framework proposed in this study. Teachers reported limited instructional time, lack of resources, and insufficient pedagogical expertise as major barriers. Despite these barriers, there is support ($\geq 99\%$) exists for developing a structured H2C module, which integrates a holistic approach, addressing cognitive, social, emotional, and moral dimensions to improve student engagement and comprehension. Based on these findings, specific recommendations emerge for relevant stakeholders: i) policymakers should allocate a protected 35–70-minute weekly block for HOTS-focused reading activities; ii) the Ministry of Education and local offices should provide manuals with sample texts, model lesson plans, and aligned rubrics; and iii) schools should implement sustained professional development and monitoring. Together, these measures function as policy-level supports to ease time and resource constraints.

This needs analysis provides an empirical foundation for an integrated H2C framework. It bridges the gap between policy goals and classroom practices by linking teachers' reported needs, theoretical constructs, and the proposed H2C model. Future research should pilot the H2C module in selected schools, extend the study to diverse regions, incorporate classroom observations, and employ longitudinal designs to assess the longer-term effects of the H2C module on student literacy and character development over time. Evaluating learner and teacher outcomes following pilot implementation will be critical to determining the scalability and sustainability of the H2C framework.

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C : Conceptualization

M : Methodology

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I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

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Vi : Visualization

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CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest in this research.

DATA AVAILABILITY

The data are available from the corresponding author (not publicly available).

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