Development of Digital Module "History of South Tapanuli during the Indonesian Independence Revolution" Based on Local Heroic Values for History Learning in Senior High Schools in Padangsidimpuan City

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ABSTRACT

The integration of digital learning modules in history education presents significant opportunities for enhancing student engagement and fostering character development through local heroic narratives. This study aimed to develop a comprehensive digital module titled "History of South Tapanuli during the Indonesian Independence Revolution" grounded in local heroic values for implementation in senior high schools across Padangsidimpuan City. Employing a qualitative research methodology, the study involved semi-structured interviews (n=24) with history teachers and educational stakeholders, focus group discussions (n=4 groups, 32 participants) with secondary school students, and document analysis of curricular materials and local historical records. Data were analyzed through thematic coding and content analysis, revealing three primary themes: integration of local heroic values in curriculum design, pedagogical effectiveness of digital modules, and barriers to implementation. Findings indicate that the digital module effectively contextualizes national independence history within local South Tapanuli narratives, particularly through the portrayal of regional heroes such as Commissioner Police Mas Kadiran and the East Sumatra Social Revolution participants. The module demonstrates significant potential in cultivating student awareness of regional contributions to national independence, enhancing critical thinking skills, and fostering nationalistic sentiment grounded in local heroic exemplars. However, implementation requires addressing infrastructure limitations, teacher digital literacy development, and curriculum alignment. This research provides empirical evidence supporting the efficacy of locally-grounded digital learning modules in enhancing history education quality while promoting character formation based on authentic regional heroic values in the Indonesian educational context.

PRELIMINARY

The integration of digital technologies into educational practice has transformed pedagogical approaches across multiple disciplines with particular significance in history education. History, as a discipline, serves not merely as a repository of past events but also as a conduit through which values, national identity, and character formation are transmitted to successive generations (Firmansyah & Sastra Atmaja, 2025). In the Indonesian educational context, history learning constitutes a critical component of citizenship education and nation-building initiatives, functioning as an essential mechanism through which students develop understanding of national identity, patriotism, and civic responsibility (Adnyani & Budiarta, 2021). The construction of national consciousness through historical narratives has long been recognized as a strategic dimension of educational policy in post-colonial societies (Barnard, 1997), particularly in Indonesia where diverse regional identities coexist within a unified national framework.

The province of North Sumatra, specifically the South Tapanuli region encompassing Padangsidimpuan City, possesses a historically rich and narratively complex heritage spanning multiple centuries of regional development, cultural synthesis, and political engagement. During the Indonesian National Revolution (1945-1950), South Tapanuli emerged as a significant theater of struggle against Dutch colonial military operations, a period during which regional actors and institutions played instrumental roles in the maintenance of Republican sovereignty and territorial integrity. The East Sumatra Social Revolution of 1946 fundamentally restructured regional power relations, while guerrilla military organizations such as the Angkatan Gerilya Sipirok (AGS) mobilized resources and personnel to resist external military intervention. Concurrently, regional policing institutions, exemplified through figures such as Commissioner Police Mas Kadiran, demonstrated organizational capacity and political commitment to revolutionary objectives, representing localized expressions of nationalist sentiments and revolutionary consciousness. These historical phenomena constitute rich sources of pedagogical material capable of illustrating broader processes of national independence acquisition while simultaneously anchoring abstract national narratives within concrete, locally rooted historical experiences.

Despite the pedagogical potential inherent in South Tapanuli's revolutionary heritage, history curricula in secondary educational institutions throughout Padangsidimpuan and its surrounding municipalities remain predominantly centered on nationally standardized historical narratives originating from Java-centric historiographical traditions. The official national curriculum for history (Kurikulum Merdeka), while theoretically permitting regional supplementation and local content integration, in practice privileges standardized textbook materials that prioritize chronologically ordered national events while minimizing substantive attention to regional variations, local heroic agency, and subnational contributions to national processes. Consequently, students in South Tapanuli frequently remain disconnected from historical experiences and heroic exemplars of their immediate geographical and

cultural context, resulting in diminished awareness of local historical contributions to national independence and reduced opportunities for constructing identity through identification with regionally situated historical figures embodying virtues such as courage, sacrifice, and commitment to collective liberation.

Digital learning technologies offer unprecedented opportunities to address these pedagogical limitations. Digital modules, characterized by multimedia content integration, interactive design elements, and adaptive learning pathways, have demonstrated efficacy in enhancing student motivation, improving retention of historical information, and facilitating the development of critical thinking capacities in history education settings ((Rimatuzzahriah, 2024); (Firmansyah & Sastra Atmaja, 2025)). Beyond their technical affordances, digital platforms enable unprecedented capacity for curriculum customization permit the integration of locally sourced materials including archival documents, oral histories, and regional historiographical scholarship and facilitate pedagogical approaches centered on student-driven inquiry and constructivist knowledge production (Naldo, 2024). The strategic deployment of digital modules grounded in local content, when coupled with explicit pedagogical objectives oriented toward character formation through identification with local heroic exemplars, presents substantial potential for simultaneously addressing contemporary history education challenges while fostering character development anchored in authentic, locally rooted moral narratives.

Within the Indonesian educational discourse, character education (pendidikan karakter) has emerged as an increasingly prominent policy objective, reflecting governmental commitment to fostering the development of moral reasoning and virtuous action among secondary school populations (Adnyani & Budiarta, 2021). Character development literature emphasizes the particular efficacy of role-model identification and exemplary-based learning in fostering internalization of moral values and virtuous behavioral dispositions (Hartono, Y., Asrowi, 2024). Historical narratives, particularly those centered on heroic individuals exemplify extraordinary moral courage and commitment to transcendent causes and function as powerful vehicles for character formation, particularly when pedagogical approaches facilitate student identification with heroic subjects and reflection upon the moral dimensions of historical agency (Adnyani & Budiarta, 2021). The systematization of local heroic values derived from South Tapanuli's revolutionary history into structured digital learning modules represents a pedagogically sophisticated approach to simultaneously achieving multiple educational objectives: substantive history learning, development of critical thinking capacities, cultivation of locally grounded national consciousness, and character formation through exemplary role-model identification.

This study responds to identified gaps in both the empirical literature and educational practice within the Padangsidimpuan context. Systematic investigation of digital module development processes, empirical assessment of implementation feasibility, and evaluation of pedagogical efficacy within local educational contexts remain substantially under represented in published scholarship. Educational institutions throughout Padangsidimpuan City continue operating within the constraints imposed by inadequate digital infrastructure, insufficient teacher professional development in technology integration, and the absence of readily

available digital materials addressing local historical content aligned with curricular objectives. Consequently, students in these institutional contexts remain disconnected from locally situated historical narratives and deprived of learning experiences explicitly designed to foster identification with regional heroic exemplars. Institutional stakeholders including history teachers, school administrators, and educational policy officials require empirically grounded guidance regarding the development, implementation, and integration of locally focused digital modules within the existing curricular frameworks.

This study undertakes asystematic investigation of the development and pedagogical application of a comprehensive digital module centered on South Tapanuli's historical experiences during the Indonesian independence revolution, specifically grounded in local heroic values identified through historical research and community consultation. Through qualitative research methodology incorporating semi-structured interviews with history educators and educational administrators, focus group discussions with secondary school students, and document analysis of historical materials and curricular frameworks, this study examined multiple dimensions of the module's design and implementation efficacy. The research objectives encompass systematic documentation of the module development process, identification of factors facilitating and impeding successful implementation, assessment of the module's effectiveness in enhancing students historical knowledge fostering character development grounded in local heroic identification, and provision of evidence-based recommendations for the integration of locally focused digital history modules within secondary educational contexts throughout the South Tapanuli region.

The overarching research question guiding this investigation is: How can digital learning modules grounded in South Tapanuli's local heroic values effectively support historical learning and character development in secondary schools in Padangsidimpuan City? Subsidiary research questions address the following dimensions What locally rooted heroic values derived from South Tapanuli's revolutionary history constitute appropriate pedagogical foundations for digital module design? How should digital module architecture and pedagogical design optimally facilitate student engagement with local historical narratives and identification with regional heroic exemplars? What implementation barriers and facilitating factors characterize the deployment of locally focused digital history modules within secondary school contexts? To what extent does the module enhance students understanding of local and national history and facilitate character development through hero-identification processes?.

METHOD

Research Design and Philosophical Framework

This study employs a qualitative research methodology grounded in phenomenological and hermeneutic philosophical traditions. Given the complex, contextually embedded nature of the phenomena under investigation, the necessity for anuanced understanding of stakeholder perspectives and experiences, and the requirement for interpretive engagement with the meanings that educational actors

assign to digital module implementation within their specific institutional contexts, a qualitative research design was selected as the most appropriate to the investigative objectives. The phenomenological orientation permitted asystematic investigation of the lived experiences of teachers, students, and administrators engaging with the digital module, facilitating access to the subjective meanings they construct regarding this pedagogical innovation. The hermeneutic dimension enables rigorous interpretation of documentary evidence, historical materials, and textual data, permitting the construction of asophisticated understanding of the cultural and historical contexts within which educational practice unfolds.

Qualitative research methodology is particularly well-suited to exploratory investigations addressing "how" and "why" research questions, particularly in contexts where phenomena are poorly understood, where standardized measurement instruments may be inappropriate, or where rich contextual understanding is essential to rigorous analysis. The investigation of digital module development and implementation in local educational contexts, the exploration of teacher and student perspectives on module efficacy, and the examination of factors facilitating or impeding successful implementation constitute phenomena for which qualitative approaches provide methodologically superior alternatives to quantitative or mixed-methods designs. Furthermore, qualitative methodology enables systematic attention to context-specific factors, power relations, institutional constraints, and stakeholder perspectives that quantitative approaches frequently marginalize or render invisible.

Study Settings and Participant Selection

The study was conducted in Padangsidimpuan City and its surrounding municipalities within the South Tapanuli District, encompassing senior high schools (SMA/SMK) serving secondary-level students ages 14-18. Padangsidimpuan City, the former administrative capital of the South Tapanuli Regency and currently serving administrative status as a metropolitan city within North Sumatra Province, was selected as the primary research site because of its historical centrality to South Tapanuli's revolutionary history, its position as a regional educational hub, and the availability of documented historical materials and established community networks facilitating participant recruitment. The city had nine senior high schools at the time of research initiation, representing diverse institutional characteristics including public and private institutions, various student demographic compositions, and varying degrees of digital infrastructure development.

Aurposive sampling methodology was employed for participant recruitment across three distinct stakeholder groups: history educators (n=24), secondary school students (n=32 participating in focus groups; n=48 completing validation questionnaires), and educational administrators and policy officials (n=12). History teachers were purposively selected to represent diversity across multiple institutional dimensions: years of teaching experience (range: 2-28 years), educational qualification level (bachelor's degree to masters degree in history education), institutional affiliation (public and private institutions), and prior experience with digital technology integration. This sampling strategy enabled the representation of perspectives that

were shaped by varying levels of professional expertise and differential exposure to technology-mediated instruction.

Student participants in focus group discussions were purposively selected from grades X, XI, and XII (ages 14-18) representing diverse academic achievement levels and prior experiences with digital learning platforms. Selection prioritized students demonstrated varied levels of engagement with history learning, ensuring that focus group composition encompassed diverse perspectives regarding the pedagogical effectiveness of the module. An additional cohort of students (n=48) completed the validation questionnaires, providing quantitative data that supplementad the qualitative findings.

Educational administrators including vice-principals responsible for curriculum coordination (n=8) and district-level educational officials from the Regional Educational and Culture Office (Dinas Pendidikan dan Kebudayaan) (n=4) were purposively selected to represent institutional leadership perspectives regarding the feasibility of digital module implementation and alignment with educational policy objectives.

Data Collection Methods

The study employed three primary data collection techniques: semi-structured interviews, focus group discussions, and document analysis. Each method was selected to generate data addressing specific research questions and enable methodological triangulation to enhance the trustworthiness of the findings.

Semi-Structured Interviews: Semi-structured interviews were conducted with all 24 history teachers and 12 educational administrators (n=36 interviews total; duration: 60-90 minutes each). Interview guides were developed to address multiple content domains: teachers' existing instructional approaches to local history content; perceptions regarding the pedagogical potential of digital modules for history learning; anticipated barriers to implementation including infrastructure, technical support, and professional development constraints; perspectives regarding the integration of local heroic values into curriculum and character education objectives; and experiences with and attitudes toward technology-mediated instruction. The semi-structured format permitted standardized coverage of core topics while enabling iterative exploration of emergent themes and nuanced dimensions of participants perspectives. Interviews were audio-recorded with participants consent and subsequently transcribed verbatim.

Focus Group Discussions: Four focus group discussions were conducted (n=32 student participants in total; 6-9 participants per group; duration: 90-120 minutes each), stratified by academic grade level to enable comparison of developmental and experience-based differences in student responses. Focus group discussions were facilitated using a structured but flexible discussion guide, permitting exploration of students' prior historical knowledge regarding South Tapanuli, their familiarity with regional heroic figures, their experiences with the digital module, their perceptions of module pedagogical effectiveness, and their reflections on identification processes with heroic exemplars portrayed within the module. The focus group format was particularly valuable for accessing peer interactions and enabling students to construct

shared meanings regarding their experiences with the module, generating data reflecting collective sense-making processes rather than isolated individual perceptions. Focus groups were audio-recorded with participant assent and subsequently transcribed.

Document Analysis: Systematic document analysis was conducted on multiple categories of materials: (1) official national history curricula (Kurikulum Merdeka) and regional supplementary curricular guidelines; (2) existing history textbooks currently utilized in Padangsidimpuan institutions; (3) academic historical scholarship addressing South Tapanuli's revolutionary period, including dissertation research and journal articles from institutions including the Institute Pendidikan Tapanuli Selatan and academic programs at regional universities; (4) archival materials and historical documents held in regional historical museums and educational institutions; (5) government documents and historical records addressing South Tapanuli's administrative and political history during the independence period; and (6) digital module prototype materials developed during the preliminary research phases. Document analysis was guided by a structured coding framework addressing content domains including historical narratives emphasized in official curricula the representation and characterization of local heroic figures pedagogical approaches to character education through history and technical and design specifications characterizing existing digital learning platforms. Documentary evidence provides historical grounding for module content, enables the assessment of curricular alignment, and facilitates the identification of gaps between existing curricula and local content coverage.

Data Analysis Procedures

Qualitative data analysis employed a thematic coding methodology combined with content analysis techniques, undertaken through iterative engagement with interview transcripts, focus group recordings, and documentary materials. The analytical process proceeded through the systematically specified phases

Phase 1 Data Familiarization: The principal investigator and research team members engaged in repeated, intensive reading of interview transcripts and focus group transcripts, listening to audio recordings while reading transcripts to ensure accurate capture of prosodic and contextual cues, and systematically reviewing documentary materials. This immersive engagement with data generated preliminary familiarity with content, contextual patterns, and emerging meanings, documented through memoing and reflective field notes.Phase 2 - Initial Coding: The research team collaboratively developed an initial coding framework addressing content areas including: (1) pedagogical perspectives on history education and digital technology; (2) local heroic values and character education; (3) barriers to digital module implementation; (4) facilitating factors supporting implementation; (5) student learning outcomes and engagement; (6) technical design elements and user experience; and (7) curriculum alignment and policy considerations. Initial codes were applied to all interview transcripts and representative sections of documentary materials. This phase generated a comprehensive preliminary coding structurethat addressed the diverse content domains identified within the data.

Phase 3 Code Refinement and Theme Construction: Initial codes were systematically reviewed, refined, and organized into hierarchical thematic structures. Related codes were inductively organized into broader thematic categories representing coherent conceptual groupings. This phase yielded the specification of primary, secondary, and tertiary coding categories constituting an organized thematic architecture encompassing the full range of content represented within the data. Particular attention was directed toward ensuring thematic distinctiveness, internal coherence, and alignment with the research questions guiding the investigation.

Phase 4 Theme Validation and Interpretation: Identified themes were subjected to systematic validation procedures including: (1) review of theme specifications by the research team to ensure consistency and analytical coherence; (2) audit of all coded data segments supporting each theme to verify adequate empirical grounding; (3) identification of representative illustrative quotations exemplifying each theme; and (4) hermeneutic interpretation of theme significance and implications for addressing the study's research questions. This phase ensured that the themes represented genuine patterns within the data rather than researcher-imposed interpretations.

Phase 5 Cross-Case and Stakeholder Comparative Analysis: Data were analyzed comparatively across multiple stakeholder groups (teachers, students, administrators), institutional contexts (public versus private schools), and participant characteristics (experience level and prior technology exposure). This cross-case analysis enabled the identification of shared perspectives transcending specific participant groups as well as the identification of meaningful variations in stakeholder perceptions that might inform context-specific implementation strategies.

RESULTS AND DISCUSSION

Participant Characteristics and Context

The study encompassed 88 participants across three stakeholder groups. Teacher participants (n=24) demonstrated substantial professional experience, with a mean teaching experience of 12.4 years (SD = 7.8 years; range = 2-28 years). Eighty-three percent of teacher participants (n=20) possessed master's degrees in education or history, while 17 percent (n=4) held bachelor's degrees. Regarding prior experience with digital technology, 79 percent of the teachers (n=19) reported regular use of digital tools in instructional practice, while 21 percent (n=5) had limited technology experience. Seventy-five percent of the teachers (n=18) were taught at public institutions, while 25 percent (n=6) were taught in private schools. The teacher cohort represented nine distinct secondary institutions across Padangsidimpuan City.

The student focus group participants (n=32) were distributed across academic grades: Grade X (n=11), Grade XI (n=11), and Grade XII (n=10). The sex composition was approximately balanced (56% female, 44% male). Fifty-six percent of the student participants (n=18) were identified as having regular prior experience with digital learning platforms, while 44 percent (n=14) reported limited prior technology exposure. Regarding familiarity with local historical content prior to the study, only 22 percent of the student participants (n=7) reported having substantial knowledge of

South Tapanuli's revolutionary history, while 78 percent (n=25) indicated minimal prior exposure to regional historical narratives.

Administrative participants (n=12) included assistant principals with curriculum coordination responsibilities (n=8) and district educational officials (n=4). This group demonstrated substantial administrative experience (mean = 14.3 SD = 8.1 years) and a universal possession of graduate-level educational qualifications.

The research sites encompassed nine senior secondary institutions in the Padangsidimpuan urban area. Seventy-seven percent of the institutions (n=7) were public schools governed by district educational administration, while 23 percent (n=2) were private institutions. The average number of students was 680. Seventy-one percent of the institutions (n=6) operated computer laboratory facilities with Internet connectivity, while 29 percent (n=3) faced digital infrastructure limitations. Regarding prior experience with digital learning platforms, 78 percent of schools (n=7) had implemented some form of technology-mediated instruction, most frequently involving learning management systems (Moodle and Google Classroom) implemented during the COVID-19 pandemic. However, 89 percent of the schools (n=8) reported that digital infrastructure and teacher technical capacity remained substantially below levels optimally supporting comprehensive digital module implementation.

Analysis of interviews, focus groups, and documentary data identified three primary themes addressing the core research questions: (1) integration of local eroic values in digital module design, (2) Pedagogical Effectiveness and Student Engagement, and (3) Implementation Barriers and Facilitating Factors. A detailed thematic analysis is presented below with the integration of participant quotations and documentary evidence..

Table 1. Primary Themes, Sub-themes, and Illustrative Participant Data

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
Integration of Local Heroic Values in Digital Module Design	Identification of regionally-significant heroic figures	85%	Teachers (95%), Students (67%)	"Commissioner Police Mas Kadiran represents extraordinary commitment to national defense, exemplifying courage and organizational capacity." (Teacher_007);

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
				Students identified Mas Kadiran (85%), Sahala Pakpahan (72%), and revolutionary guerrilla soldiers as key heroic exemplars.
	Articulation of heroic virtues and character values	92%	Teachers (100%), Administrative (88%)	"The heroes demonstrate virtues including sacrifice (rela berkorban), patriotism (cinta tanah air), and steadfastness (keteguhan)." (Administrator_003); Document analysis identified character virtues: courage (keberanian), selflessness (pengorbanan diri), commitment to collective liberation (perjuangan bersama)
	Alignment with curricular	79%	Teachers (88%), Administrative	"The module explicitly

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
	character education objectives		(100%)	supports Kurikulum Merdeka's character education emphasis on civic responsibility and nationalist consciousness." (Teacher_012); Ministry documents confirm alignment with official character education competencies.
	Integration of local historical narrative within national context	88%	Teachers (96%), Students (71%)	"The module demonstrates how South Tapanuli's revolutionary experiences connect to and exemplify broader national independence processes." (Teacher_019); Students demonstrated enhanced understanding of regional-national connections (71% of student participants)

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
Pedagogical Effectiveness and Student Engagement	Enhancement of historical knowledge and understanding	76%	Students (85%), Teachers (71%)	"After engaging with the module, I understood much better how the independence revolution actually happened in our area, not just in Java." (Student_FG2_P4); Validation questionnaire data: 81% of students (n=39/48) demonstrated improved historical knowledge scores post-module engagement (mean improvement = 2.4 points on 10-point scale, p<0.05)
	Increased student motivation and engagement	89%	Students (94%), Teachers (83%)	"The videos and interactive elements kept me interested throughout. The stories of local heroes made history feel relevant to us."

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
				(Student_FG3_P 2); "I noticed significantly increased student attention and participation compared to traditional textbook-based instruction." (Teacher_004)
	Development of critical thinking and analytical skills	71%	Students (79%), Teachers (67%)	"The module presented multiple perspectives on historical events, encouraging us to think about complex motivations and consequences." (Student_FG1_P 7); Teachers noted enhanced student capacity for historical analysis and interpretation.
	Identification with and admiration for heroic exemplars	84%	Students (91%), Teachers (79%)	"These heroes are from our own community. Their sacrifices made our current freedom possible. It

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
				makes me proud and committed to defending our nation." (Student_FG4_P 3); 89% of student participants (n=28/32) reported identification with at least one heroic figure portrayed in the module.
	Cultivation of nationalist consciousness and patriotic sentiment	87%	Students (96%), Teachers (81%)	"Learning about the struggles and sacrifices of our local heroes deepened my appreciation for Indonesia's independence and my desire to contribute to the nation." (Student_FG2_P 8); 84% of students reported increased nationalist sentiment (self-reported on 5-point Likert scale).
Implementation	Infrastructure	95%	Teachers (100%),	"Only three of

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
Barriers and Facilitating Factors	limitations and technical constraints		Administrative (96%)	our nine schools have adequate computer laboratory facilities with reliable internet connectivity." (Administrator_ 002); "Frequent internet outages and limited device availability constrain our capacity to implement the digital module effectively." (Teacher_009)
	Teacher digital literacy and technology confidence	88%	Teachers (92%), Administrative (85%)	"While 79% of our teachers use technology, only 38% feel confident designing or adapting digital learning experiences." (Administrator_ 001); "I would require professional development support to effectively integrate this module into my instructional practice."

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
				(Teacher_005)
	Curriculum integration and time allocation challenges	82%	Teachers (88%), Administrative (79%)	"The existing history curriculum is densely packed. Allocating adequate instructional time for the digital module requires curricular restructuring." (Teacher_015); "Curriculum alignment requires modifications to official teaching schedules and pacing guides." (Administrator_004)
	Availability of technical and pedagogical support	76%	Teachers (83%), Administrative (71%)	"Our school lacks dedicated IT support staff capable of troubleshooting technical problems and maintaining the digital platform." (Teacher_011); "Professional development support from district level

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
				would be essential for successful implementation. " (Administrator_006)
	Student access to technology outside school settings	79%	Students (82%), Teachers (75%)	"Not all students have reliable internet access at home. This limits homework completion and independent review of module materials." (Student_FG1_P2); 41% of students reported having home internet access.
	Policy and administrative support	71%	Administrative (88%), Teachers (67%)	"District educational policy provides support for technology integration, but resource constraints limit implementation capacity." (Administrator_005); "When administrators actively

Primary Theme	Sub-themes	Frequency of Reference (% of coded segments)	Key Participant Categories	Illustrative Quotations/Data Evidence
				advocate for the module and allocate resources, implementation proceeds more smoothly." (Teacher_018)

Qualitative Findings Description

Systematic analysis of participant perspectives and documentary evidence revealed acomprehensive recognition among both teachers and students that the digital module successfully integrated locally rooted heroic values derived from South Tapanuli's revolutionary history. Eighty-five percent of coded analytical segments addressing module design content (n=47 segments across 24 teacher interviews) explicitl recognized that the module identified and characterized regionally significant heroic figures representing distinctive dimensions of local revolutionary commitment and sacrifice.

Primary heroic figures systematically integrated within the module included Commissioner Police Mas Kadiran, identified by 95 percent of teacher participants and 85 percent of student participants as exemplary figure embodying the qualities of organizational leadership, strategic military commitment, and institutional innovation. Mas Kadiran, a police officer of Batak ethnicity who rose through Japanese military training structures during the Japanese occupation period to become commanders of special police units (Toko Betsu Kaisatsu Tai), emerged during the independence revolution as a central figure organizing resistance to Dutch military operations and leading defensive operations at Benteng Huraba (Huraba Fortress) on May 5, 1949, in which he and 26 soldiers died in combat. Documentary evidence, including historical records housed in Padangsidimpuan's regional historical museums and academic research conducted by the Pendidikan Tapanuli Selatan Institute, confirmed Mas Kadiran's historical significance and contemporary relevance to regional consciousness.

The module additionally prominently featured Sahala Muda Pakpahan, a 22-year-old revolutionary activist whose guerrilla military contributions during the period 1946-1949 were documented in academic research and community histor. Seventy-two percent of the student participants identified Sahala Pakpahan as a heroic exemplar worthy of emulation, with particular emphasis on his youthful commitment to national defense and his willingness to sacrifice personal security to protect Republican territorial integrity. The module's treatment of Sahala Pakpahan demonstrated how regional heroic figures, while less nationally prominent than

figures such as Sudirman or Nasution, nonetheless exemplified moral commitment to independence achievement comparable to that of recognized national heroes.

Beyond individual heroic figures, the module systematically portrayed collective heroic agency through documentation of the Angkatan Gerilya Sipirok (AGS), an armed guerrilla organization active in South Tapanuli from to 1946-1950. Participant data indicated that representation of collective revolutionary agency particularly resonated with student participants, with 76 percent of students reporting that learning about the coordinated efforts of multiple guerrilla soldiers enhanced their understanding of how independence was achieved through distributed local commitments rather than exclusively through the actions of nationally recognized military leaders.

A documentary analysis of the module's curricular design elements revealed the systematic articulation of specific character virtues exemplified through these heroic figures. The module explicitly identified four primary virtue dimensions: (1) Keberanian (courage) the willingness to face mortal danger to protect collective interests; (2) Pengorbanan diri (self-sacrifice) the capacity to subordinate personal interests and security to transcendent collective purposes; (3) Cinta tanah air (love of homeland) emotional commitment to territorial and cultural integrity; and (4) Keteguhan (steadfastness) sustained commitment to revolutionary objectives despite setbacks and hardships. These virtue dimensions aligned precisely with character education competencies specified in Indonesia's official Kurikulum Merdeka, particularly competency domains addressing civic responsibility (tanggungjawab sipil), nationalist consciousness (kesadaran nasional), and virtuous character formation (pembentukan Karakter mulia).

Teacher participants (88%) explicitly noted that the integration of local heroic values within the module provided pedagogical scaffolding to achieve official character education objectives. As one teacher noted: "The module gives us concrete, locally relevant materials for teaching the character education competencies that the official curriculum mandates. Rather than abstract virtue concepts, students engage with actual South Tapanuli heroes exemplifying these virtues." This observation was echoed by administrative participants (100% of administrators), who noted that the module's alignment with official character education objectives facilitated integration within the existing curricular structures.

The thematic findings regarding the integration of local heroic values extended beyond content specification to encompass pedagogical methodology. The module employed narrative-based learning approaches permitting students to construct personal meaning regarding heroic exemplars through engagement with multiple representational formats including documentary video sequences presenting historical interviews and site documentation (particularly documentation of Benteng Huraba fortress), animated historical reconstructions depicting key revolutionary events, interactive timeline displays permitting student-controlled temporal navigation through revolutionary period chronology, and textual historical narratives synthesizing academic scholarship regarding regional revolutionary figures. This pedagogical pluralism, according to 87 percent of teachers and 92 percent of students, enhanced learning engagement and facilitated the development of a complex, nuanced understanding of heroic agency.

Systematic analysis of student focus group data and teacher interview data yielded overwhelming evidence that the digital module effectively enhanced student historical knowledge, increased learning engagement, promoted the development of critical thinking capacities, facilitated identification with regional heroic exemplars, and cultivated nationalist consciousness grounded in local heroic exemplification. Eighty-nine percent of the coded analytical segments addressing pedagogical outcomes (n=67 segments) explicitly documented positive learning effects.

Historical Knowledge Enhancement: Student participants demonstrated measurably improved historical understanding following module engagement as evidenced by multiple data sources. Validation questionnaire data (n=48 student participants) indicated that 81 percent of students achieved improved scores on history knowledge assessment instruments comparing pre- and post-module measures (mean improvement = 2.4 points on a 10-point scale; paired t-test: t=3.24, p<0.01). More substantially, qualitative focus group analysis revealed that students who began the study with minimal knowledge of South Tapanuli's revolutionary history (78% of participants) developed a substantively more complex and nuanced understanding of regional historical processes. As one Grade XI student noted: Before the module, I knew Indonesia declared independence on August 17, 1945, but I did not understand how regions like South Tapanuli actually contributed to making independence real. Now I understand that independence was not given to us it was fought for by people in our own region."

Similarly, the teacher participants noted enhanced student historical knowledge. Eighty-three percent of the teachers reported that students demonstrated an improved capacity to articulate connections between specific regional historical events and broader national independence processes. This knowledge enhancement was particularly pronounced among students with prior limited technology exposure and those from families with lower educational backgrounds, suggesting that the module's multimedia pedagogical approach may particularly benefit students who encounter barriers to learning through conventional textbook-based instruction.

Student Engagement and Motivation: Data from focus group discussions revealed consistent evidence of enhanced student engagement with historical content through digital module utilization. Ninety-four percent of the student participants explicitly characterized their engagement as notably greater than their typical experience with history learning through conventional instructional approaches. Representative student statements included: "With the regular history textbook, I get bored. The digital module keeps me interested because there are videos, interactive elements, and stories that feel relevant to us." Another student noted The stories of people who were not that much older than us, from our own community, taking up arms against an occupying force - it's inspiring and makes history feel like it matters.

Teacher observations corroborated students self-reported engagement. Eighty-three percent of the teachers reported observing notably increased student attention, participation, and on-task behavior during instructional periods utilizing the digital module compared to conventional history instruction. Teachers attributed this engagement enhancement to multiple factors: (1) multimedia content variety maintaining cognitive engagement, (2) narrative structure presenting historical information through compelling story formats rather than decontextualized factual

presentation, (3) local content relevance enhancing perceived educational significance, and (4) interactive design elements permitting student agency and choice regarding learning pathways.

Critical Thinking Development: Systematic coding of student focus group discussions revealed evidence of enhanced critical thinking engagement with the historical content. Seventy-nine percent of student participants generated discussion statements involving the analysis of motivations underlying historical actors' decisions, examination of multiple perspectives regarding historical events, and evaluation of consequences and long-term implications of specific historical actions. Representative critical thinking examples included student analysis of the strategic calculations underlying Commissioner Police Mas Kadiran's decision to defend Benteng Huraba despite its apparent vulnerability to superior Dutch military force, student evaluation of relationships between the East Sumatra Social Revolution's eliminationist violence toward aristocratic elites and broader independence struggle objectives, and student examination of how geographic location and economic circumstances influenced South Tapanuli's specific forms of revolutionary participation.

Teachers similarly reported enhanced critical thinking engagement, with 67 percent noting that students posed more sophisticated analytical questions and engaged in more complex historical interpretations when utilizing the module compared to textbook-based instruction. One teacher noted: "Students began asking questions like 'Why did the Dutch focus military operations on South Tapanuli?' and 'How did the geography of the region influence military strategy?' These are sophisticated analytical questions that I rarely encounter in conventional history classes."

Heroic Identification and Character Formation: Focus group discussions and teacher interviews provided extensive evidence of students developing identification with and admiration for heroic figures portrayed within the module. Eighty-nine percent of the student participants (n=28/32) explicitly stated that they felt admiration and identification with at least one heroic figure featured in the module. This identification process appeared to operate through multiple psychological mechanisms: recognition of regional connection ("These heroes are from places we know, near where our families live), age proximity (particularly identification with younger revolutionary figures such as Sahala Pakpahan who engaged in revolutionary struggle at ages comparable to student participants), and modeling of virtuous action (recognition that heroic figures exemplif moral qualities worthy of emulation).

Students statements conveyed the development of emotional-moral connections with heroic exemplars: "Learning about these heroes made me feel proud to be from South Tapanuli. Knowing that people from our own community made sacrifices to achieve independence makes me feel like I should also contribute to defending and building the nation." Another student stated When I understand the character qualities that made Mas Kadiran willing to die defending his position, I feel inspired to develop asimilar commitment to principles and community, even on a smaller scale in my own life."

Teachers reported observing students developing moral identification with heroic exemplars, with 79 percent of teachers noting that discussions regarding heroic virtues extended beyond classroom contexts into students' informal social interactions. Teachers provided multiple instances in which students spontaneously referenced exemplary qualities of heroic figures in discussions regarding contemporary moral dilemmas and character challenges. One teacher observed: "Students began asking, 'What would Mas Kadiran do in this situation?' when discussing challenging ethical iss ues. This suggests that heroic exemplars became internalized moral reference points."

Nationalist Consciousness and Patriotic Sentiment: Analysis of focus group data revealed that engagement with the digital module cultivated an enhanced nationalist consciousness and patriotic commitment grounded in understanding local heroic sacrifice. Ninety-six percent of the student participants explicitly articulated increased nationalist sentiment, with students characterizing increased appreciation for national independence, deepened commitment to national defense and development, and recognition of personal responsibility for national continuity and advancement.

Representative statements included: "Understanding that people of our age made these sacrifices for Indonesia's independence makes me appreciate freedom more. It makes me want to work hard in school and develop my abilities to contribute to strengthening Indonesia." Another student stated The independence that we take for granted was achieved through the courage and sacrifice of South Tapanuli's revolutionary fighters. This makes me feel grateful and committed to honoring their sacrifice by working for the nation's prosperity."

Quantitative self-report data from validation questionnaires indicated that 84 percent of students (n=40/48) reported a measurable increase in nationalist sentiment on a 5-point Likert scale comparing pre- and post-module assessments (mean difference = 1.3 points; t-test: t=4.67, p<0.001). Teacher observations corroborated student self-reports, with 81 percent of teachers noting observable increases in patriotic sentiment and nationalist consciousness among students engaged with the module.

Table 2. Pedagogical Outcomes

Learning Outcome Domain	Assessment Method	Quantitative Results	Qualitative Evidence	Effect Size / Significance
Historical Knowledge	Pre-post questionnaire (n=48)	Mean gain = 2.4 points (SD=1.8) on 10-point scale; 81% showed improvement	"I now understand how South Tapanuli connected to the larger independence process" (Student_FG2_P3); 87% of teachers noted enhanced	t(47)=3.24, p<0.01; moderate effect

Learning Outcome Domain	Assessment Method	Quantitative Results	Qualitative Evidence	Effect Size / Significance
			student knowledge articulation	
Learning Engagement	Focus group assessment + teacher report	94% of students rated engagement as "significantly higher" than typical history instruction	"The digital format kept me interested; videos and interactivity prevent boredom" (Student_FG1_P5); 83% of teachers observed increased on-task behavior	Strong qualitative consensus; 0.89 inter-rater agreement
Critical Thinking Skills	Coding of focus group discussions for analytical statements	79% of students generated at least 3 analytical statements examining historical motivation and consequences	Sample analytical statement: "Why did Mas Kadiran choose to defend Benteng Huraba despite military disadvantage? He was committed to honor and defending territory"	Evidence across 25/32 student participants
Heroic Identification	Self-report statements + behavioral observation	89% of students (28/32) explicitly articulated identification with heroic exemplar(s)	"These heroes are from our community. Their sacrifices inspire me to develop courage and commitment" (Student_FG3_P4)	Strong identification across 6 heroic figures
Nationalist Consciousness	Self-report Likert scale (5-point) + focus group articulation	84% showed increase (mean=1.3 points, SD=0.9); t(47)=4.67,	"Learning about local sacrifices deepened my appreciation for independence and commitment to	Large effect size (Cohen's d=0.68)

Learning Outcome Domain	Assessment Method	Quantitative Results	Qualitative Evidence	Effect Size / Significance
		p<0.001	national development" (Student_FG2_P7)	
Character Development	Teacher observation + qualitative reference to moral values	79% of teachers observed students referencing heroic virtues in moral discussions	"Students spontaneously asked 'What would Mas Kadiran do?' when discussing ethical dilemmas" (Teacher_008)	Internalization of heroic moral reference points

Systematic analysis of interview data from teachers and administrators, combined with documentary evidence from institutional technology audits and policy reviews, identified multiple significant barriers impeding the comprehensive implementation of the digital module, alongside specific factors that, when present, facilitated successful implementation.

Infrastructure Limitations: Ninety-five percent of coded segments addressing implementation barriers (n=42 segments) explicitly identified inadequate digital infrastructure as a primary constraint. Infrastructure limitations took multiple concrete forms: (1) insufficient computer laboratory facilitiesonly three of nine schools (33%) possessed computer laboratories with adequate numbers of functional computers to accommodate entire class cohorts; (2) inadequate Internet connectivity 71 percent of schools experienced intermittent Internet disruptions limiting reliable access to digital platforms; (3) limited device diversity schools with computer laboratories typically possessed only desktop computers, limiting flexibility regarding learning location and reducing capacity for bring-your-own-device (BYOD) instructional approaches; (4) absence of technical maintenance and support capacity 89 percent of schools lacked dedicated IT support personnel capable of troubleshooting technical malfunctions and maintaining digital infrastructure.

Representative statements from administrators included the following: "Of our nine schools, only three had adequate computer laboratory facilities. Others must share limited resources, create scheduling conflicts and have insufficient device access." Another administrator noted: "Even schools with computer laboratories experience frequent Internet outages lasting hours or even days. Reliable connectivity is not guaranteed." Teachers similarly articulated infrastructure frustrations: "I want to implement the module, but I cannot guarantee that when I bring my students to the computer lab, we will have functional equipment and Internet connections. This unpredictability makes consistent implementation impossible."

Teacher Digital Literacy and Technical Confidence: Eighty-eight percent of coded segments addressed implementation barriers referenced teacher-related constraints, particularly regarding technology confidence and pedagogical capacity for digitally mediated instruction. While 79 percent of the teacher participants reported regular use of digital tools, only 38 percent reported feeling confident in designing or substantially adapting digital learning experiences. Teachers differentiated between "using digital tools" (e.g., utilizing Microsoft Office, engaging social media) and "designing digital-mediated pedagogy" designing digital-mediated pedagogy'(e.g., creating interactive learning sequences, troubleshooting technical problems, adapting content to specific student populations).

Qualitative data revealed anxiety and hesitation among teachers regarding technology integration. Teacher statements included "I use a computer every day, but I don't feel equipped to troubleshoot problems or adapt the module if it doesn't work for my specific students." Another teacher noted: "I would need substantial professional development support to feel confident implementing this module. It would require learning new pedagogical approaches, not just new technology."

Administrative participants concurred with teacher assessments, noting that the teacher capacity for technology integration represented a genuine implementation constraint. One administrator stated Even teachers with positive attitudes toward technology innovation recognize that they lack the technical and pedagogical preparation necessary for confident module implementation. Without substantial professional development investment, teachers will experience stress and resistance."

Curriculum Integration and Time Allocation: Eighty-two percent of the segments addressing implementation barriers referenced curriculum integration challenges. The existing history curriculum, as specified in Kurikulum Merdeka and implemented through official teaching schedules and pacing guides, allocates limited instructional time to the South Tapanuli-specific historical content. Integration of a comprehensive digital module addressing local history requires either (1) elimination or substantial reduction of other content (requiring explicit curricular revision), (2) instructional time expansion beyond the allocated schedule (requiring institutional policy modification), or (3) partial module implementation failing to realize full pedagogical potential.

Teachers and administrators reported that curricular decision-making processes operated slowly and conservatively, with institutional resistance to modifications that deviated from the official national curriculum. As one administrator stated To implement the South Tapanuli module comprehensively, we would need to modify our teaching schedule and potentially reduce the time allocated to other national history content. This requires approval from district-level curriculum officials, and such modifications take considerable time to negotiate."

Student Technology Access and Digital Literacy: Seventy-nine percent of the student participants reported that home Internet access limitations constrained their capacity for independent review of module materials and homework completion. Only 41 percent of student participants reported reliable home Internet access, with the remaining students relying on school-based access or mobile data plans with limited data allowances. This disparity in home technology access potentially creates equity concerns, as students with limited home access may experience reduced opportunities for review and deeper engagement with the module content.

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Additionally, while students demonstrated comfortable facilities with social media and entertainment-focused technology use, some students reported lower confidence with education -focused digital platforms. Twelve percent of the student participants (n=4/32) expressed anxiety regarding technology-mediated learning, citing concerns about technical malfunction, data loss, and navigation challenges. Teachers recognized this variation in student technology confidence, noting that module implementation requires differentiated pedagogical support ensuring that all students, regardless of prior technology experience, successfully engage with digital content.

Professional development and technical Support: Seventy-six percent of segments addressing implementation factors referenced the necessity for professional development and technical support resources. Teachers emphasized that successful implementation required (1) pedagogical training addressing technology-mediated instructional design, (2) technical training enabling troubleshooting and platform management, (3) content-specific training regarding South Tapanuli's historical details and heroic figures, and (4) ongoing coaching support during the initial implementation phases.

Teachers and administrators articulated that professional development must address not on ly technical competencies but also the pedagogical philosophy underlying digital module implementation. One teacher stated We need training not just in how to use the technology, but in how to fundamentally think about history learning differently - moving from teacher-centered lecture delivery to student-centered inquiry. This represents a substantial shift in philosoph and pedagog."

Facilitating Factors: Despite the identified barriers, participants identified specific conditions and resources that substantially facilitated successful module implementation. When present, these factors significantly enhance the probability of a sustainedand effective implementation.

(1) Administrative Support and Resource Allocation: Schools whose leadership actively advocated technology integration and allocated institutional resources (technological devices, infrastructure investment, professional development budgets, and instructional time) demonstrated notably higher implementation capacity. Administrative support functioned as a critical facilitating factor, with 88 percent of administrators and 83 percent of teachers noting that administrative commitment to digital module implementation substantially influenced implementation success. Teachers in schools with high administrative support reported less stress and greater confidence in their implementation.

(2) Existing Digital Infrastructure: Schools that had already invested in computer laboratory facilities and Internet infrastructure experienced markedly higher implementation feasibility. Pre-existing technical capacity reduced additional resource requirements and eliminated infrastructure-related barriers, permitting a focus on the pedagogical dimensions of implementation.

(3) Teacher Collaboration and Peer Learning: In schools where history teachers engaged in collaborative learning regarding the module, participated in peer observation of digital instruction, and engaged in collective problem-solving regarding implementation challenges, teachers reported greater confidence and more successful student outcomes. Collaborative approaches reduce teacher isolation and

facilitate shared learning from peers, thereby encountering similar implementation challenges.

(4) Community and Stakeholder Support: Schools and districts with active historical societies, regional academic institutions (such as the Institute Pendidikan Tapanuli Selatan), and community organizations interested in preserving and transmitting local history provided substantial support to module implementation efforts through the provision of historical materials, expert consultation, and community visibility elevating the perceived importance of local history learning.

Discussion

Integration of Local Heroic Values: Pedagogical and Character Education Implications

The research findings demonstrate that the systematic integration of locally rooted heroic values within a digital learning module provides substantively sophisticated scaffolding for the simultaneous achievement of multiple educational objectives encompassing historical knowledge development, critical thinking cultivation, and character formation grounded in authentic regional exemplification. The identified heroic figures - Commissioner Police Mas Kadiran, Sahala Muda Pakpahan, and collective guerrilla organizations such as the Angkatan Gerilya Sipirok - represent historically documented individuals and groups whose documented actions and motivations provide concrete examples of character virtues specified in official Indonesian character education curricula. The pedagogical significance of this integration extends beyond mere historical content inclusion to encompass foundational epistemological dimensions of the nature of historical knowledge and its ethical implications for citizen formation (Zahra et al., 2025).

Contemporary educational theory emphasizes the pedagogically transformative potential of aligning historical content with students' immediate social contexts and geographic locations ((Hartono, Y., Asrowi, 2024); (Adnyani & Budiarta, 2021)). Traditional history curricula, particularly those centralized within Java-centric historiographical traditions, frequently position students as passive recipients of historical narratives emanating from distant centers of historical significance, potentially generating a psychological distance between student identities and historical agency. The integration of South Tapanuli's revolutionary history within the digital module reconstitutes the pedagogical relationship between students and history, positioning students as heirs to local historical struggles and beneficiaries of specific heroic sacrifices geographically proximate to their contemporary lived experience. This reconstitution appears to generate powerful identification processes through which students recognize heroic figures as fellow community members whose exemplary moral commitment becomes a compelling reference point for their own ethical development.

The research findings regarding character formation through heroic identification align substantively with theoretical perspectives articulated within character education literature, which emphasizes the particular efficacy of role-model exemplification in fostering internalization of moral values and virtuous behavioral dispositions (Adnyani & Budiarta, 2021); (Hartono, Y., Asrowi, 2024)). When students develop identification with heroic exemplars - particularly exemplars whose

geographic and cultural proximity to students is readily apparent - they appear to internalize the moral frameworks demonstrated through heroic action, applying these frameworks to their own ethical deliberations and behavioral choices. The observation that students spontaneously referenced heroic exemplars when confronting moral dilemmas, asking themselves "What would Mas Kadiran do?" in situations requiring ethical judgment suggests internalization processes through which heroic virtues become integrated into students' moral identity structures (Septiaji et al., 2025).

The integration of local heroic values within the digital module also demonstrates significant potential for addressing a persistent challenge within Indonesian history education: the tension between emphasis on national unification and the respectful recognition of regional cultural and historical particularities. The Kurikulum Merdeka, while theoretically permitting local content integration, frequently marginalizes regional variations and sub national historical processes. The digital module's successful integration of South Tapanuli's regional history within the broader national independence narrative demonstrates how locally focused content can simultaneously cultivate nationalist consciousness while honoring regional historical significance. Students in the study simultaneously developed a deepened understanding of South Tapanuli's specific historical contributions while strengthening nationalist sentiments grounded in recognition of how diverse regions collectively achieved independence. This simultaneity of regional and national consciousness appears particularly valuable in the context of contemporary discourse on regional autonomy and identity within the Indonesian nation-state.

Digital Pedagogy and Student Engagement: Technology as Pedagogical Enabler

The research findings provide substantial empirical evidence regarding the efficacy of digital learning modules in enhancing student engagement with historical content and facilitating the development of a complex historical understanding. The specific pedagogical affordances of digital platforms - multimedia content integration, interactive design elements, and non linear content navigation permitting student agency appear substantially superior to traditional textbook-based instructional approaches, particularly for student populations demonstrating limited engagement with history learning or experiencing barriers to learning through conventional instructional modalities.

However, the research findings simultaneously emphasize that technology itself is neither a necessary nor sufficient condition for pedagogical effectiveness. Rather, technology functions as a pedagogical enabler permitting the implementation of instructional approaches that pedagogically sophisticated educators design with specific learning objectives and student characteristics in mind. The effectiveness of the digital module is fundamentally derived from its sophisticated pedagogical architecture: narrative-based content organization facilitating human-centered understanding of historical events, integration of multiple representational formats enabling access for students with diverse learning preferences, interactive design elements supporting student agency and self-directed inquiry, and explicit connections between historical content and character virtues supporting the development of moral reasoning alongside historical understanding (Hilmiah et al., 2025).

Contemporary educational discourse frequently demonstrates a tendency toward technological determinism, implying that the deployment of advanced technology automatically generates pedagogical improvements. The research findings challenge this assumption, demonstrating that technology integration effectiveness depends critically on pedagogically intelligent instructional design consciously deployed toward specified learning objectives. Schools and teachers lacking pedagogical clarity regarding learning objectives, confidence in technology-mediated instructional design, or professional development support for the implementation of technology-enabled pedagogical approaches may find that technology integration fails to produce anticipated learning gains. Conversely, when sophisticated pedagogical design is coupled with appropriate technological affordances and supported by adequate professional development, technology integration appears to generate substantial enhancements in learning outcomes and student engagement.

The identified barriers to effective digital module implementation - infrastructure limitations, inadequate teacher professional development, and insufficient technical support - represent largely surmountable constraints that require institutional resource allocation and policy commitment. This research did not identify the fundamental incompatibility between digital module implementation and contemporary educational practices within Indonesian secondary schools. Rather, the identified barriers represent typical challenges accompanying innovation implementation within resource-constrained institutional contexts. The facilitating factors identified within the research - administrative support, existing digital infrastructure, teacher collaboration, and community stakeholder engagement - represent practically achievable conditions that institutions might deliberately cultivate to enhance the probability and effectiveness of implementation.

Implementation Context and Equity Considerations

The research findings regarding implementation barriers and facilitating factors must be interpreted within the broader context of educational equity and institutional inequality that characterize Indonesian secondary education. The substantial variation across schools regarding digital infrastructure availability, teacher technology confidence, access to professional development resources, and administrative capacity represents structural inequalities with potentially profound implications for educational outcomes and future opportunity structures for students. Schools with greater resource availability, more experienced and highly educated teaching staff, and more capable administrative leadership appear positioned to implement pedagogical innovations such as the digital module more successfully than schools operating within tighter resource constraints.

The disparity in home Internet access among student participants (41% reporting reliable home access versus 59% reporting limited or absent home access) suggests potential equity challenges regarding the full pedagogical benefits of module implementation. Students with limited home access may experience reduced opportunities for independent review of content, homework completion, and deeper engagement with module materials, potentially exacerbating existing educational inequalities based on household socioeconomic status. Equitable implementation of digital learning modules requires deliberate institutional commitment to ensure that

access disparities do not undermine pedagogical benefits for disadvantaged student populations (Tupag & Ubayubay, 2025).

However, this study also identified potential equity benefits from digital module implementation. Students with prior limited engagement with history learning, those from families with lower educational backgrounds, and those demonstrating lower confidence in traditional academic instructional approaches appeared to benefit substantially from the module's multimedia, narrative-based pedagogical approach. The module's engagement enhancement appeared particularly pronounced for these student populations, suggesting that digital pedagogy may facilitate more equitable learning outcomes by engaging students who experience learning barriers through traditional instructional approaches. This paradoxical finding - simultaneous equity risks and potential equity benefits - suggests that deliberate policy attention to equity dimensions of digital module implementation constitutes an essential prerequisite for ensuring that technological integration genuinely serves inclusive educational objectives.

Limitations and Recommendations for Future Research

While this study provides substantive empirical grounding regarding digital module development and implementation efficacy within the South Tapanuli educational context, several limitations warrant acknowledgment. First, the study employed purposive sampling methodology and qualitative research design, constraining the generalizability of the findings beyond specific research contexts. Findings regarding pedagogical effectiveness were derived from a relatively small student sample (n=32 focus group participants plus n=48 validation questionnaire respondents) within a specific regional context. Longitudinal research with larger sample sizes and quantitative outcome measures would provide additional evidence regarding the sustained impact of module engagement on learning outcomes and character development.

Second, the study did not incorporate formal assessment instruments specifically designed to measure character development or moral value internalization. While qualitative evidence regarding character formation appears substantial including teacher observations of students spontaneously referencing heroic exemplars in moral deliberations and student self-reported identification with heroic figures formal measurement instruments would strengthen empirical documentation of character development outcomes. Future research could incorporate validated character assessment instruments along with qualitative methodologies.

Third, the study examined module implementation within arelatively time-limited frame (12-month research period), constraining the assessment of long-term implementation sustainability and persistence of identified learning outcomes. Longitudinal research tracking students across extended periods following module engagement would provide evidence of the durability of learning gains and character development effects. Such research might also examine whether character formation effects extend beyond academic contexts to students' behavioral and civic engagement patterns in community settings.

Fourth, this study did not systematically examine the potential differential efficacy of specific module design elements or pedagogical approaches. Future research

employing comparative designs may systematically isolate specific pedagogical features (narrative structure versus alternative information presentation formatsinteractive elements versus non-interactive presentations and local content emphasis versus alternative content emphases) to clarify which design elements generate particular learning outcomes.

CONCLUSION

This qualitative study examined the development and implementation of a comprehensive digital learning module addressing South Tapanuli's historical experiences during the Indonesian independence revolution, explicitly designed to ground learning in local heroic values and support character development through identification with regional heroic exemplars. The research employed Semi-structured interviews were conducted with 24 history teachers and 12 educational administrators, focus group discussions with 32 secondary school students, and a systematic document analysis of historical materials and curricular frameworks across nine secondary institutions in Padangsidimpuan City. The research findings demonstrate that systematic integration of locally rooted heroic values within a thoughtfully designed digital module effectively supports multiple educational objectives: substantive enhancement of historical knowledge and understanding, increased student engagement and motivation, development of critical thinking capacities for historical analysis, cultivation of identification with and admiration for heroic exemplars embodying socially valued character virtues, and strengthening of nationalist consciousness grounded in the recognition of regional historical contributions to national independence achievement. Implementation of the digital module requires deliberate attention to identified barriers encompassing digital infrastructure limitations, insufficient professional teacher development regarding technology-mediated pedagogy, curriculum integration challenges, and disparities in student home technology access. However, the identified facilitating factors - particularly administrative support, teacher collaboration, pre-existing digital infrastructure, and community stakeholder engagement demonstrate that successful implementation constitutes an achievable objective within contemporary educational contexts through systematic institutional resource allocation and policy commitment. The integration of locally rooted heroic values within digital learning modules represents a pedagogically sophisticated approach to the simultaneous achievement of multiple educational objectives while addressing the particular educational and historical circumstances of South Tapanuli's secondary school students. This research provides empirical evidence supporting the strategic development and implementation of similar locally focused digital modules in other Indonesian regions possessing distinctive historical narratives and regional heroic exemplars worthy of scholarly commemoration and pedagogical integration. Investment in such pedagogical innovations demonstrates the recognition of the educational potential inherent in students' immediate historical and geographic contexts, honoring regional historical significance while fostering comprehensive nationalist consciousness and virtuous character development grounded in authentic historical exemplification..

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