Development of E-Module for Learning Folklore Based on Local Wisdom

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Abstract

This study aims to describe the development and feasibility of electronic modules based on local wisdom in learning Folklore in high schools in the Teluk Tomini area. This study uses the Research and Development (R&D) type with a 4D development model (define, design, development, and dissemination). The data collected was in the form of electronic module validation data and student responses. Experts in materials, media, language, and education practitioners carry out validation. The data collection techniques used were observation, questionnaire and interview. The data analysis used validity analysis, practicality analysis, and effectiveness analysis. The validation results show that the e-module has experienced a significant improvement after the revision. The media validation score increased from 3.63 to 4.75, while the material validation increased from 3.8 to 5 after story and media content improvements. Language validation also increased from 3.42 to 4.75, indicating that the module is easy to understand and appropriate to student development. The small and large group trials showed student responses with an average of 82.45%, which showed that this module was feasible, practical, and effective in increasing students' motivation and cultural literacy.

Keywords: *Development; e module; learning; folklore;; local wisdom.*

Introduction

Indonesia's rich cultural diversity, which includes various ethnic groups, languages, religions, and customs, has produced a wealth of local wisdom. This wisdom serves as a reflection of the nation's identity and offers moral guidance passed down through generations. However, many young people today are beginning to lose their understanding of these values, even though they are vital to preserving the nation's identity (Albantani & Madkur, 2018). The diminishing connection to local wisdom underscores the importance of embedding these cultural values into the national education system. A practical strategy is incorporating local wisdom into language and literature education, which can cultivate a sense of belonging and a deeper understanding of the nation's cultural heritage (Herman et al., 2023; Sani et al., 2020; Saphira, 2022).

At the policy level, the Independent Curriculum allows educational institutions the flexibility to include local content that reflects the unique characteristics of their regions. Incorporating local wisdom into learning activities has been proven to strengthen students' character, especially by fostering a sense of nationalism and love for their homeland (Darmayenti et al., 2021). However, implementation in the field still faces various challenges, including the limitation of relevant teaching materials that meet local needs. Teachers and students often use textbooks that do not describe their local cultural values, making learning less relevant to students' daily lives (Malabar, 2015; Suprapto et al., 2021).

Initial observations at SMA Negeri 1 Batudaa Pantai and SMA Negeri 1 Bone Pantai in the Teluk Tomini area indicate that the folklore taught in Indonesian classes for grade 10 does not include local Gorontalo folklore. Instead, students are more frequently taught folklore from other regions, such as *Movies* from Java or *The Story of the Poor* from South Sumatra. This has led to low student engagement in the lessons and a limited understanding of their own local culture (Siregar et al., 2023). Gorontalo folklore, such as *Lahilote* or *The Origin of Lake Limboto,* contains local wisdom values that are important to be taught to students, such as togetherness, social responsibility, and love for the homeland (Uge et al., 2019).

Developing e-modules rooted in local wisdom presents a relevant and effective solution to this challenge. These e-modules improve learning access for students in remote areas and offer content that is more contextual and aligned with their everyday experiences. By utilizing digital technology, the e-modules will deliver interactive and engaging materials, fostering greater student engagement in the learning process

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(Winandari et al., 2022). Local folklore-based teaching through e-modules will enrich literary learning in schools and strengthen students' cultural literacy (Maulana et al., 2024).

Moreover, in the 21st century, critical and creative thinking skills are essential competencies. The development of e-modules based on local wisdom can contribute to enhancing these skills, particularly in regions with limited access to high-quality educational resources (Fauziah et al., 2023; Verawati & Wahyudi, 2024; Watthanakuljaroen, 2023). This research aims to create an Indonesian e-module grounded in local wisdom to enhance literature learning in high schools across the Teluk Tomini area. The module is designed to promote independent and creative learning among students while fostering a stronger appreciation for their local cultural heritage (Munajah et al., 2023)

Research has shown that integrating e-modules into Indonesian language learning can enhance students' educational experiences through interactive content, including text, videos, and animations. E-modules rooted in local wisdom are expected to improve learning quality by enriching students' understanding of the material and reinforcing their social values (Delimanugari, 2024; Fradila et al., 2021; Haka et al., 2024; Matsun et al., 2019; Sofyan et al., 2019; Syahfitri & Muntahanah, 2024; Winangun et al., 2024). This research is expected to make a valuable contribution to the development of e-modules tailored to the local context of Gorontalo, providing effective solutions to the challenges faced in Indonesian language learning in remote areas such as the Tomini Bay region.

Materials and Methods

This study utilizes a research and development (R&D) approach following the 4D model, which includes the stages of Define, Design, Develop, and Disseminate (Mills & Gay, 2011; Thiagarajan et al., 1974). This study aims to develop a local wisdom-based e-module for folklore learning, designed for effective use in high schools in the Teluk Tomini area. The main focus is on creating electronic modules that are validated and tested to ensure their effectiveness and feasibility in the learning process.

The study was conducted at SMA Negeri 1 Batudaa Pantai and SMA Negeri 1 Bone Pantai, with 52 class X students participating as test subjects. Testing was done in both small and large groups to evaluate the modules' practicality and effectiveness. Data collection was both qualitative and quantitative, obtained through observations, questionnaires, and interviews with media experts, material experts, language experts, educators, and students. The data was analyzed using a quantitative descriptive approach, utilizing a Likert scale to assess the modules' validity, practicality, and effectiveness. Experts validated the questionnaire results to gauge student responses to the modules, and the data was categorized based on validity criteria. After calculating the average validation scores, the data was classified according to the criteria outlined in Table 1.

Table 1. Criteria for Validity Testing

Score Interval	Category
4,22 - 5,00	Highly valid
3,41 - 4,21	Valid
2,61 - 3,40	Quite valid
1,80 - 2,60	Less valid
0 - 1,79	Very invalid

Following the e-module trial, student response data was gathered through an online questionnaire using the Google Forms platform. The questionnaire included 10 questions with response options: strongly agree (score 5), agree (score 4), neutral (score 3), disagree (score 2), and strongly disagree (score 1). The questionnaires were developed based on the research needs, with specific question indicators designed to assess student responses during the trials.

The analysis of the questionnaire results can be determined using the following formula:

$$\% \text{ Yield} = \frac{\sum \text{Questionnaire Results}}{\sum \text{Highest Score Questionnaire}} \times 100\%$$

Table 2. Criteria for Student Response to the Use of E Module

Valuation	Value Scale	Rating Results
Very Practical	5	81% - 100%
Practical	4	61% - 80%
Quite Practical	3	41% - 60%
Impractical	2	21% - 40%
Very impractical	1	< 20%

Qualitative data analysis was collected through observations, questionnaires, and interviews. Interview data from principals, educators, and students, which focused on learning challenges and the need for e-modules, were processed through data reduction, presented descriptively, and conclusions were drawn based on respondents' feedback regarding the e-modules. Suggestions from experts in media, language, materials, and practitioners were also analyzed in a similar manner and used to improve and assess the feasibility of the e-module.

Results

The development of the Indonesian Learning E-Module for Local Wisdom-Based High Schools in the Tomini Bay Area uses a 4D model, which is a product development model with four main stages: Define, Design, Develop, and Disseminate. Each stage has a strategic function in producing e-module products that are effective, relevant, and follow learning needs.

Definition

The definition stage involves several essential analyses, including initial conditions, learners, tasks, concepts, and learning objectives. During the front-end analysis, the researcher evaluated the implementation of the independent curriculum in high schools across the Teluk Tomini area. This curriculum allows schools to adapt learning materials to local needs, including integrating local wisdom. However, interviews with educators at SMA Negeri 1 Bone Pantai and SMA Negeri 1 Batudaa Pantai revealed that, although the independent curriculum is in place, teaching materials are still primarily sourced from the 2013 curriculum textbooks. Additionally, interactive e-modules are not yet being used to support local wisdom-based learning. The technological infrastructure of the two schools also varies, with SMA Negeri 1 Batudaa Pantai having better access to internet and projectors, while SMA Negeri 1 Bone Pantai faces significant limitations.

The student analysis was conducted to understand the characteristics of class X students at the two schools. These students are in the formal operational stage of cognitive development, enabling them to think abstractly, logically, and systematically. Interviews revealed that students showed interest in using interactive e-modules based on folklore, particularly those featuring visuals such as images, videos, and animations. Students from both schools agreed that e-modules would help them grasp local cultural materials more effectively, despite the infrastructure challenges faced by SMA Negeri 1 Bone Pantai. Additionally, task analysis was carried out to design activities in the e-module aligned with the independent curriculum, specifically tailored to the Tomini Bay folklore content. The tasks in the e-module are structured to help

students understand cultural values through interactive quizzes, concept maps, and reflective essays. Each task is designed to enhance student engagement and foster critical and creative thinking through a technology-based approach incorporating local wisdom.

In the concept analysis, the researcher explores the key ideas that students will learn through this e-module, including the narrative structure of folklore, themes, characters, and moral values. These concepts are delivered through interactive media such as animations and videos, helping students gain a deeper understanding of folklore while connecting it to their cultural context. Students are encouraged to recognize the relevance of local cultural values in modern life. Lastly, the goal analysis focuses on formulating the learning objectives of the e-module, which include gaining a comprehensive understanding of folklore and the ability to analyze the local wisdom values embedded in the stories. This e-module is designed to support students in meeting the competencies of the independent curriculum, enhancing their knowledge of local culture, and developing critical and creative thinking skills.

Design

In the Design stage of developing interactive e-modules based on local wisdom for Indonesian language learning in grade 10 of high schools in the Teluk Tomini area, various technical and pedagogical factors were carefully considered. The primary focus was on ensuring easy navigation, appealing visuals, and the use of apps like Canva, Heyzine, and Wordwall to enhance interactivity and align the content with local culture. A well-prepared storyboard was key to creating a dynamic and participatory flow for the e-module.

The formative test is an integral component of the design, consisting of multiple-choice questions that assess students' comprehension of folklore narrative elements, including plot, characters, and setting. Additionally, enrichment tasks, such as reflective essays and comparative analyses of folklore from various regions, encourage students to think critically and creatively, deepening their understanding of local cultural values.

The selection of media is a key aspect of this design. Canva is utilized to create visually appealing content, including infographics and illustrations that enhance the folklore narrative. Heyzine is employed to transform the e-modules into interactive flipbooks, offering a reading experience similar to that of a physical book. Wordwall is used to organize interactive evaluation activities, such as quizzes and word games. The combination of these three platforms makes the e-module more engaging and diverse in its learning approaches.
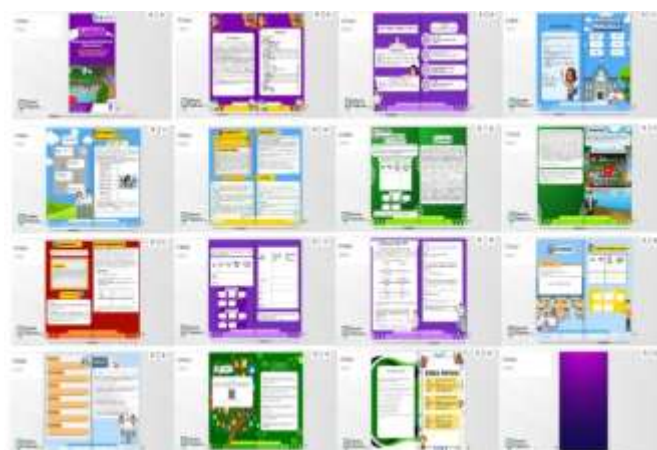

Figure 1. Design of Indonesian E-Module Based on Local Wisdom

The e-module is designed for accessibility on various devices, including computers and smartphones, enabling students to use it both inside and outside the classroom. Early versions feature text, illustrations, quizzes, videos, and game-based activities. Feedback from teachers and students during the initial design

phase is also incorporated to ensure the module aligns with real-world learning needs, enhancing both its effectiveness and engagement in the learning process.

Development

Media Validation

The media validation stage is a crucial step in developing interactive e-modules based on Gorontalo folklore, aimed at ensuring the module's suitability for learning. A media expert validator, a professor from the Indonesian Language and Literature Education Study Program at Gorontalo State University, provided a comprehensive evaluation focusing on the design and functionality of the module.

Figure 2. Before the Revision   Figure 3. After the Revision

Initial colors like light blue, red, and yellow were seen as appealing but did not reflect the traditional colors of Gorontalo. After the second validation, the background was changed to purple, and the text was adjusted for better contrast. Colors such as red, purple, green, and golden yellow, which better represent the local culture, were incorporated. Validators noted that the e-modules became more culturally relevant and suitable for use in learning.

Table 3. Results of Media Expert Validation Assessment

1. o.	2. Assessment Aspects	3. Assessment Score		
		4. P hase I	5. Phase II	
6.	7. The presentation of the E-Module attracts the interest of students	8.	4	9. 5
10.	11. The pictures in the E-Module are clean and clear.	12.	4	13. 5
14.	15. The colour presentation on the electronic module is bright and according to the needs of the students	16.	3	17. 4
18.	19. The writing on the electronic module is clear and easy for students to read	20.	4	21. 5
22.	23. Electronic Module: Easy to use and understand by learners	24.	3	25. 4
26.	27. Images and animations on the net electronic module	28.	3	29. 5
30.	31. Electronic modules are arranged according to the layout (headings, subheadings, pages etc.) correctly	32.	4	33. 5

34.	35. The layout of objects on the electronic module is detailed.	36.	4	37.	5
	38. Sum	39.	29	40.	38
	41. Average	42.	3,63	43.	4,75
	44. Category	45.	Valid	46.	Highly Valid

Following media validation, the Gorontalo folklore e-module saw a significant improvement. Initially, the module received a score of 3.63, with recommendations to enhance color and accessibility. After revisions, incorporating traditional Gorontalo colors and improving accessibility, the score increased to 4.75. The module is now deemed highly valid and ready for classroom testing.

Material Validation

The e-module material validation by the Principal of SMA Negeri 1 Limboto, who is also the author of *Collection of Gorontalo Folklore,* highlighted the importance of aligning education with local wisdom. In the initial stage, the validator recommended making the listening material more contextual and emphasizing cultural values to enhance the pedagogical quality of the e-module, making it more informative and meaningful for students.

Figure 4. Before the Revision   **Figure 5. After the Revision**

After the revision, the e-module, which initially used Limonu folklore with overly general questions, was made more contextual and educational. *The Story of the Origin of Lake Limboto* was selected as it holds greater cultural and historical relevance to Gorontalo. Listening questions were refocused on promoting deeper understanding, and supported by audio-visual media, making the e-module more interactive, educational, and practical for local wisdom-based learning.

Table 4. Results of the Material Expert Validation Assessment

47. o	48. Assessment Aspects	49. Validation Results			
		50. Phase I		51. Phase II	
52.	53. The alignment of the material with the Learning Outcomes (CP)	54.	3	55.	5
56.	57. The alignment of the presented material with the learning objectives (TP)	58.	4	59.	5
60.	61. The alignment of the material with the independent curriculum.	62.	5	63.	5

64.	65. The material in the electronic module is user-friendly for students.	66.	3	67.	5
68.	69. The material in the electronic modules is regularly updated	70.	4	71.	5
72.	73. The material in the electronic module helps develop students' character	74.	4	75.	5
76.	77. The material in the electronic module is appropriate for students' cognitive development	78.	4	79.	5
80.	81. The material requirements and the stages of presenting it are aligned with the students' way of thinking	82.	3	83.	5
84.	85. The material in the electronic module motivates students to seek additional information	86.	4	87.	5
88. 0	89. The material in the electronic module is easier for students to comprehend	90.	4	91.	5
	92. Sum	93. 8	3	94.	50
	95. Average	96. ,8	3	97.	5
	98. Category	99. alid	V	100. Very Valid	

The Gorontalo folklore e-modules have seen significant improvement. Initially, the module received a score of 3.8, with feedback to enhance the Limonu folklore content and refine overly general questions. After revisions, incorporating the more relevant and interactive *Story of the Origins of Lake Limboto,* the module's score increased to 5, demonstrating substantial progress and readiness for implementation in learning.

Language Validation

The language validation of the e-module was conducted by a lecturer from the Doctor of Linguistics program, who recommended additional revisions. The validation results are summarized in Table 5.

Table 5. Assessment Results of Linguist Validation Results

101. o.	102. Assessment Aspects	103. Validation Results			
		104. Phase I		105. Phase II	
106.	107. Accuracy of sentence structure	108.	3	109.	4
110.	111. Sentence effectiveness	112.	3	113.	4
114.	115. Terminology	116.	4	117.	5
118.	119. Understanding of messages or information	120.	3	121.	5
122.	123. Student's willingness to motivate	124.	4	125.	5
126.	127. Encourages critical thinking	128.	4	129.	5
130.	131. Conformity with the level of intellectual development of students	132.	3	133.	5
134.	135. Grammatical rules	136.	3	137.	5
138.	139. Spelling regularity	140.	3	141.	4
142. 0	143. Consistency in the use of terms	144.	4	145.	5
146. 1	147. Consistency of symbol use	148.	3	149.	5
150. 2	151. Consistency of icon usage	152.	4	153.	5

154. Sum	155. 41	156. 57
157. Average	158. 3,42	159. 4.75
160. Category	161. Valid	162. Very Valid

The language validation results showed substantial improvement, with the average score increasing from 3.42 to 4.75. Initially, issues were noted with sentence structure, including the use of SPOK and prepositions. After revisions, the sentences were restructured for greater clarity and effectiveness, enhancing student understanding and engagement. Vocabulary terms, symbol consistency, and student motivation were also improved, making the e-module better suited for teaching Gorontalo local wisdom.

Practicality Validation

The practicality of the interactive e-module was validated by representatives from the Gorontalo Provincial Education and Culture Office to evaluate its ease of use and effectiveness in teaching Indonesian subjects based on local wisdom. The validation results are shown in table 6.

Table 6. Practitioner Validation Assessment Results

163. o.	164. Assessment Aspects	165. Validation Results
166.	167. The electronic module is transparent in its presentation	168. 5
169.	170. The electronic module is well-organized in both its layout and presentation	171. 5
172.	173. The electronic module is presented in a clean and well-proportioned manner	174. 5
175.	176. Electronic modules can attract students' interest in learning	177. 5
178.	179. The electronic modules are tailored to the characteristics of the learners	180. 5
181.	182. The electronic modules align with the topics being taught	183. 5
184.	185. Electronic modules are easy to use	186. 5
187.	188. Electronic modules can be easily carried everywhere	189. 5
190.	191. The electronic module can be used repeatedly	192. 5
193. 0	194. The electronic module is of high quality	195. 5
196. 1	197. Easy to carry and store	198. 5
	199. Sum	200. 55
	201. Average	202. 5
	203. Category	204. Highly Valid

The practicality validation shows that the e-module meets all learning criteria with an average score of 5, placing it in the very valid category. High scores were given for aspects such as readability, organization, and ease of use, with the module being described as well-structured, visually appealing, and suitable for learners. Validators concluded that the e-module is user-friendly and practical for both classroom and independent learning due to its accessibility and high-quality content.

Small Group Trial

A small group trial of the local wisdom-based Indonesian e-modules was conducted at SMA Negeri 1 Batudaa Pantai and SMA Negeri 1 Bone Pantai, involving 10 students to assess the module's practicality. Student feedback identified several issues, such as difficulty understanding assignments, unstable internet connections affecting videos and quizzes, small font sizes, and typographical errors. In response, the researchers revised the e-module by simplifying the assignments, enlarging the fonts, and correcting the typos. This trial was crucial to ensure the e-module became more practical, easier to understand, and culturally relevant.

Large Group Trial

A large group trial of the local wisdom-based Indonesian e-modules for folklore materials was conducted at SMA Negeri 1 Batudaa Pantai and SMA Negeri 1 Bone Pantai, involving 52 students to evaluate the module's practicality and effectiveness. Focused on Gorontalo folklore, the questionnaire results revealed that 82.45% of students found the e-module highly practical, useful for understanding the content, and relevant to their daily lives, which significantly boosted their engagement in learning.

Table 7. Student Questionnaire Results

No.	Statement	% of Respondents' Answers
1	I found the presentation of the e-module for learning folklore based on local wisdom appealing	81.8 %
2	The folklore e-module based on local wisdom features an attractive visual design	82.7 %
3	The folklore e-module based on local wisdom features an attractive visual design	83.6 %
4	I find it easy to understand the folklore material based on local wisdom presented in the e-module	79.1 %
5	The language used in the folklore e-module based on local wisdom is clear and easy to understand	87.3 %
6	I can connect the folklore materials based on local wisdom to real-life examples	80.9 %
7	I feel pleased when learning folklore with e-modules that incorporate local wisdom	82.7 %
8	Using e-modules based on local wisdom makes learning folklore more engaging	87.3 %
9	I feel more motivated to learn folklore when using e-modules that incorporate local wisdom	80.0 %
10	I am completing the exercises in the e-module on my own	79.1 %
	Average Percentage	82.45%

Students' response to the folklore e-module based on local wisdom was highly positive, with an overall approval rate of 82.45%. They showed interest in the module's appearance (81.8%), visual design (82.7%), and user-friendly layout (83.6%). Interest in Indonesian subjects increased (87.3%), and students were able to connect the material to their daily lives (80.9%). Learning was seen as more engaging (87.3%) and motivating (80.0%), though some students still relied on copying their friends' answers when facing difficulties (79.1%).

Disseminate

The distribution stage of the Indonesian e-modules based on local wisdom at high schools in the Teluk Tomini area aims to increase accessibility for both educators and students. The e-modules were made available to high schools in Bone Bolango, Gorontalo, Pohuwato, and Boalemo Regencies in both PDF and Heyzine Flipbook formats, offering flexible access for both online and offline use. The distribution of e-modules in the form of https://heyzine.com/flip-book/40fedd8c27.html links can be accessed by all teachers and students in the Tomini Bay Area as a complementary supplement to local folklore teaching materials in Indonesian subjects.

Teacher training is also carried out to maximize the use of e-modules, which help them relate learning to local cultural values. As a result, teachers felt more confident in teaching, and students showed increased motivation and engagement thanks to the interactive format of the e-modules. This deployment supports more dynamic and relevant learning in the Tomini Bay region.

Discussion

At the definition stage, the e-modules were developed to address gaps in teaching materials relevant to local culture within the context of the Independent Curriculum. Interviews with teachers and students revealed an urgent need for resources that not only educate academically but also strengthen students' connection to Gorontalo's local wisdom, particularly through folklore such as *The Origins of Lake Limboto* and *Lahilote*. In the design stage, the e-modules were crafted to be interactive and engaging, utilizing platforms like Canva, Heyzine Flipbooks, and Wordwall. Multimedia elements, including images, videos, and animations, were incorporated to enhance visual appeal and make the content more accessible to students. Recognizing the limited internet access in some areas, the modules were designed for both online and offline use. This interactive design supports contextual learning with a strong focus on local wisdom.

Validation and trials of the e-module yielded highly positive results. During media validation, the e-module showed significant improvement, with the score increasing from 3.63 to 4.75 after revisions, particularly adjustments to the color scheme and layout to better reflect Gorontalo's culture. Material validation also showed progress, rising from 3.8 to 5 after replacing the Limonu folklore with the more relevant *Origins of Lake Limboto* and improving questions as well as integrating audio-visual media. In terms of language validation, the score improved from 3.42 to 4.75 after refining sentence structure and clarity, making the module easier to understand and more suited to students' developmental level. Additionally, practicality validation showed excellent results, with an average score of 5, indicating that the module is very user-friendly for both teachers and students. Small and large group trials further supported these findings, with 82.45% of students rating the e-module as highly practical and effective in boosting motivation and connecting the material to real life. In the dissemination phase, the e-modules were distributed to various schools in the Tomini Bay area in both PDF and Heyzine Flipbook formats. Teachers who participated in the training reported improved ability to integrate the e-modules into lessons, while students reported increased motivation and a better understanding of the material.

The results of this study support previous findings that electronic modules incorporating local wisdom are effective tools for use in the learning process. As the results of Fu'adah (2024) The findings demonstrate that the developed folklore-based text teaching module has strong validity and practicality, making it well-suited for use in school learning. In addition, Maulana et al. (2024) show that the electronic module is seen as essential, feasible, and effective as an integrative learning tool that promotes the Pancasila student profile and enhances cultural literacy. Martha & Andini (2019) found that the folklore-based teaching materials developed for Indonesian subjects in class X high schools in Banjarnegara Regency were considered valid and effective. Student feedback also indicated that these materials significantly helped them understand folklore more easily. The study recommends using, disseminating, and further developing these teaching resources. E-modules are essential for incorporating local culture to enhance students' cultural literacy and foster greater student engagement in learning. The integration of technological innovation and local values can enhance both the effectiveness and relevance of learning across various subjects (Munir et al., 2023;

Wiyanarti et al., 2024). Experts have rated the e-module very well, with high validation and feasibility test results. In addition, the e-module has proven to be more effective than conventional learning media, as evidenced by improving students' critical thinking skills, which shows the module's success in helping students understand the material more deeply (Pertiwi et al., 2024). Incorporating local wisdom into contextual learning enables students to grasp the material more effectively, as it is tailored to their cultural surroundings, making the content more relevant to their experiences (Marta et al., 2023). Folklore materials embedded with local wisdom values presented through e-modules can enhance students' critical thinking skills (Fajrideani et al., 2024).

This research develops an e-module based on the local wisdom of Gorontalo folklore for Indonesian language learning in high schools within the Teluk Tomini area, aimed at enhancing students' understanding of cultural literacy. The module's key strength lies in its integration with digital technology, offering both online and offline access, and incorporating interactive multimedia, such as videos and animations of Gorontalo folklore, which had not been utilized in previous studies. This e-module aligns with the Independent Curriculum by emphasizing local cultural values, flexibility, and relevance for students in remote areas. By focusing on interactive and flexible learning, the module makes a significant contribution to local wisdom-based education in the digital era. However, the study's limitations include the lack of animation and interactivity in the Flipbook format and a limited range of practice questions in the PDF version. Future research should aim to expand the e-module content with additional animations and interactive questions, as well as consider distributing it through a more comprehensive digital platform to reach a wider audience.

Conclusion

The e-module for folklore learning based on local wisdom in the Tomini Bay area was developed by meeting the criteria of validity, practicality, and effectiveness. Validation from material, media, language experts, and practitioners showed very high scores, and student responses from limited and field trials were highly positive, placing the e-module in the category of very practical and effective. This e-module successfully enhanced students' cultural literacy and learning motivation by integrating Gorontalo folklore and is suitable for further use by educators in Tomini Bay schools, both online and offline. The study implies that e-modules facilitate faster and easier comprehension of the material through an interactive approach. Further research with a larger population is recommended to expand the application and development of textbooks based on local wisdom.

Declaration of Conflicting Interest

The authors declare that there is no conflict of interest in this work.

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References

Albantani, M. A., & Madkur, A. (2018). Think globally, act locally: tse strategy of incorporating local wisdom in foreign language teaching in Indonesia. International Journal of Applied Linguistics and English Literature, 7(2), 1. https://doi.org/http://dx.doi.org/10.7575/aiac.ijalel.v.7n.2p.1

Darmayenti, Besral, & Yustina, L. S. (2021). Developing efl religious characters and local wisdom based efl textbook for islamic higher education. Studies in English Language and Education, 8(1), 157–180. https://doi.org/10.24815/siele.v8i1.18263

Delimanugari, D. (2024). Development of project-based learning e-modules with local wisdom content in grade IV Science Lessons (IPAS). IJBER: International Journal of Basic Educational Research, 1(1), 11–19. https://doi.org/10.14421/ijber.2024.11-02

Fajrideani, W., Sumiyadi, & Nugroho, R. A. (2024). Pengembangan bahan ajar digital storytelling cerita rakyat untuk meningkatkan kemampuan bernalar kritis siswa di SMA. Jurnal Onoma: Pendidikan, Bahasa, Dan Sastra, 10(3), 3170–3187. https://doi.org/10.30605/onoma.v10i3.4075

Fauziah, S. I., Rahayu, Y. S., & Asri, M. T. (2023). The validity e-modules of Riau local wisdom based to enhance students' creative thinking through research. International Journal of Social Science and Human Research, 06(02), 1134–1142. https://doi.org/10.47191/ijsshr/v6-i2-47

Fradila, E., Razak, A., Santosa, T. A., Arsih, F., & Chatri, M. (2021). Development of e-module-based problem based learning (PBL) applications using sigil the course ecology and environmental education students Master of Biology. International Journal of Progressive Sciences and Technologies (IJPSAT, 27(2), 673–682. https://doi.org/http://ijpsat.ijsht-journals.org

Fu'adah, M., Ambarwati, A., & Siswiyanti, F. (2024). Pengembangan modul ajar teks cerita rakyat berbasis budaya lokal folklor asal-usul tempat di Kabupaten Pasuruan. Jurnal Penelitian, Pendidikan, Dan Pembelajaran, 19(15), 1–19. https://doi.org/https://jim.unisma.ac.id/index.php/jp3/article/view/24989/18878

Haka, N. B., Pamungkas, M. F., Masya, H., Rakhmawati, I., & Hidayah, N. (2024). Desain, development, and evaluation of biology e-modules website based on local wisdom of the Baduy tribe: strengthening pancasila student profiles on ecosystem material. E3S Web of Conferences, 482. https://doi.org/10.1051/e3sconf/202448205005

Herman, Rafiek, M., Agustina, T., Saddhono, K., Malabar, S., Saputra, N., & Purba, R. (2023). Exploring the metafunctions to improve EFL learners' writing ability in the perspective of systemic functional linguistics. 4(2), 38–49. https://doi.org/10.58256/rjah.v4i2.1195 RJAH

Malabar, S. (2015). Increasing students achievment in national examination through developing contextual textbook (a case of Indonesia). Man in India, 95(4), 1105–1117.

Marta, N. A., Abdurakhman, & Djunaidi. (2023). Preparing graduates for the workforce: the development of contextual-based history learning e-modules in vocational schools. Paramita, 33(2), 317–328. https://doi.org/10.15294/paramita.v33i2.37112

Martha, N. U., & Andini, N. P. (2019). Pengembangan bahan ajar mata pelajaran bahasa Indonesia berbasis cerita rakyat Kabupaten Banjarnegara. JINoP (Jurnal Inovasi Pembelajaran), 5(2), 185–197. https://doi.org/10.22219/jinop.v5i2.9992

Matsun, Andrini, V. S., Maduretno, T. W., & Yusro, A. C. (2019). Development of physics learning e-module based on local culture wisdom in Pontianak,West Kalimantan. Journal of Physics: Conference Series, 1381(1), 1–8. https://doi.org/10.1088/1742-6596/1381/1/012045

Maulana, A., Subyantoro, S., Yuniawan, T., & Pristiwati, R. (2024). Development of electronic media assisted language learning modules with cultural literacy. Ingenierie Des Systemes d'Information, 29(4), 1283–1295. https://doi.org/10.18280/isi.290404

Mills, G. E., & Gay, L. R. (2011). Educational research: Competencies for analysis and applications. Pearson Education.

Munajah, R., Sumantri, M. S., & Yufiarti, Y. (2023). Teachers' perceptions on the need to use digital storytelling based on local wisdom to improve writing skills. South African Journal of Childhood Education, 13(1), 1–8. https://doi.org/10.4102/sajce.v13i1.1314

Munir, N. P., Hidayat, N., Lestari, A., & Anas, A. (2023). Algebra-Ethnomathematics integrated E-modul for Luwu culture with flipbook maker HTML 5 assisted application. Preface: 3rd International Conference on Innovation in Education (ICoIE 2021). https://doi.org/https://doi-org.ezproxy.ugm.ac.id/10.1063/12.0017138

Pertiwi, N. P., Saputro, S., Yamtinah, S., & Kamari, A. (2024). Enhancing critical thinking skills through stem problem-based contextual learning: an integrated e-module education website with virtual experiments. 23(4), 739–766. https://doi.org/10.33225/jbse/24.23.739

Sani, D. M., Sukarmin, & Suharno. (2020). The needs analysis for the development of electronic learning module (e-module) based on local wisdom information search in senior high schools' physics online learning during COVID-19 pandemic. IOP Conference Series: Earth and Environmental Science, 1796(1), 1–10. https://doi.org/doi:10.1088/1742-6596/1796/1/012020

Saphira, H. V. (2022). Integrating local wisdom-based learning to preparing the pancasila students' profile, yes or no? International Journal of Current Educational Research, 1(1), 18–35. https://doi.org/https://doi.org/10.53621/ijocer

Siregar, R., Gafari, M. O., & Adisaputra, A. (2023). Development of folklore text teaching materials (Hikayat) in the form of interactive digital multimedia in High Schools (SMA). https://doi.org/10.4108/eai.19-9-2023.2340507

Sofyan, H., Anggereini, E., & Saadia, J. (2019). Development of e-modules based on local wisdom in central learning model at kindergartens in Jambi city. European Journal of Educational Research, 8(4), 1137–1143. https://doi.org/10.12973/eu-jer.8.4.1137

Suprapto, N., Prahani, B. K., & Cheng, T. H. (2021). Indonesian curriculum reform in policy and local wisdom: Perspectives from science education. Jurnal Pendidikan IPA Indonesia, 10(1), 69–80. https://doi.org/10.15294/jpii.v10i1.28438

Syahfitri, J., & Muntahanah. (2024). The effectiveness of local wisdom-based interactive digital module on students' critical thinking disposition. International Journal of Evaluation and Research in Education , 13(4), 2170–2177. https://doi.org/10.11591/ijere.v13i4.28256

Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). Instructional development for training Teachers of exceptional Children. Indiana University.

Uge, S., Neolaka, A., & Yasin, M. (2019). Development of social studies learning model based on local wisdom in improving students' knowledge and social attitude. International Journal of Instruction, 12(3), 375–388. https://doi.org/10.29333/iji.2019.12323a

Verawati, N. N. S. P., & Wahyudi. (2024). Raising the issue of local wisdom in science learning and its impact on increasing students' scientific literacy. International Journal of Ethnoscience and Technology in Education, x(x), 42–54. https://doi.org/10.33394/ijete.v1i1.10881

Watthanakuljaroen, T. (2023). Development of a model for knowledge management of local wisdom via virtual learning community for instructional management. International Journal of Information and Education Technology, 13(11), 1720–1728. https://doi.org/10.18178/ijiet.2023.13.11.1981

Winandari, A., Sutimin, L.A., & Rejekiningsih. (2022). Benefits of using experiential learning based electronic modules to facilitate students concierge learning in Vocational High Schools. Journal of Education Technology, 6(4), 568–577. https://doi.org/10.23887/jet.v6i4.48064

Winangun, I. M. A., Suma, K., Subagia, I. W., & Sudiatmika, A. A. I. A. R. (2024). E-modules for basic science and elementary school concepts based on cases in the context of local wisdom. Revista de Gestao Social e Ambiental, 18(9), 1–13. https://doi.org/10.24857/rgsa.v18n9-041

Wiyanarti, E., Holilah, M., Zahra, T. F., & Dahalan, S. C. (2024). Development of an e-module based on local wisdom ethnoastronomy in the digital era to strengthen the pedagogical competence of social studies teachers. Journal of Engineering Science and Technology, 19(4), 1280–1301. https://doi.org/jestec.taylors.edu.my