

Development Of The Literasiku Sanggam Talawang Application As A Digital Literacy Media Based On Local Culture At I Mungku Baru Elementary School

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Article Information	ABSTRACT
Received: April 2026	Background: This research was motivated by the low level of digital literacy among elementary school students and the limited availability of digital learning media integrating the local culture of Central Kalimantan into the learning process. The development of educational technology requires innovative learning media that not only improve students' digital literacy skills but also support the preservation of local culture through engaging, interactive, and age-appropriate learning experiences for elementary school students. Aim: Therefore, this study aimed to develop the "Literasiku Sanggam Talawang" application as a digital literacy learning Media based on the local culture of Central Kalimantan for elementary school students. Method: This study employed the Research and Development (R&D) method using the ADDIE development model, which consists of five stages: analysis, design, development, implementation, and evaluation. The research subjects included three professional validators (media, material, and language experts), 6 classroom teachers, and 60 elementary school students from Grades I to VI at I Mungku Baru State Elementary School. Data collection instruments included expert validation sheets, teacher and student usability questionnaires, observation checklists, and pre-/post-test literacy assessment sheets. Result and Discussions: The results showed that the "Literasiku Sanggam Talawang" application was categorized as highly feasible, achieving an overall mean empirical score of 92.2% (90.0% from material expert, 95.0% from language expert, and 91.7% from media expert). Teacher and student responses reached 91.7% and 90.0% respectively, placing the application in the highly practical category. Furthermore, statistical analysis revealed a substantial positive shift in students' reading competencies, with an overall mean Normalized Gain (N-Gain) score of 0.75 and an overall effectiveness rate of 75%, falling into the high effectiveness category. The offline accessibility successfully resolved infrastructural connection barriers in remote riverine environments. Conclusion: It can be concluded that the "Literasiku Sanggam Talawang" application is highly feasible, practical, and effective as an innovative medium that accelerates digital literacy while simultaneously promoting regional heritage preservation. Keywords: Learning Application, Digital Literacy, Local Culture, Elementary School, ADDIE, Central Kalimantan
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INTRODUCTION

The rapid advancement of digital technology has transformed educational practices and increased the importance of literacy competencies in the twenty-first century. Literacy is no longer limited to basic reading and writing skills but encompasses a multidimensional competency including cognitive, social-emotional, ethical, and safety dimensions to access, evaluate, analyze, and utilize information critically and responsibly in digital environments. Despite its urgency, digital literacy remains a critical challenge in Indonesian elementary education, particularly in rural, remote, and underserved territories. Latest empirical data from the 2022 Programme for International Student Assessment (PISA) reveals that Indonesian students' reading literacy scores stagnated at 359, placing the country 69th out of 81 nations, far below the OECD average of 476. This macro-level literacy crisis is acutely mirrored at the micro-level in remote regions;

for instance, the 2025 National Assessment (Rapor Pendidikan) data for I Mungku Baru State Elementary School indicates that students' reading literacy is strictly restricted to the "moderate" category at 53.33%. Preliminary school observations further confirm that students' reading habits stand at a low 33.33%, access to appropriate reading materials is only 30%, and the active integration of digital learning media by teachers is confined to 20%, primarily due to the severe lack of dedicated School Operational Assistance (BOSP) funding for library book procurement. In response to these challenges, prior educational literature has widely advocated for culture-based learning and interactive digital media as standalone pathways to enhance conceptual understanding and student engagement. However, a critical research gap remains unaddressed. Most existing digital literacy software and applications are generic, focusing heavily on hard technical or operational skills while completely neglecting cultural

contextualization. Conversely, local cultural preservation efforts in elementary schools still rely heavily on conventional, text-heavy printed materials that fail to capture the interest of digital-native students. This separation creates a cultural disconnect, as younger generations are increasingly exposed to globalized digital content while steadily losing familiarity with their regional heritage, such as Central Kalimantan's Dayak culture. Furthermore, remote riverine schools face severe infrastructural constraints, including a total lack of continuous internet connectivity, rendering online-dependent educational media completely unviable. The novelty of this study lies in bridging these isolated instructional areas by developing "Literasiku Sanggam Talawang"—a comprehensive, completely offline-accessible digital literacy platform explicitly tailored for elementary schools in remote riverine areas. Grounded in Social Constructivism (Vygotsky's emphasis on cultural tools), Piaget's concrete operational stage for primary students, and Contextual Teaching and Learning (CTL), this application uniquely blends modern digital literacy frameworks (DigComp 2.2) with Central Kalimantan's indigenous heritage. By incorporating bilingual folklores, regional vocabulary games,

and localized visual interface design, this media acts as an interactive, contextual shield (Talawang) to enhance digital reading competencies while actively preserving local culture from early childhood education onwards. Therefore, the purpose of this study is to systematically develop, validate, and evaluate the feasibility, practicality, and effectiveness of this local culture-based platform.

METHOD

The research subjects involved a purposive sample comprising 60 elementary school students across all cohorts from Grades I to VI and 6 classroom teachers to assess user usability and practicality. Sociolinguistic profiling through a baseline questionnaire indicated that 94% of the student population predominantly uses their indigenous mother tongue (Dayak language) for daily communication, reinforcing the critical need for a localized, bilingual digital literacy platform. The detailed distribution and demographic characteristics of the participants are structured in Table I.

Table I. Demographic Distribution of Research Participants

Participant Group	Target Cohort / Role	Number of Participants (n)	Percentage (%)	Primary Language Used
Students	Grade I	6	10.0%	Dayak / Mother Tongue
	Grade II	12	20.0%	Dayak / Mother Tongue
	Grade III	15	25.0%	Dayak / Mother Tongue
	Grade IV	10	16.7%	Dayak / Mother Tongue
	Grade V	8	13.3%	Dayak / Mother Tongue
	Grade VI	9	15.0%	Dayak / Mother Tongue
Teachers	Classroom Teachers	6	-	Indonesian / Dayak
Total Student Sample	Grades I–VI	60	100%	-

Data collection was structured through both qualitative and quantitative instruments, including expert validation sheets, user practicality questionnaires, observation checklists, and pre-/post-test literacy assessment sheets. To ensure structural construct validity and pedagogical integrity, the "Literasiku Sanggam Talawang" application underwent meticulous evaluation by three distinct professional validators:

1. Material Expert, evaluating the alignment of content with digital literacy frameworks and local Dayak culture.
2. Language Expert, assessing the bilingual structure, readability, and contextual vocabulary.
3. Media Expert, reviewing user interface design, technical navigation, and offline responsiveness.

The gathered data were analyzed using mixed-method analytical techniques:

1. Feasibility and Practicality Analysis: Quantitative data from Likert-scale responses provided by validators, teachers, and students were converted into percentage scores using descriptive statistics to determine whether the media reached the "Highly Feasible" or "Highly Practical" threshold (>80%) based on standard criteria.

2. Effectiveness Analysis: To evaluate the direct operational impact of the application on students' digital reading literacy, the pre-test and post-test scores were analyzed statistically using the Normalized Gain (N-Gain) score formula proposed by Hake:

$$g = \frac{\text{Posttest} - \text{Pretest}}{\text{maximum score} - \text{Pretest}}$$

- (g) = normalized gain score;
- Pre-test = score obtained before using the application;
- Post-test = score obtained after using the application;
- Maximum Score = maximum possible test score.

RESULTS AND DISCUSSION

Results

The development phase culminated in expert appraisal rounds to certify the software's pedagogical and technical readiness. The structural validation scores from the specialized validators are detailed in Table II.

Table II. Expert Validation Results

Evaluation Aspect	Validation Percentage	Quality Category
Material Expert	90.0%	Highly Feasible (<i>Sangat Layak</i>)
Language Expert	95.0%	Highly Feasible (<i>Sangat Layak</i>)
Media Expert	91.7%	Highly Feasible (<i>Sangat Layak</i>)
Mean Empirical Score	92.2%	Highly Feasible (<i>Sangat Layak</i>)

Following revisions based on expert feedback, the platform was deployed during the implementation phase. Field

practicality assessments from teachers and students are compiled in Table III.

Table III. Usability and Practicality Scores

Respondent Group	Sample Size (N)	Total Score Obtained	Maximum Score	Practicality Percentage	Category
Classroom Teachers	6	55	60	91.7%	Highly Practical
Elementary Students	15	54	60	90.0%	Highly Practical

To evaluate the operational success of the "Literasiku Sanggam Talawang" application, a comprehensive pre-test and post-test tracking digital reading literacy was executed across

all cohorts (N=60). The complete statistical breakdown is structured in Table IV.

Table IV. Statistical Breakdown of Student Literacy Pre-Test, Post-Test, and N-Gain Scores

Cohort Grade	Number of Students	Mean Pre-Test Score	Mean Post-Test Score	Mean N-Gain Value	Percentage Gain	Effectiveness Category
Grade I	6	48	82	0.65	65%	Moderate (<i>Sedang</i>)
Grade II	12	50	84	0.68	68%	Moderate (<i>Sedang</i>)
Grade III	15	52	88	0.75	75%	High (<i>Tinggi</i>)
Grade IV	10	55	90	0.78	78%	High (<i>Tinggi</i>)
Grade V	8	58	92	0.81	81%	High (<i>Tinggi</i>)
Grade VI	9	60	93	0.82	82%	High (<i>Tinggi</i>)
Overall Mean	60	53.8	88.1	0.75	75%	High (<i>Tinggi</i>)

Discussion

The empirical findings demonstrate that the "Literasiku Sanggam Talawang" application yields a substantial, statistically high positive shift in elementary digital reading literacy, as evidenced by the overall N-Gain score of 0.75 and an overall effectiveness rate of 75%. This sharp progress is theoretically explained by the integration of Contextual Teaching and Learning (CTL) frameworks within a digital platform. By introducing culture-bound app components such as bilingual Dayak-Indonesian localized narratives (*Tarjamah, Lelei Kata, Katawa Dia Ikau*) and regional interactive modules (*Maliling Palangka, Kilau Je Asli*), the application provides a highly recognizable, familiar environment for students. This alignment directly answers Vygotsky's socio-constructivist postulate that learning tools are most potent when embedded natively within the student's immediate cultural ecology.

Critically comparing these results with prior standalone interventions unveils key insights. While generic digital literacy apps successfully increase basic technical manipulation skills, they often report lower retention and engagement rates when deployed in rural schools due to a lack of meaningful relevance. In contrast, embedding Central Kalimantan's local culture creates immediate contextual closeness, which acts as a

catalyst to boost internal learning motivation, curiosity, and reading interest. Furthermore, the vivid visual design and tailored storytelling mechanics embedded in the application significantly help students break down and interpret implied and explicit information faster than traditional, text-heavy sheets.

From an instructional technology standpoint, the media successfully overcomes acute geographical limitations. Conventional printed reading books are sparse at I Mungku Baru State Elementary School due to zero budget allocations for library procurement. By transforming digital learning into a completely offline-ready format, the app bypasses the prominent constraint of unstable internet access in riverine communities. It successfully replaces boring rote learning with multi-sensory educational games (*Usik Mandidik*).

Despite its clear empirical benefits, this study carries several limitations that need to be carefully noted. First, the sample size is limited to 60 students within a single remote riverine school (*I Mungku Baru State Elementary School*), meaning the results cannot be widely generalized to urban schools with different digital habits. Second, while the application operates perfectly offline, the initial installation, data synchronization, and teacher orientation still require an

intermittent web connection, which remains a barrier in remote territories. Lastly, the longitudinal retention of digital literacy competencies beyond the 4-month research timeline was not tracked, pointing to a clear need for future long-term research.

CONCLUSION

This study successfully developed the *Literasiku Sanggam Talawang* application as a local culture-based digital literacy medium for elementary school students at I Mungku Baru State Elementary School. The findings demonstrated that the application is valid, practical, and effective for supporting Indonesian language literacy learning, as evidenced by positive expert evaluations, strong user acceptance, and significant improvement in students' literacy achievement. The integration of Dayak Ngaju cultural content with interactive multimedia features provided meaningful and contextual learning experiences that enhanced students' literacy skills while fostering awareness and appreciation of local culture. These findings suggest that local culture-based digital literacy media can serve as an effective strategy for improving literacy learning in remote elementary schools while simultaneously supporting cultural preservation. Future research is recommended to involve larger and more diverse participant groups, adapt the application to other regional cultural contexts, and examine its long-term impact on students' literacy development and cultural identity.

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