Development of local-wisdom based writing e-module at elementary school

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Keywords:	Abstract
e-module development; *writing;* *local wisdom;*	*This study aims to develop a local wisdom-based writing e-module at the Sultan Agung Jepara Islamic Elementary School. This study uses the Research and Development (R&D) method with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. The first stage is needs analysis, followed by e-module design, module development, and elementary school student group trials. After that, evaluation and revision are carried out based on the input received. The results of the study indicate that the developed e-module is effective in improving the writing skills of elementary school students. The use of this e-module has also succeeded in increasing elementary school students' awareness of the importance of maintaining and preserving local wisdom in everyday life. The trial also showed an increase in the motivation of elementary school students in participating in writing learning, with higher enthusiasm. From the results of this study, it can be concluded that the local wisdom-based writing e-module at Sultan Agung Jepara Islamic Elementary School can be an interesting and effective learning alternative, which not only improves the writing skills of elementary school students, but also introduces them to important local cultural values.*

INTRODUCTION
Research Background

Information and communication technology has brought significant changes. The development of information technology has had a major impact and challenges on various aspects of life including in the world of education. In the context of learning, technology allows the creation of teaching media innovations that are more interesting, interactive, and relevant to the needs of elementary school students. One of the challenges faced is how technology can be used to create effective and interesting learning for elementary school students. Electronic learning modules or e-modules are one of the innovations that offer solutions to these challenges. According to (Mulyani et al., 2024), e-modules are digital-based teaching materials that are systematically designed to support independent learning and increase the involvement of elementary school students. The use of e-modules in learning not only increases the accessibility of information, but is also able to support learning that is adaptive to the development of the times.

However, the use of non-contextual learning media often becomes an obstacle in the learning process of elementary school students. Learning that is less relevant to the environment and culture of elementary school students causes low interest in learning and difficulty in understanding the material (Harahap & Aswirna, 2023). In this case, the integration of local wisdom is important. Local wisdom that includes values, culture, and traditions of the community can enrich the learning content and help elementary school students understand the material contextually. Stated that the integration of local wisdom in teaching materials can strengthen the cultural identity of elementary school students, while increasing their understanding of the learning material (Afandi, 2025).

Problem of the Study

Writing skills are one of the basic competencies that must be mastered by elementary school students. By writing, elementary school students can develop critical, logical, and creative thinking skills. However, there are still elementary school students at the elementary school level who have difficulty writing. The lack of relevant and interesting learning media is often the main factor in the low writing skills of elementary school students. Therefore, innovation in teaching media is needed that can increase elementary school students' interest in writing while providing meaningful learning experiences.

Therefore, innovation is needed in learning media that can increase elementary school students' interest in writing while providing a meaningful learning experience.

Referring to research that has been done before. In this case, e-modules based on local wisdom can be an effective solution to increase the interest and ability of elementary school students in writing. The development of these e-modules requires careful planning to suit the needs of elementary school students and the applicable curriculum. As stated by (Amelia, 2024), learning based on local cultural values can instill positive attitudes, such as cooperation, responsibility, and love for the environment. This e-module can also be a means of preserving local culture amidst the increasingly strong current of globalization. This is in line with the opinion of (Purba et al., 2023) who stated that the use of local culture-based teaching materials can increase elementary school students' learning motivation and strengthen their writing skills. This study aims to develop a local wisdom-based writing e-module for elementary school students.

Research's State of the Art

Table 1. Previous Research

Previous Research	Results
(Maharani & Jauhari, 2024)	Local culture-based digital modules improve the cultural literacy of elementary school students.
(Yasir et al., 2024)	Integration of local wisdom increases the relevance of the material to elementary school students.
(Winangun et al., 2024)	Combining local wisdom with writing skills for optimal results.

Novelty, Research Gap, & Objective

This e-module is expected to not only be an effective learning medium in improving elementary school students' writing skills and strengthening character, but also a tool for preserving local culture. Thus, this study can provide significant contributions to the development of technology-based and cultural education.

There are several theoretical bases, including, e-modules are digital-based learning media designed to facilitate the independent learning process. According to (Winangun et al., 2024), e-modules integrate text, images, audio, and video in one medium to provide an interactive and enjoyable learning experience. This media also supports learning in the digital era, where accessibility is one of the main factors in successful learning (Rengkuan et al., 2024). In learning Indonesian, e-modules have an important role as learning media that can motivate elementary school students to learn more independently. The use of e-modules in learning writing skills has a positive impact on elementary school students' ability to organize their ideas

systematically (Maharani & Jauhari, 2024).

Writing is one of the basic skills in language learning that must be mastered by elementary school students at the elementary school / equivalent level, (Ngo, 2023) stated that writing involves a complex thinking process starting from designing ideas to expressing them in the form of structured text. At the secondary education level, writing not only functions as a means of communication but also a tool to explore the creativity and understanding of elementary school students towards the world around them. Through the writing process, elementary school students can convey their ideas, describe feelings, and explore personal experiences. This is in line with the statement from (Müller & Wulf, 2024) which states that writing functions as a medium for developing critical thinking skills which are very much needed in today's era.

Local wisdom includes values, traditions, and even culture that are passed down from generation to generation. According to (Masie et al., 2025), the integration of local wisdom in learning helps elementary school students recognize their cultural identity and raises awareness of the importance of preserving local traditions. The values of local wisdom adapted in learning can strengthen the character of elementary school students, such as mutual cooperation, honesty, and respect for others. So that local wisdom packaged in e-writing modules can be teaching materials that are relevant to the lives of elementary school students. (Ismiyanti et al., 2024; Rengkuan et al., 2024; Sari & Yustiana, 2021) stated that learning materials based on local wisdom not only strengthen elementary school students' understanding of their culture but also motivate elementary school students to learn more actively because the material is close to the daily lives of elementary school students.

The development of e-modules based on local wisdom is an innovative approach to learning. E-modules are designed by combining digital technology and local cultural values to create a unique and meaningful learning experience. According to (Amelia, 2024; Harahap & Aswirna, 2023; Masie et al., 2025), e-modules based on local wisdom from South Sumatra have proven effective in improving the writing skills of elementary school students. The e-modules contain various elements of local culture, such as folklore and traditional arts that are relevant to the lives of elementary school students. In addition, e-modules based on local wisdom can also increase the interest and motivation of elementary school students to learn. Elementary school students feel more connected to the material presented because it contains values that they have known since childhood.

Local wisdom-based e-modules provide many benefits in learning to write,

including improving elementary school students' abilities in deeper creative writing. (Maharani & Jauhari, 2024) stated that elementary school students who used local wisdom-based e-modules showed a significant increase in elementary school students' abilities in expressing their ideas into writing. Another benefit is as a strengthening of the cultural identity of elementary school students. By learning through materials that promote local values, elementary school students not only learn to write but also understand the importance of preserving their culture.

METHOD

Type and Design

This study uses the Research and Development (R&D) method which aims to develop a product in the form of a writing e-module based on local wisdom, especially at SD Islam Sultan Agung Jepara. The R&D method was chosen because it was considered relevant, allowing researchers to design, test, and develop or produce innovative and useful products for learning. This study employed a Research and Development (R&D) approach using the ADDIE instructional design model—comprising five phases: Analyze, Design, Develop, Implement, and Evaluate. This model was chosen for its structured and iterative process, which ensures the systematic development and validation of instructional media (Jian, 2022). The implementation of this research uses the R&D (Research And Development) research development method. Questionnaires in research are used as a tool to collect data. According to (Ghaffar Nia et al., 2023) "Questionnaires are instruments of assessment from experts and users of the products developed". So it can be seen that, a questionnaire is an object intended to collect data. There are 3 types of questionnaires used in collecting data, namely expert validation questionnaires that will be filled in by validators who are useful for knowing whether or not what is developed is feasible. Teacher response questionnaire and student response which aims to find out the grammar, readability of reading books and the success of the Literacy Movement in schools. Meanwhile, to determine the validity level of the product, the validation score must be coefficient with the criteria.

Data and Data Sources

The population consisted of 48 fifth-grade students from SD Islam Sultan Agung Jepara public elementary school in Indonesia. All students were included in the sample using purposive sampling, and the class was divided into two groups for pretest and posttest comparisons (Ismiyanti & Permatasari, 2021). Data sources in this study included: (1) Expert validation sheets from instructional media and history

education specialists. (2) Questionnaires completed by both teachers and students to assess practicality. (3) Pretest-posttest instruments to measure cognitive learning outcomes.

Data Collection Technique

There are 3 types of questionnaires used in collecting data, namely expert validation questionnaires that will be filled in by validators who are useful for knowing whether or not what is developed is feasible. Teacher response questionnaire and student response which aims to find out the grammar, readability of reading books and the success of the Literacy Movement in schools. Meanwhile, to determine the validity level of the product, the validation score must be coefficient with the criteria.

Data were collected using a combination of quantitative and qualitative techniques (Hammett, 2022). This study uses the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. This model is often used in the development of teaching materials because it has systematic and structured steps. The ADDIE model is an instructional development approach that helps developers create effective and efficient learning products.

Data Analysis

The validity criteria should be met by the reading book product to be developed so that it can be declared valid if it has at least the "Fair" category with an interval of 0.40 - 0.60 to the "Very High" category with an interval of 0.80 - 1.00. This study uses the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. This model is often used in the development of teaching materials because it has systematic and structured steps. The ADDIE model is an instructional development approach that helps developers create effective and efficient learning products.

RESULTS

Analysis Stage

This stage aims to identify the needs of elementary school students and teachers at SD Islam Sultan Agung Jepara, related to local wisdom-based writing learning. The analysis includes understanding the curriculum, local potential of the Jepara area, and the characteristics of elementary school students. Data collection methods include interviews, observations, and questionnaires. emphasized the importance of the analysis stage as a basis for designing products to suit the educational context.

Design Stage

At this stage, the structure of the e-module begins to be designed. The contents of the module include writing materials with local Jepara wisdom such as carvings, culture, and local traditions. The e-module design considers visual and interactive aspects to motivate elementary school students. According to (Müller & Wulf, 2024), the design of teaching materials that are relevant to the environment of elementary school students can improve and increase the effectiveness of learning.

Development Stage

The designed e-module is then developed based on the design that has been prepared. The e-module prototype must be validated by material experts, media experts, and Indonesian language teachers at SD Islam Sultan Agung Jepara. This validation aims to ensure the suitability of the content and appearance. Revisions are made based on input from the validator. (Suprapto et al., 2021) emphasize the importance of validation in the development of educational products to ensure product quality.

Implementation Stage

After being revised, the e-module was tested on elementary school students in two stages, namely small group trials and large group trials. The results of this implementation were used to measure the effectiveness of the e-module in improving elementary school students' writing skills. Data were collected through pretests and posttests as suggested by (Saputri & Desstya, 2023) who stated that quantitative evaluation is important to determine the impact of educational products.

Evaluation Stage

At the last stage, namely the evaluation stage. Evaluation is carried out to assess the advantages and disadvantages of the e-module. At this stage there are 2 stages of evaluation, namely formative and summative. Formative evaluation is carried out during the development process, while summative evaluation is carried out after implementation to determine the success of the e-module. Meanwhile, the results of teacher and student responses should also fulfill the following criteria:

Table 2. Teacher and Student Response Criteria

No.	Interval %	Kriteria
1.	81 – 100	Very Feasible
2.	80 – 61	Feasible
3.	60 – 41	Fair
4.	40 – 21	Not Feasible
5.	20 – 0	Very Unfit

Based on table 2, the reading book can be declared feasible if the minimum average questionnaire score is 61 and the maximum is 100. Meanwhile, data collection techniques include questionnaires, interviews, observations, and writing tests. Questionnaires are used to determine the responses of elementary school students to e-modules, while interviews and observations are used to explore the experiences of elementary school students during the use of e-modules. Writing tests are conducted to measure the improvement of elementary school students' writing skills before and after using e-modules.

The data analyzed used the Mix Method approach. Qualitative analysis was used to interpret interview and observation data, while quantitative analysis was carried out using statistical tests such as paired t-tests to see significant differences between pretest and posttest results. By following these stages, it is hoped that the developed e-module can improve the writing skills of elementary school students while introducing the values of Jepara local wisdom.

The development of local-based writing E-modules is carried out as a form of learning innovation so that elementary school students are more skilled in writing while also getting to know local culture. Modules This is expected to be an effective, interesting, and curriculum-relevant learning medium. According to (Chandra, 2023), local wisdom-based learning not only improves the skills of elementary school students but also strengthens the cultural identity of elementary school students. The research process includes the stages of needs analysis, module design, expert validation, limited trials, and effectiveness tests. The data obtained are analyzed to see the extent to which this e-module can meet learning objectives.

E-Module Validation by Experts

The developed e-module process was validated by media experts and material experts to measure the feasibility of the material and appearance of the e-module before being implemented to elementary school students. Validation was carried out using an instrument in the form of a questionnaire with a Likert scale of 1-5. The results of the validation are shown in the following table:

Table 3. Teacher and Student Response Criteria

Assessment Aspects	Subject Matter Expert Score	Media Expert Score	Category
Content and Relevance	4.8/5	4.7/5	Very good
Language	4.7/5	4.6/5	Very good
Appearance	-	4.8/5	Very good

The validation results show that the e-module has a feasibility with the category "Very Good". According to (Okoye et al., 2023) digital-based learning media must integrate interactivity and visual aspects to increase elementary school students' interest in learning.

E-Module Trial

Limited trials were conducted on 20 students of Elementary School 4A and 20 students of Elementary School 5B. Data collection was conducted through questionnaires to measure the responses of Elementary School students and pretest and post-test to determine the effectiveness of the e-module.

Elementary School Student Questionnaire

The results of elementary school students' responses to the e-module are presented in the following table:

Table 4. Response to the Module

Aspect	Average SD 4A	Average SD 5B	Category
Attraction	4.8/5	4.7/5	Very good
Ease of Use	4.7/5	4.6/5	Very good
Usefulness	4.8/5	4.8/5	Very good

The majority of elementary school students stated that this e-module is easy to use and interesting. This is supported by the opinion of Ismiyanti et al., (2024) who stated that visually attractive learning media can increase elementary school students' learning motivation.

Improvement of Writing Skills

Table 5. Effectiveness of the Module

Group	Pre-test	Post-test	Improvement
4A	62.5	82.3	+19.8
5B	65.4	85.6	+20.2

The results showed a significant increase in the writing skills of elementary school students after using e-modules. The use of digital-based media based on local

wisdom can improve the literacy skills of elementary school students (Cahyaningtyas et al., 2022).

DISCUSSION

Advantages of Local Wisdom-Based E-modules

This e-module utilizes Jepara's local wisdom such as Ratu Kalinyamat, carving art, and other local traditions. This integration provides added value because elementary school students feel closer to the material. According to (Ismiyanti et al., 2024), local wisdom learning not only improves elementary school students' skills but also strengthens their love for local culture.

This e-module is also equipped with interactive features, such as:

a. Supporting videos: namely providing a visual explanation of each topic.

b. Interactive Exercises: Primary School students can work on quizzes with immediate feedback.

c. Writing Assignment: namely directing Elementary School students to write based on local stories.

Interactive and technology-based learning media can create more effective and efficient learning. Pre-test and post-test data show that e-modules have a positive impact on elementary school students' writing skills. Before using the e-module, elementary school students tended to have difficulty developing ideas and writing structures. After using the module, elementary school students were able to compose paragraphs with good structures according to writing guidelines. According to (Maharani & Jauhari, 2024), digital-based learning media encourages elementary school students to learn more independently and creatively.

The increase in post-test scores, namely the average post-test of elementary school students increased significantly. Positive response from elementary school students, namely the questionnaire results showed that elementary school students felt this module was interesting and useful. Relevance to the local context, namely contextual material makes it easier for elementary school students to understand and apply knowledge. According to (Rafiuddin et al., 2024), culture-based media helps elementary school students understand material in depth through approaches that are relevant to everyday life. The feasibility of the developed product is assessed based on the validation results of the velidator using a questionnaire instrument. The feasibility test was carried out by a validator consisting of the results of the questionnaire by the validator then recapitulated and resulted in an average of 0.74 in the "High" category. The following is a graphic image of the results of expert

validation which states that the product is valid with some notes that have been corrected:
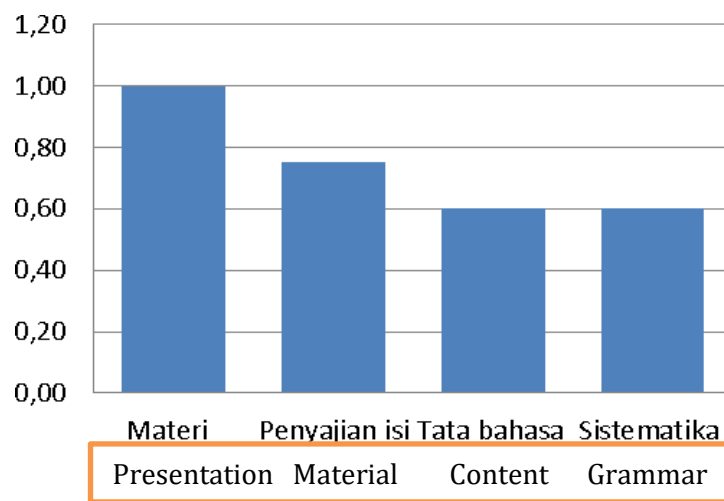

Figure 1. Product Validity

Based on the graph in Figure 1, the product was declared valid because each indicator of product feasibility had met the validity standard of 0.40 to 1.00. The graph above also shows that the material indicator has a very high score, because the material in the product is in accordance with the theme, namely about Samin culture. Meanwhile, the grammar indicator has a score of 0.60, because in the grammar product used there are still errors that are not suitable for elementary school students. However, it has been corrected before being tested. Meanwhile, the results of the questionnaire that has been distributed to teachers and students both small scale and large scale obtained an average percentage of 81.04% with the category "Very Feasible". Through these results, it can be concluded that the product of teaching materials in the form of reading books based on local wisdom of Samin culture can succeed the School Literacy Movement.

CONCLUSION

The conclusion of this study shows that the development of a local wisdom-based writing e-module for students of Sultan Agung Jepara Islamic Elementary School has a positive impact on improving the writing skills of elementary school students. The e-module is designed to integrate the values of Jepara local wisdom into learning so that elementary school students not only learn to write technically but also understand and appreciate local culture. Based on the results of the trial, this e-module is considered effective because it is able to increase the interest and motivation of elementary school students in writing and make it easier for teachers to deliver materials. In addition, it is very relevant to the needs of learning in the

current era that demands the use of technology in the teaching and learning process. Thus, this e-module can be an alternative innovative and contextual learning media to support the development of elementary school students' writing competencies.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be constructed as a potential conflict of interest.