

NEEDS ANALYSIS FOR DEVELOPING AN INTERACTIVE FLIPBOOK E-MODULE ON ETHICAL POLICY THROUGH BELITANG LOCAL HISTORY IN VOCATIONAL HISTORY LEARNING

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ABSTRACT

The transformation of digital learning has created a need for history learning resources that are flexible, interactive, varied, and contextual, particularly in vocational education. However, preliminary observations at the research site indicated that digital resources and local history integration had not been optimally implemented. This study aimed to analyze the needs of students, teachers, and the Business and Industrial World (DUDI) for developing an interactive flipbook e-module on Ethical Policy (Politik Etis) based on Belitang local history for vocational history learning. The study employed a descriptive quantitative approach supported by qualitative observations and interviews. The preliminary study was conducted at SMK Negeri 1 Belitang III, Ogan Komering Ulu Timur, South Sumatra, from May 25 to June 6, 2026, involving 549 students, 72 teachers, and 11 DUDI respondents. Data were collected using a 20-item, four-point Likert-scale questionnaire for students and teachers covering five aspects: history learning needs, digital learning material and e-module needs, learning variation, Belitang local history integration, and expectations for e-module development. DUDI responses were analyzed separately. Data were analyzed using percentage achievement, supported by observations and interviews. The findings showed that student needs reached 78.03% (Needed), teacher needs 81.77% (Highly Needed), and DUDI needs 92.73%. The highest student and teacher needs concerned e-module development, at 79.51% and 87.41%, respectively, while teachers' need for local history integration reached 86.28%. These findings provide an empirical foundation for developing an interactive, contextual digital history learning resource connecting Ethical Policy with Belitang local history in vocational education.

Keywords: Needs analysis, interactive e-module, Ethical Policy, Belitang local history, vocational education.

INTRODUCTION

The transformation of digital technology has changed the ways learners access, use, and interact with learning resources. Digital learning environments provide opportunities for learning resources to be presented in flexible and varied forms, allowing learners to access materials beyond conventional printed textbooks. This transformation also requires learning resources to be aligned with learners' characteristics, learning contexts, and technological developments (López-García, 2023; Mukul & Büyüközkan, 2023). In vocational education, the availability of appropriate learning resources is particularly important because learning is expected to support not only conceptual understanding but also meaningful and contextual learning experiences.

History learning requires more than the transmission of information about past events. Historical knowledge needs to be connected with social life, environmental contexts, historical evidence, and experiences that are meaningful to learners. Such connections can help learners understand historical events as processes related to the development of surrounding communities. Sariyatun et al., (2025) emphasize the importance of digital learning materials that encourage historical thinking and higher-order thinking through inquiry-based learning and the use of historical sources. This perspective suggests that history learning resources need to provide opportunities for learners to examine, interpret, and connect historical information rather than merely memorize historical facts.

Local history can provide a meaningful context for strengthening the connection between historical content and learners' surrounding environment. Local historical materials enable learners to encounter historical processes through events, communities, places, and cultural practices that are geographically and socially closer to them. Ofianto et al. (2023), for example, developed online local history learning media based on virtual field trips to support students' use of primary historical source evidence. Similarly, Junaidi & Hayati (2026) developed local history learning media enhanced with geographic information systems to strengthen the spatial dimension of historical learning. These studies demonstrate how digital technology can support local history learning through contextual and interactive representations (Brahmantyo & Sukardi, 2024; Junaidi & Hayati, 2026; Ofianto, Erniwati, Fitriasia, A., Ningsih, T. Z., & Mulyani, 2023). However, their focus is primarily on the development and use of particular digital media, rather than on identifying the specific needs of vocational students, teachers, and the Business and Industrial World (DUDI) before the development of a learning resource.

The integration of local history is also relevant to the teaching of Ethical Policy (*Politik Etis*). Ethical Policy is an important topic in Indonesian history because understanding it requires learners to examine colonial policies, their implementation, their effects on Indonesian society, and their relationship with subsequent historical developments (Van Thang et al., 2024). When the material is presented only through general national narratives, learners may have limited opportunities to relate the policy to historical developments in their own environment. A local context can therefore provide an additional pathway for understanding how broader colonial policies were connected with developments in particular regions.

Belitang provides relevant historical material for this purpose. Historical developments in Belitang during the colonial period were associated with population migration, agricultural development, irrigation, and changes in community life. Permadi & Susanti (2024) documented the development of rice-planting traditions in the Belitang community during 1937–1942 and linked the emergence of these developments to Dutch colonial policies, including population transfer and irrigation development. Such historical evidence provides a concrete local context through which broader discussions of Ethical Policy can be connected to regional historical developments. Integrating these materials into history learning may therefore help learners relate national historical

processes to the history of their own surrounding region.

Previous studies have examined the use and development of e-modules and digital media in history learning. Firmansyah et al. (2022) analyzed the characteristics of local history teaching-material needs based on e-modules in five public senior high schools in Pontianak. Their study identified the need for local-history e-module materials as an additional source for learning local history. Arviansyah (2024) subsequently developed an e-module for history learning on the Japanese occupation period in Indonesia. Other studies have developed digital local history media using virtual field trips or geographic information systems (Junaidi & Hayati, 2026; Ofianto, Erniwati, Fitrisia, A., Ningsih, T. Z., & Mulyani, 2023). These studies establish the relevance of digital resources and local historical contexts in history education. Nevertheless, they differ from the present study in terms of educational setting, historical topic, local context, and research purpose.

The development of a learning resource should begin with an analysis of actual user needs. Needs analysis is important for identifying current learning conditions, user characteristics, existing resource limitations, and the characteristics of learning resources expected by users. Raharjo & Safitri (2024) demonstrate the use of needs analysis to determine the suitability of interactive learning media, while Junaidi et al. (2026) incorporated needs analysis as part of the development of digital local history media. Needs analysis therefore provides an empirical basis for determining the direction and characteristics of subsequent development rather than assuming that a particular type of digital media is automatically appropriate for every learning context.

The need for such an analysis is particularly relevant at SMK Negeri 1 Belitang III, Ogan Komering Ulu Timur, South Sumatra. The preliminary study conducted from May 25 to June 6, 2026, showed that the school already had supporting facilities, including textbooks and reference materials, LCD/projectors, computers or laptops, and internet access. However, observations indicated that digital learning resources such as videos, electronic books, and interactive learning media had not been optimally utilized in history learning. Interviews with history teachers also indicated that learning activities tended to rely on lectures and textbooks. In addition, the integration of Belitang local history into history learning had not yet been optimally developed. These conditions indicate a gap between the availability of technological facilities and the use of contextual digital resources in history learning.

This condition is particularly relevant in vocational education, where students encounter various subjects related to their respective vocational fields. History learning therefore needs to remain meaningful and contextual while being compatible with students' broader learning environment (Li et al., 2023). Learning resources that combine textual explanations, visual representations, historical evidence, learning activities, and evaluation may provide opportunities for greater learning variation. However, the appropriateness of such characteristics should first be examined through systematic needs analysis rather than assumed in advance.

The present study addresses this need by examining the perspectives of students, teachers, and the Business and Industrial World (DUDI). The study involved 549

students, 72 teachers, and 11 DUDI respondents. The student and teacher needs analysis examined five aspects: history learning needs, digital learning material and e-module needs, learning variation, integration of Belitang local history, and expectations for e-module development. DUDI responses were used as supporting vocational-context evidence concerning learning competencies and the relevance of digital learning resources. Including these three perspectives provides a broader basis for identifying learning-resource characteristics within a vocational education context.

The research gap and novelty of this study arise from the specific combination of Ethical Policy as the historical topic, Belitang local history as the contextual basis, and vocational education as the educational setting. Previous needs-analysis research on local-history e-modules has focused on senior high schools and different regional contexts, such as Pontianak (Firmansyah & Chalimi, 2022), while previous studies digital local-history studies have focused on particular media approaches, including virtual field trips and GIS-based learning media (Ofianto et al., 2023; Junaidi et al., 2026). In contrast, the present study focuses on identifying the learning-resource needs of students, teachers, and DUDI in a vocational school before developing an interactive flipbook e-module that connects Ethical Policy with the local historical context of Belitang. Thus, the contribution of this study lies in providing a context-specific, needs-based foundation for the subsequent development of digital history learning resources in vocational education.

Based on this background, the study aims to: (1) analyze students' needs for history learning resources; (2) analyze teachers' needs for history learning resources; and (3) identify the characteristics of learning resources needed for the development of an interactive flipbook e-module, particularly one that integrates Belitang local history into the teaching of Ethical Policy. The findings are expected to provide an empirical foundation for the subsequent design and development of the proposed learning resource.

RESEARCH METHOD

Research Design

This study employed a descriptive quantitative research design supported by qualitative observation and interviews to analyze the needs for history learning resources in a vocational school context. The study was conducted as part of a preliminary needs analysis for a broader development research project focusing on an interactive flipbook e-module on Ethical Policy (*Politik Etis*) based on Belitang local history. The present article specifically focuses on the needs-analysis stage and does not examine the validity, practicality, or effectiveness of the proposed learning resource.

The descriptive quantitative design was used to identify the level and characteristics of learning-resource needs perceived by students and teachers. The analysis also incorporated perspectives from the Business and Industrial World (DUDI) as supporting evidence concerning vocational learning needs and the relevance of digital learning resources. Qualitative observation and interviews were used to provide contextual information about the existing history learning process, learning resources, technological facilities, and teachers' experiences in using digital learning media.

The study was conducted at SMK Negeri 1 Belitang III, Ogan Komering Ulu Timur, South Sumatra, during the preliminary study conducted from May 25 to June 6, 2026. The needs analysis involved 549 students, 72 teachers, and 11 DUDI respondents. The inclusion of students, teachers, and DUDI was intended to provide complementary perspectives on the learning-resource requirements within the vocational education context. The findings were used to identify the characteristics of learning resources that should be considered in the subsequent development of the proposed interactive flipbook e-module.

Research Location and Participants

The research was conducted at SMK Negeri 1 Belitang III, Ogan Komering Ulu Timur, South Sumatra, Indonesia. The preliminary study was conducted from May 25 to June 6, 2026. The participants comprised 549 students from Grades X and XI, 72 subject teachers, and 11 representatives of the Business and Industrial World (DUDI).

The student respondents were obtained using convenience sampling. During the data-collection period, the researcher visited classes in Grades X and XI and distributed the questionnaire to students who were present and willing to participate. A total of 549 students completed the questionnaire. Grade XII students were not included because they were undertaking industrial work practice (PKL) during the research period. The student respondents represented the intended users of the proposed history learning resource.

The teacher respondents were obtained using total sampling. All 72 subject teachers at the school who were involved in regular classroom instruction were invited to participate, and all 72 teachers completed the questionnaire. Their responses provided information regarding teachers' experiences in planning, selecting, and implementing learning resources.

The DUDI respondents were selected using purposive sampling. The 11 representatives were drawn from business and industrial partners that had established partnerships with SMK Negeri 1 Belitang III. Their perspectives were included as supporting information regarding vocational competencies, learning experiences, and the relevance of digital learning resources to the vocational education context.

The involvement of students, teachers, and DUDI representatives provided complementary perspectives for identifying learning-resource needs and the characteristics to be considered in the subsequent development of the proposed interactive flipbook e-module.

Research Instruments

Data were collected using a structured questionnaire developed to identify students' and teachers' needs for history learning resources, particularly digital and interactive resources for learning the Ethical Policy (Politik Etis) through the context of Belitang local history. The questionnaire consisted of 20 statements measured using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The items covered five aspects: (1) needs related to history and Ethical Policy learning, (2) needs for digital

learning resources or e-modules, (3) needs for learning variation, (4) needs for the integration of Belitang local history, and (5) expectations regarding the characteristics of an interactive e-module.

Before being administered in the needs analysis, the questionnaire was piloted with respondents who were not included in the main study. The trial data were analyzed to examine item validity using item-total correlation. An item was considered valid when its correlation coefficient met the predetermined criterion. The reliability of the instrument was examined using Cronbach's alpha coefficient to determine the internal consistency of the questionnaire. The results of the analysis showed that the questionnaire items met the validity and reliability requirements and were therefore considered suitable for use in the main needs-analysis data collection.

The validated questionnaire was subsequently administered to students and teachers at the research site. The responses were analyzed descriptively to determine the level of need for the development of an interactive flipbook e-module on Ethical Policy based on Belitang local history.

Data Collection

Data collection was conducted as part of the preliminary study. Questionnaire data were collected from 549 students and 72 teachers. The questionnaire was used to identify respondents' perceived needs for history learning resources, particularly digital and interactive learning resources. Observations focused on the availability and use of learning facilities and resources, while interviews with the history teachers provided additional information about the implementation of history learning and the use of learning resources at the school.

Questionnaire data were analyzed quantitatively to determine the percentage of perceived needs across the identified aspects. Observation and interview data were used as supporting qualitative information to provide contextual understanding of the existing learning conditions and to complement the quantitative findings.

Data Analysis

The questionnaire data were analyzed using a percentage of needs to determine the level of respondents' perceived needs for history learning resources. The percentage was calculated using the following formula:

$$P = \frac{\Sigma X}{\Sigma X_i} \times 100\%$$

Where P represents the percentage of needs, ΣX represents the total score obtained, and ΣX_i represents the maximum possible score. The resulting percentages were interpreted based on the criteria adapted from Riduwan (2013), as presented in Table 1.

Table 1. Criteria for Interpreting Needs Percentage

No.	Percentage	Category
1	0 – 20%	Very Not Needed
2	21 – 40%	Not Needed
3	41 – 60%	Moderately Needed
4	61 – 80%	Needed
5	81 – 100%	Highly Needed

The analysis was conducted separately for students and teachers and then compared across the five aspects of the questionnaire. The results were used to identify the overall level of need and the specific aspects requiring attention in the development of an interactive flipbook e-module based on Belitang local history. Observation and interview data were analyzed descriptively and used as supporting information to contextualize and complement the quantitative findings.

RESULTS AND DISCUSSION

Existing History Learning Context and Learning Resources

The preliminary observation at SMK Negeri 1 Belitang III indicated that the school has several facilities that can support history learning, including textbooks and reference materials, LCD/projectors, computers or laptops, and internet access. The availability of these facilities provides opportunities for teachers to utilize digital learning resources in classroom instruction.

However, the availability of technological facilities was not fully reflected in their use during history learning. Observation and interviews with history teachers indicated that classroom instruction still relied predominantly on lectures and textbooks. Digital resources, including instructional videos, electronic books, and interactive learning media, were available but had not been optimally utilized in history instruction. This finding indicates a gap between the availability of technological facilities and their actual use as learning resources.

A similar gap was identified in the integration of Belitang local history. Based on the preliminary observation and teacher interviews, local historical contexts related to the development of the Belitang area were not yet systematically integrated into history learning. Learning activities and resources were still primarily oriented toward general historical content, providing limited opportunities for students to connect national historical topics with the historical context of their local environment.

This condition is particularly relevant to the teaching of Ethical Policy (Politik Etis), which involves understanding Dutch colonial policies, their effects on Indonesian society, and their relationship to subsequent historical developments. Integrating relevant local historical contexts can provide opportunities for students to relate these broader historical processes to the development of their own region. However, the preliminary findings suggest that such contextual integration has not yet been optimally supported by the learning resources used at the school.

These findings demonstrate two related needs: the need for greater utilization of digital learning resources and the need for stronger integration of Belitang local history into history learning. Therefore, the needs analysis provides a basis for considering an interactive flipbook e-module that combines digital, interactive, and contextual elements to support the teaching and learning of Ethical Policy through Belitang local history.

Students' Needs for History Learning Resources

The questionnaire results showed that students had an overall need percentage of 78,03%, which was categorized as Needed. The total score obtained was 34,272 out of a maximum possible score of 43,920. The results for each aspect are presented in Table 2.

Table 2. Students' Needs for History Learning Resources

No.	Aspect	Obtained Score	Maximum Score	Percentage	Category
1	History learning needs	6,848	8,784	77,95%	Needed
2	Digital learning material and e-module needs	6,771	8,784	77,08%	Needed
3	Learning variation	6,784	8,784	77,23%	Needed
4	Integration of Belitang local history	6,884	8,784	78,36%	Needed
5	Expectations for e-module development	6,985	8,784	79,51%	Needed
	Total	34,272	43,920	78,03%	Needed

As shown in Table 2 all five aspects were within the Needed category. The percentages ranged from 77.08% to 79.51%, indicating relatively consistent needs across the aspects investigated. The highest percentage was found in expectations for e-module development (79.51%), followed by the integration of Belitang local history (78.36%). These results indicate that students expressed substantial needs not only for digital learning resources but also for learning resources that incorporate relevant local historical contexts.

The 79.51% score for expectations for e-module development indicates that students perceived the characteristics addressed in the questionnaire as relevant to their learning needs. However, this finding should be interpreted as evidence of students' expressed needs rather than evidence that an e-module is inherently more effective than other learning resources. Similarly, the 78.36% score for the integration of Belitang local history indicates that students perceived value in connecting history learning with the historical context of their local environment.

The percentage for history learning needs reached 77.95%, while learning variation reached 77.23%. These findings suggest that students' needs encompass both the content and the way history is presented. Meanwhile, the percentage for digital learning material and e-module needs was 77.08%, the lowest among the five aspects, although it remained within the Needed category. This suggests that students' needs were not focused

exclusively on digital format but also involved learning content, contextual relevance, and variation in learning experiences.

A comparison with the teacher responses provides a further interpretation of these findings. The largest differences between students and teachers were found in the integration of Belitang local history and expectations for e-module development. For local-history integration, the student percentage was 78.36%, compared with 86.28% among teachers, representing a difference of 7.92 percentage points. For e-module development, students recorded 79.51%, while teachers recorded 87.41%, representing a difference of 7.90 percentage points. Thus, teachers expressed stronger levels of need than students in both aspects.

These differences may indicate that teachers perceived the instructional need for contextualized and digitally supported learning resources more strongly than students did. Teachers are directly involved in planning and implementing history instruction and may therefore be more aware of limitations in existing learning resources and the potential need for supplementary resources. Meanwhile, students' responses reflect their perceptions as learners and show that these needs were also substantial, although at a lower percentage than those reported by teachers. The difference should therefore be understood as a difference in the level of perceived need rather than a contradiction between the two groups.

Overall, the student findings, together with the teacher responses, indicate that the need for a learning resource extends beyond the provision of digital content alone. The findings point to several interconnected characteristics, including support for history learning, learning variation, digital accessibility, integration of Belitang local history, and the expected characteristics of an interactive e-module. These findings provide an empirical basis for considering the development of an interactive flipbook e-module that incorporates local historical content and varied learning elements.

Teachers' Needs for History Learning Resources

The questionnaire completed by 72 teachers produced an overall score of 4,710 out of a maximum possible score of 5,760 corresponding to 81,77%. Based on the established criteria, this percentage was categorized as Highly Needed. The results for each aspect are presented in Table 3.

Table 3. Teachers' Needs for History Learning Resources

No.	Aspect	Obtained Score	Maximum Score	Percentage	Category
1	History learning needs	863	1152	74,91%	Needed
2	Digital learning material and e-module needs	923	1152	80,12%	Needed
3	Learning variation	923	1152	80,12%	Needed
4	Integration of Belitang local history	994	1152	86,28%	Highly Needed
5	Expectations for e-module development	1007	1152	87,41%	Highly Needed

Total	4710	5760	81,77%	Highly Needed
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As shown in Table 3, teachers reported an overall need percentage of 81.77%, which was categorized as Highly Needed. However, the five aspects did not fall within the same category. Two aspects were categorized as Highly Needed, while the other three remained within the Needed category.

The highest percentage was found in expectations for e-module development, reaching 87.41%, followed by integration of Belitang local history, at 86.28%. Both aspects were categorized as Highly Needed. These findings indicate that teachers particularly perceived a need for learning resources that can support the development of digital learning materials while incorporating relevant local historical contexts.

The aspects of digital learning material and e-module needs and learning variation each reached 80.12%, placing them within the Needed category and close to the threshold for Highly Needed. Meanwhile, history learning needs reached 74.91%, which remained within the Needed category. This distribution suggests that teachers' needs were not limited to digital format alone but also involved the variation, content, and contextual relevance of history learning resources.

The teacher responses can be further interpreted in relation to the student findings. The most notable differences occurred in the aspects of Belitang local history integration and e-module development expectations. Teachers reported 86.28% for local-history integration, compared with 78.36% among students, representing a difference of 7.92 percentage points. Similarly, teachers reported 87.41% for e-module development expectations, compared with 79.51% among students, representing a difference of 7.90 percentage points.

These differences indicate that teachers perceived a stronger need than students for learning resources that integrate local historical content and support e-module-based learning. One possible contextual explanation is that teachers, as practitioners directly involved in planning and implementing classroom instruction, may be more aware of limitations in existing learning resources and the need for additional resources to support contextual and varied learning. The difference, however, represents a difference in the level of perceived need between the two respondent groups rather than evidence of disagreement between them.

The higher teacher responses regarding digital resources, learning variation, local-history integration, and e-module development are also consistent with the preliminary observation that technological facilities are available at the school, while digital learning resources have not been optimally utilized. Taken together, the findings suggest that the development of an interactive learning resource should address not only digital delivery but also learning variation and the integration of relevant Belitang local historical content.

Comparison of Students' and Teachers' Needs

The results from students and teachers show both similarities and differences in their perceived needs for history learning resources. As presented in Table 4, both groups expressed substantial needs across all five aspects, although the overall percentage was higher among teachers (81.77%) than among students (78.03%).

Table 4. Comparison of Students' and Teachers' Needs

Aspect	Student	Teacher
History learning needs	77,95%	74,91%
Digital learning material and e-module needs	77,08%	80,12%
Learning variation	77,23%	80,12%
Integration of Belitang local history	78,36%	86,28%
Expectations for e-module development	79,51%	87,41%
Overall	78,03%	81,77%

As shown in Table 4, the student percentages ranged from 77.08% to 79.51%, whereas the teacher percentages ranged from 74.91% to 87.41%. The largest difference occurred in expectations for e-module development, with students reporting 79.51% and teachers 87.41%, representing a difference of 7.90 percentage points. A similarly notable difference was found in the integration of Belitang local history, with students reporting 78.36% and teachers 86.28%, representing a difference of 7.92 percentage points.

The higher teacher percentages in these two aspects indicate that teachers perceived a stronger need for learning resources that incorporate local historical content and provide the characteristics of an e-module. This finding is consistent with the preliminary observation that the school has technological facilities but that digital learning resources have not been optimally utilized. Teachers' direct involvement in classroom planning and implementation may also make them more aware of the need for additional resources that can support contextualized and varied history learning.

The pattern was different for history learning needs, for which students reported a slightly higher percentage than teachers (77.95% compared with 74.91%). The difference of 3.04 percentage points suggests that students perceived a somewhat greater need for support in general history learning than teachers did. Meanwhile, teachers reported higher percentages for digital learning materials and e-module needs (80.12% versus 77.08%) and learning variation (80.12% versus 77.23%). These differences show that the two groups shared the same general direction of need but placed somewhat different levels of emphasis on particular aspects.

Overall, the comparison in Table 4 indicates that the perceived need for a learning resource extends beyond digital delivery alone. Students expressed needs related to history learning, learning variation, digital resources, local historical context, and e-module characteristics, while teachers placed particularly strong emphasis on local-history integration and e-module development. Considering both perspectives provides a more comprehensive basis for determining the characteristics of the proposed interactive flipbook e-module and helps ensure that the resource is relevant to students' learning needs while being compatible with classroom implementation.

Belitang Local History as a Context for Learning Ethical Policy

One of the important findings of this study is the substantial perceived need for the integration of Belitang local history into history learning. The percentage reached 78.36% among students and 86.28% among teachers, indicating that local historical context was perceived as a relevant component of the proposed learning resource. The higher percentage among teachers also suggests that the integration of local history was particularly emphasized from the perspective of classroom practitioners.

Belitang contains historical experiences that can be used to contextualize broader developments during the colonial period. For example, Permadi and Susanti (2024) documented rice-planting traditions in the Belitang community during 1937–1942. Such historical information can provide students with a concrete local context for examining social, economic, and agricultural developments during the colonial period. Rather than treating local history as a separate topic, these materials can be connected to broader historical themes addressed in the curriculum.

The integration of local history does not imply replacing the broader national historical narrative. Instead, local historical information can function as contextual material that helps learners connect broader historical concepts with developments in their own region. In learning about Ethical Policy, local historical contexts may be used to explore how colonial-era developments were experienced at the regional level, particularly in relation to agriculture, settlement, infrastructure, and community life. The specific historical relationship between these local developments and Ethical Policy should, however, be presented based on available historical evidence rather than assumed solely from temporal association.

This finding is consistent with previous research highlighting the potential of digital media to support local history learning. Ofianto et al. (2023) demonstrated the use of digital local-history media supported by virtual field trips and primary historical sources, while Junaidi et al. (2026) developed local-history learning media enhanced through geographic information systems. These studies illustrate how digital technology can facilitate the presentation of local historical information through varied and contextual learning experiences.

The present study extends this line of research in a different contextual setting. Rather than focusing only on the development or use of digital local-history media, this study identifies learners' and teachers' needs for a digital history learning resource that specifically connects the topic of Ethical Policy with Belitang local history in a vocational school context. The findings therefore provide an empirical basis for positioning Belitang local history as an integral component of the proposed interactive flipbook e-module, rather than merely as supplementary information.

Need for Learning Variation and Interactive Digital Resources

The findings show that the need for learning variation reached 77.23% among students and 80.12% among teachers. Both percentages were categorized as Needed, indicating that students and teachers perceived a need for more varied learning

experiences. This finding is relevant to history learning, which often involves extensive textual information, chronological processes, and abstract relationships that may require different forms of representation and learning activities.

Learning variation can be provided through the combination of different forms of content and activities. An interactive digital e-module, for example, can integrate text, images, historical illustrations, videos, hyperlinks, quizzes, and other learning activities within a structured learning sequence. Such elements can provide variation in how historical information is presented and how students engage with the content. However, the presence of interactive features alone does not necessarily constitute meaningful interactivity. Interactive elements should have clear pedagogical purposes, such as supporting exploration, checking understanding, providing feedback, or encouraging students to make connections between historical evidence and concepts.

The need for digital learning materials and e-modules reached 77.08% among students and 80.12% among teachers. Although this was the lowest percentage among the five student aspects, it remained within the Needed category. Among teachers, the percentage was higher and approached the Highly Needed threshold. This pattern suggests that both groups considered digital learning resources relevant, while teachers placed somewhat greater emphasis on their availability and use in history learning.

These findings also indicate that the need for digital resources should not be interpreted simply as a preference for technology. The relatively high percentages for learning variation, local-history integration, and e-module expectations suggest that respondents were seeking particular learning functions and content characteristics rather than digital format alone. Therefore, the proposed e-module should integrate digital technology with contextual content and purposeful learning activities.

The proposed flipbook format is consequently positioned as a learning-resource format that can organize multimedia and interactive content in a structured and accessible manner. The development stage should respond directly to the needs identified in this study, particularly the integration of Belitung local historical content, variation in learning activities, and interactive elements with clear pedagogical purposes. The needs-analysis findings provide a basis for the development of the resource, but they do not establish its effectiveness in improving learning outcomes. Such effectiveness would require subsequent validation and empirical testing.

Implications for the Development of the Interactive Flipbook E-Module

The findings provide several implications for the subsequent development of the proposed interactive flipbook e-module. First, the e-module should be presented in a digital format that is compatible with the learning environment and available technological facilities. The school has computers, laptops, projectors, and internet access, providing a supporting environment for the use of digital learning resources. Therefore, the development should consider the accessibility and technical conditions of the actual learning environment rather than assuming the availability of more advanced technological infrastructure.

Second, the e-module should provide meaningful learning variation. The needs percentages indicate that both students and teachers perceive a need for more varied learning experiences. Accordingly, the development should consider a combination of textual explanations, visual representations, historical evidence, learning activities, and evaluation. The variation should serve specific learning purposes rather than simply increase the number of media elements.

Third, the e-module should incorporate interactive elements that support students' engagement with historical content. Interactivity should be aligned with learning objectives and encourage students to process, interpret, and connect historical information rather than merely navigate through digital pages. Thus, interactive features should be selected based on their pedagogical function within the learning sequence.

Fourth, the e-module should integrate Belitang local history as a contextual component of learning. The relatively high percentages for this aspect, particularly among teachers, indicate that local context is an important characteristic of the proposed learning resource. Local historical information can be used to connect broader historical concepts with events and developments that are more geographically and socially familiar to students.

Fifth, the content should remain focused on Ethical Policy while using Belitang local history as a contextual bridge. This approach can provide a connection between broader national historical processes and developments in students' local environment without replacing the national historical narrative. The selection and presentation of local historical content should be based on relevant historical evidence and its curricular relationship to the Ethical Policy topic.

These characteristics are consistent with the findings of Firmansyah and Chalimi (2022) regarding the need for local-history teaching materials based on e-modules and with Arviansyah et al. (2024), who demonstrated the development of digital e-modules for history learning. The present study extends this discussion by identifying the specific needs associated with Ethical Policy, Belitang local history, learning variation, and interactive digital resources in a vocational school context.

More broadly, the findings suggest that a needs-analysis framework can inform contextual digital history learning beyond the specific setting of SMK Negeri 1 Belitang III. In other vocational-school settings, the same framework can be adapted by examining three interconnected dimensions: (1) the learning needs perceived by students and teachers, (2) the availability and actual use of digital learning facilities and resources, and (3) the relevance of local historical contexts to the curriculum. This approach can help developers identify not only whether digital resources are needed, but also what content, contextual elements, learning activities, and interactive functions should be prioritized for a particular school environment.

Such a framework may be particularly relevant for vocational schools because history learning takes place within diverse institutional, technological, and local contexts. Rather than applying a uniform digital learning resource across schools, preliminary needs analysis can provide evidence for contextual adaptation while maintaining

alignment with curriculum objectives. The present findings therefore suggest that the development of digital history resources can begin with an analysis of the relationship between learner needs, teacher needs, technological conditions, and local historical context before specific media features are determined.

However, these implications concern the development basis of the proposed resource and should not be interpreted as evidence of its effectiveness. The effectiveness, practicality, and feasibility of the resulting interactive flipbook e-module require subsequent development, validation, implementation, and empirical evaluation.

Relationship with Previous Studies

The findings support the broader argument that digital learning resources should be developed based on actual learning conditions and users' needs. Mukul and Büyüközkan (2023) describe digital transformation in education as a process that influences teaching and learning practices, while Li et al. (2023) emphasize the role of learning innovation in digital learning environments. Consistent with this perspective, the present study demonstrates that the need for digital learning resources is closely related to specific learning conditions, including the availability and utilization of technology, learning variation, and the contextual relevance of learning content.

The findings are also related to previous studies on digital history and local-history learning. Ofianto et al. (2023) demonstrated the use of digital local-history media supported by virtual field trips and primary historical sources, while Junaidi et al. (2026) developed local-history learning media enhanced through geographic information systems. These studies share with the present study an emphasis on using digital technology to provide richer and more contextualized local-history learning experiences. However, their focus differs from the present study. Ofianto et al. (2023) emphasized digital media, virtual field trips, and primary sources, whereas Junaidi et al. (2026) emphasized geographic information systems to enhance local-history learning. In contrast, the present study begins with a needs-analysis perspective and identifies the characteristics of a proposed interactive flipbook e-module before its development, with Belitung local history specifically positioned as contextual content for learning Ethical Policy.

The present findings also relate to studies on e-module development. Firmansyah and Chalimi (2022) emphasized the importance of identifying local-history teaching-material needs before developing e-module-based resources, while Arviansyah et al. (2024) demonstrated the development of a digital e-module for history learning. Raharjo et al. (2024) further examined an e-module based on a contextual approach in relation to historical thinking skills. These studies share with the present study an understanding of digital e-modules as learning resources that can support history learning and contextualization. However, the present study does not yet evaluate the effectiveness of a completed e-module. Instead, it focuses on identifying students' and teachers' perceived needs and translating those needs into characteristics that can guide subsequent development.

The findings further support the role of needs analysis in educational media development. Widya et al. (2024) demonstrated that needs analysis can be used to identify the requirements and characteristics of interactive multimedia before development. Similarly, the present study uses needs analysis to identify the learning-resource characteristics expected by students and teachers before the proposed media is developed. The present study extends this approach by examining needs across both learner and teacher perspectives while also considering the technological conditions and local historical context of the school.

The distinctive contribution of the present study lies in the combination of three contextual elements: Ethical Policy as the historical topic, Belitang local history as the contextual basis, and vocational education as the instructional setting. Previous studies have addressed digital local-history learning (Ofianto et al., 2023), digital e-module development for history learning (Arviansyah et al., 2024), and contextual e-modules for historical learning (Raharjo et al., 2024). In addition, needs-analysis research has emphasized the importance of identifying users' needs and the characteristics of interactive learning media before development (Widya et al., 2024). However, the present study brings these elements together within a specific needs-analysis context by examining learning-resource needs associated with Ethical Policy, Belitang local history, and history learning in a vocational school. The novelty therefore does not rest on the use of a flipbook format alone, but on the empirical identification of learning-resource needs at the intersection of a specific national-history topic, a specific local historical context, and the characteristics of history learning in vocational education.

This context-specific combination provides an empirical basis for the subsequent development of an interactive flipbook e-module. Previous research has shown the importance of digital transformation and learning innovation in shaping contemporary learning practices (Mukul & Büyüközkan, 2023; Li et al., 2023), while studies on digital history and e-module development demonstrate the potential of digital resources to support contextualized history learning (Ofianto et al., 2023; Arviansyah et al., 2024; Raharjo et al., 2024). Meanwhile, needs-analysis research emphasizes the importance of identifying the characteristics of learning media based on the needs of intended users before development (Widya et al., 2024). Building on these findings, the present study provides empirical information from both students and teachers that can guide the selection of local historical content, digital and interactive features, learning variations, and contextual learning activities. In this respect, the study contributes to previous research by shifting attention from digital media development alone toward needs-based contextualization of digital history learning in vocational education.

CONCLUSION

The needs analysis indicates that students and teachers at SMK Negeri 1 Belitang III reported a need for learning resources that support more varied, digital, interactive, and contextual history learning. The overall level of student need was 78.03%, categorized as Needed, while the teacher need was 81.77%, categorized as Highly

Needed. Among students, the highest percentage was found in expectations for e-module development (79.51%), followed by the integration of Belitang local history (78.36%). Among teachers, expectations for e-module development reached 87.41%, while the integration of Belitang local history reached 86.28%. These findings provide an empirical basis for determining the characteristics of a learning resource that integrates digital presentation, learning variation, interactive elements, and local historical context. In particular, the findings support the proposed development of an interactive flipbook e-module for learning Ethical Policy by incorporating the local history of Belitang. However, the findings represent perceived learning needs and should not be interpreted as evidence of the quality, practicality, or effectiveness of the proposed resource. Further research is therefore required to develop the e-module and conduct systematic validation, practicality testing, and effectiveness testing to determine its validity, usability, and potential contribution to history learning.

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