Article

Electronic Module for Learning Indonesian Language Based on Environmental Character Values for Grade V Elementary School

Hendi Rahmat [1]*, Jami Ahmad Badawi [2], Shamsudin Bin Othman[3]

[1] STKIP PGRI Bandar Lampung. Jalan Chairil Anwar No. 79, Durian Payung, Kecamatan Tanjung Karang Pusat, Kota Bandar Lampung 35214, Indonesia.

[2] Universitas Islam Negeri Sunan Kalijaga Yogyakarta, Jalan Laksda Adisucipto, Papringan, Caturtunggal, Kecamatan Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281, Indonesia.

[3] Faculty of Education Studies Universiti Putra Malaysia 43400 UPM Serdang, Selangor

* *Corresponding Author*. E-mail: hendirahmat542@gmail.com

Article Info	ABSTRACT
	This study aims to produce and determine the attractiveness of the Indonesian language electronic module based on environmental care character values for fifth grade elementary school students that was developed. The research method uses Research and Development (R&D), referring to the steps developed by Branch with the ADDIE design, namely *analysis, design, development, implementation*, and *evaluation*. Data collection using interviews, questionnaires, e-module product assessment sheets, teacher observation sheets, and student observation sheets. Data analysis using quantitative descriptive analysis techniques. The instrument used is an assessment scale for the attractiveness of the module, namely using a *Likert scale* and arranged in the form of *a checklist*. The results of the study showed that based on the validation of media experts obtained 82.35%, validation of material experts obtained 82.96%, validation of education practitioners obtained 80.44% so that it was categorized as very feasible. While the results of field tests on students showed that this module has a very high level of attractiveness with a percentage of 88.87%. From

the results of expert validation and product trials, it can be concluded that the Indonesian language electronic module based on environmental care character values non-fiction text material is very feasible and interesting to use as teaching materials.

1. Introduction

The guidelines for developing the 2013 curriculum are Law Number 20 of 2003 concerning the National Education System, which states that the curriculum is a set of plans and arrangements regarding objectives, content, and learning materials as well as methods used as guidelines for organizing learning activities to achieve certain educational objectives (Nasional, 2003). Based on the statement, the curriculum is developed as a reference in learning activities according to the situation and development of the times. In learning activities are inseparable from learning media. Learning media is everything that is conveyed by the sender and recipient with the aim of stimulating students' thoughts, ideas, and interests to learn (Nuravipah et al., 2023; Trisiana, 2020). This opinion is in line with Kwintiana et al., (2023); Maryono et al., (2022), stating that learning media is everything that can provide information from the source of information to the recipient of information.

Teachers in this case are required to be creative in developing online learning media. The use of online learning media in the learning process should provide a better learning experience for students, can stimulate thoughts, feelings, abilities and learning skills so that they can arouse students' interest in learning (Inayah, 2023; Muhaimin et al., 2023). In reality, there are still many teachers who have not been able to utilize online learning media. Teachers tend to find less interesting types of online learning media in the learning process. This fact emerged based on the implementation of teaching activities at SD Negeri 1 Sumber Rejo Kemiling Bandar Lampung.

The teaching materials used are only thematic books which are printed teaching materials and are less effective to use without a teacher as a direct educator, so there needs to be an intermediary media that contains character values in the material such as character values of caring for the environment so that students have good character, attitude and morals. Teachers still seem less able to find other learning media used in the learning process. Many teachers use monotonous learning methods in delivering material, namely creating *groups* or groups only using the *WhatsApp application*, then assignments given by the teacher will be uploaded to the application. These assignments include performing the Dhuha prayer, reciting the Koran, activities to help parents at home, and

assignments such as writing and answering practice questions in notebooks then photographed and sent via the application. This has an impact on the boring learning process of students so that it can cause the learning process to be less effective. Therefore, teachers are expected to make more effort to redevelop learning media, especially in learning Indonesian in Elementary Schools (SD).

Learning media that can be developed in Indonesian language learning is a module based on environmental care character of Indonesian language content to improve students' understanding in learning and students' environmental care character. Current modules are not only presented in printed form, but also in electronic form or often called e-modules. Electronic modules are documents or articles in electronic format that have many benefits for learning media (Rosmalinda & Pamela, 2023). E-modules are part of electronic based e-learning whose learning utilizes information and communication technology, especially electronic devices (Nugroho et al., 2023; Rifkisyahputra & Ghufron, 2024; Roemintoyo et al., 2022; Rofi'i et al., 2022; Utomo, 2023). E-modules that are arranged in electronic form can save the use of stationery such as paper so that indirectly it will help reduce paper waste (Amril & Thahar, 2022). E-modules can be arranged with multimedia applications because they can combine various media (file formats) in the form of text, images, graphics, music, animation, video, and interaction into digital files (computerization), and are used to convey messages to users (Ramdani & Artayasa, 2022).

This digital module will be developed into a digital module or e-module that will be integrated with the Flip PDF Professional application. Flip PDF Professional is included in the application that helps change the appearance of the module into an electronic module, which will contain information supported by audio-visual technology, because there is material accompanied by audio, animation, learning videos that will certainly help students (Madina & Zulherman, 2023). Indonesian language lessons are important to learn because language plays an important role in the development of students' social, emotional, and intellectual abilities, as well as supporting or increasing the chances of success in studying any field of study. Indonesian is the main language in Indonesia and is taught from an early age until college level (Erwin, 2022). Learning a language is essentially learning to communicate, so that Indonesian language and literature are important aspects to be taught to students. Learning Indonesian is one of the subjects that can involve students directly in gaining knowledge so that it raises curiosity in students.

At the age of 7-15 years, the introduction of good and correct Indonesian language is very necessary, because at this age students are adapting to form personal character (E. P. Sari & Mukhlishina, 2023). E-module This environmentally conscious character-based approach is expected to make it easier for students to understand the material on environmental conservation efforts, and for students to be able to better protect andimprove the surrounding environment. E-module learning media is equipped with instructions for independent learning, so that students can learn according to their abilities. This can overcome student

boredom, foster learning motivation and critical thinking skills in understanding learning materials and improve students' environmental care character. Environmental care character is a character that must be instilled in schools, especially in elementary schools.

D. Fortuna et al., (2023) states that all school residents must have an attitude of caring for the environment by improving the quality of the environment, educating school residents about the importance of caring for the environment and having self-awareness to prevent damage to the environment. Learning that is associated with environmentally friendly behavior is expected to be able to make students aware of caring for nature and the surrounding environment. Fostering an attitude of caring for the environment can be done by getting students used to throwing garbage in the trash based on the type of garbage, caring for plants, maintaining the cleanliness of the classroom and school, and so on (Mihratun et al., 2022; Setiawati et al., 2022). By instilling an environmentally friendship character so that students can wisely manage natural resources around them, and to foster a sense of responsibility in students. So that, each of student can lives every action and behavior. Based on the previous explanation, the purpose of the study was to produce and determine the attractiveness of the Indonesian language electronic module based on environmental care character values for grade V elementary school students that was developed.

2. Method

The research method used is research and development. Research and Development or R & D is a research method that can produce a product and its effectiveness has been tested (Kusuma et al., 2024). The teaching materials developed in this study are electronic modules for learning Indonesian language based on environmental character values for grade V Elementary School. The development model used in this study is the *Robert Maribe Branch development model,* namely the ADDIE approach (*Analysis, Design, Development, Implementation and Evaluation).*The subjects of the study were 40 students in grade V at SD N 1 Sumber Rejo, consisting of 20 students in grade 5A and 20 students in grade 5B. The data sources in this study are primary data sources and secondary data sources. The primary data sources needed in this study are teachers and students in grade V of SD N 1 Sumber Rejo as well as validation from media, language, and material experts. The data obtained from teachers and students aims to determine the learning media used and the Indonesian language material of non-fiction texts with environmental care character values. The secondary data used in this study comes from documents such as syllabi, teaching modules, and documentation which aim to add information in making electronic Indonesian language modules. The data collections used were interviews, observations, documentation, and questionnaires.

Data analysis with validity analysis, where data from numbers obtained through observation questionnaires, expert validation, and product attractiveness by students while qualitative data by describing the results of quantitative data. Quantitative data obtained to calculate the percentage of the average score of each item answer in the questionnaire using a *Likert scale* with a five-level standard. The following is a Likert scale score with five criteria presented in the table below:

Table 1 . Five Criteria Likert Scale Score (Mardianto et al., 2022)

Rating Scale		
Predicate	**Score**	**Criteria**
A	5	Very Worth It
B	4	Worthy
C	3	Quite Decent
D	2	Not feasible
E	1	Totally Unworthy

To determine the level of validity of the results of learning media development, use the following formula.

$$P = \frac{\sum x}{\sum xi} \; X \; 100$$

Information:

P   : Percentage
$\sum x$: The number of desired values
$\sum xi$: Total number of values

Meanwhile, to determine the validity of the product, use the following criteria:

Table 2. Product Validity Level Criteria (I. D. Fortuna et al., 2021)

Percentage (%)	Qualification	Valid Criteria
90-100	Very Worth It	No Revision
75-89	Worthy	No Revision
65-74	Quite Decent	Need Revision
55-64	Not feasible	Revision
0-54	Totally Unworthy	Revision

From the table above, it is stated that the product resulting from the development is said to be valid if the score meets the minimum score criteria of 75, so that the product can be used during the teaching and learning process at school. This practicality analysis is used to determine whether the electronic Indonesian language module teaching materials based on environmental care character values

have sufficiently met the criteria based on student assessments. The following are the criteria for the practicality of teaching materials presented in the table below:

Table 3. Practicality Criteria for Teaching Materials

Percentage (%)	Valid Criteria
75% ≤ RAS ≤ 100%	Can not be used
50% ≤ RAS < 75%	Widely used with many revisions
25% ≤ RAS < 50%	Widely used with minor revisions
0% ≤ RAS < 25%	Can be used without revision

From the results of the user trial assessment, the criteria for the practicality of the teaching materials are at least 75. In addition, most of the students who have been awarded a complete predicate are converted to a percentage using the formula below and analyzed according to the table of criteria for the practicality of the teaching materials from the user evaluation results.

$$PT = \frac{\text{Number of Students Achieved}}{\text{Total Number of Students}} \times 100$$

Information:
PT   : Percentage of students who completed
100%   : Index

The following presents the assessment criteria for user evaluation results, namely:

Table 4. User Evaluation Results Assessment Criteria

Percentage (%)	Criteria
75%≤PT≤100%	Very good
50%≤PT<75%	Good
25%≤PT<50%	Pretty good
0%≤PT<25%	Not good

3. Results and Discussion

The development adopted the ADDIE model which is described through five stages. *First*, the analysis stage, namely identifying learning needs, especially Indonesian in grade V. Next, analyze student characteristics, including learning styles and special needs in learning activities. After that, determine the learning objectives to be achieved, namely understanding the value of caring for the environment. *Second*, the design stage, namely designing Core Competencies, Basic Competencies, indicators, and learning objectives. The material developed in the electronic module for Indonesian language lessons for grade V, second

semester is non-fiction text. The core competencies placed in the electronic module are adopted in the learning syllabus designed according to Permendikbud No. 24 of 2016. After designing the material, create a flowchart of the electronic module based on caring for the environment character values with Microsoft Word. The electronic module is designed using the Flip PDF Professional application. The use of this application aims to ensure that the presentation of the electronic module does not only contain writing but can include other features so that it does not seem boring / monotonous. This application can contain various features such as adding images, writing, videos, animations, hyperlinks, quizzes, and others (Rizaldi et al., 2022; M. N. Sari et al., 2022). The components of the Indonesian language electronic module based on environmental character values are introduction, core competencies, basic competencies, indicators, learning objectives, learning activities, evaluation, bibliography and author biography. The following is the design of the Indonesian language electronic module based on environmental character values, namely:
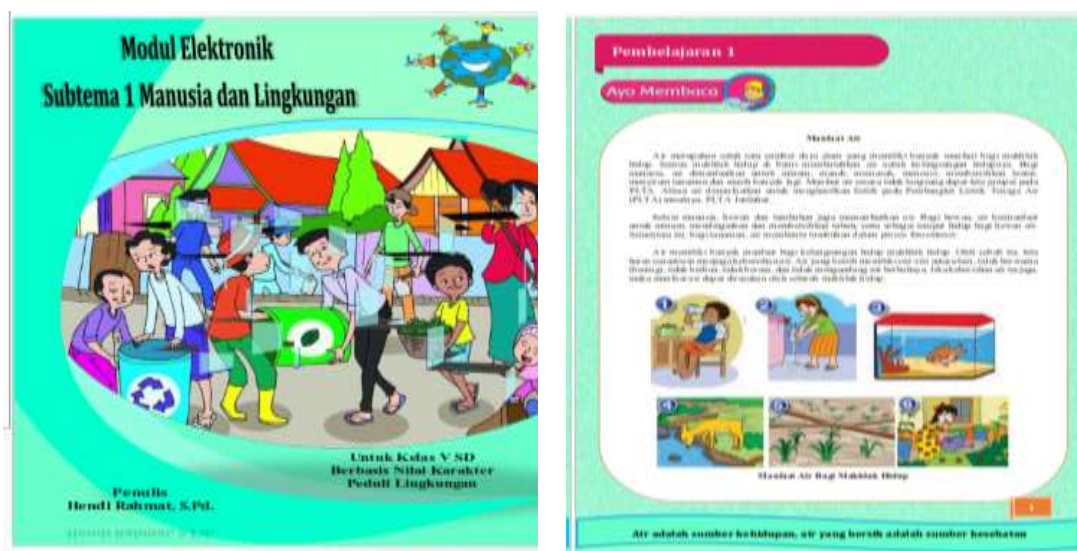

Figure 1. Design of Indonesian Language Electronic Module Based on Environmental Care Character Values

Third, the development stage, namely after the electronic module has been analyzed according to student needs and designed, the next stage is to develop module content in electronic format such as video, text, and interaction. Creating supporting materials such as practice question sheets, answer keys, and assessment rubrics. For practice questions, they are made to adjust to the Minimum Completion Criteria (KKM), which is 70. Practice questions are in the form of 10 multiple choice questions and 5 essay questions. Then the product is tested by several experts to ensure that all components function properly and are in accordance with the Indonesian language material based on environmental

character values. Experts who will validate the Indonesian language electronic module include media experts, material experts, and education practitioners. Several experts are selected according to the criteria of the field of science being taught. Validation with media experts is carried out by lecturers who are experts in the field of graphic design and multimedia by providing a questionnaire containing 10 questions grouped into 2 aspects. The following is a description of the validation results by media experts presented in the table below:

Table 5. Media Expert Validation Results

Aspect	I	II	Max score	Percentage I	Criteria	Percentage II	Criteria
Design Feasibility	117	149	180	65%	L	82.78%	SL
Ease of Use	53	61	75	70.67%	L	81.33%	SL
Average Results of Before and After Validation	170	210	255	66.67%	CL	82.35%	SL

In terms of design feasibility, the score obtained was 14 out of a maximum total score of 19, resulting in a percentage of 65%. This shows that the design meets the criteria as "Very Feasible" (SL) although there is still room for improvement. The user-friendliness aspect scored 61 out of a maximum of 75, with a percentage of 81.33%, which was also stated as "Very Feasible" (SL). This shows that the media developed is quite easy for students to use. Furthermore, in terms of average results, the score achieved was 21 out of 25, with a percentage of 84%, which means that this media meets the criteria (SL). In terms of validation before and after, a score of 170 out of 221 resulted in a percentage of 77.16%, which was stated as "Quite Feasible" (CL). This shows that there are several aspects that need to be improved to achieve higher standards. Validation by media experts is often carried out at the evaluation stage to ensure that the media developed meets the standards set (Syamsuddin et al., 2024). In addition, Gagne's Nine Events of Instruction theory emphasizes the importance of proper design in learning, where the aspect of design feasibility plays a role in attracting attention and managing user interaction (Abuhassna et al., 2024). The following is a bar chart of the results of media expert validation, namely:
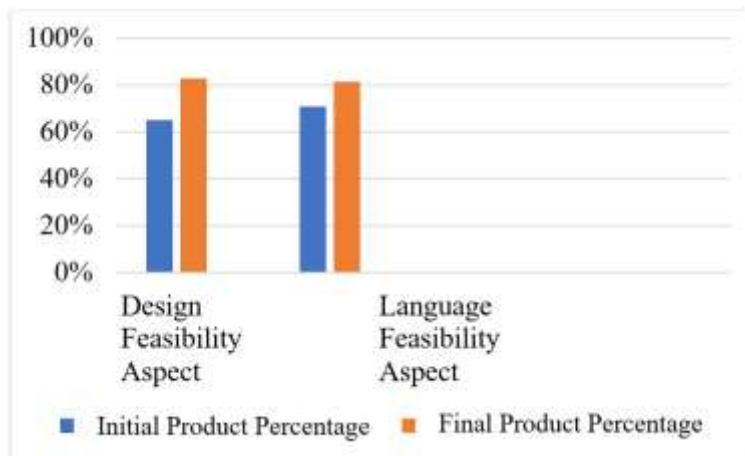
Figure 2. Diagram of Media Expert Results

The diagram above shows a comparison of the percentages between two aspects, namely design feasibility and language feasibility, in two types of products, namely the initial product and the final product. From the results shown, it can be seen that the percentage for the design feasibility aspect in the final product reaches almost 90%, indicating there is a significant increase compared to the initial product, which is around 70%. Meanwhile, for the aspect of language feasibility, there is also an increase, although not as large as in design feasibility, with the initial product being around 60% and the final product around 80%. This improvement shows that, after revision and improvement, both design and language aspects of the product have undergone substantial improvement. This indicates that the product development process has succeeded in improving the quality and feasibility of both aspects.

In the validation of material experts, just like media experts, 10 questions consisting of two aspects were given. The following are the results of the validation of material experts which are presented in the following table:

Table 6. Results of Material Expert Validation

Aspect	I	II	Max Score	Percentage I	Criteria	Percentage II	Criteria
KI and KD	48	62	75	64%	L	82.66%	SL
Material	36	50	60	60%	CL	83.33%	SL
Average results of material expert validation	84	112	135	62.22%	CL	82.96%	SL

The table.6 above shows the results of the validation of material experts related to Core Competencies (KI), Basic Competencies (KD), and subject matter.

The KI and KD aspects scored get 64% in validation I, which is categorized as "L" (Feasible), while in validation II, the percentage increased to 82.66% and was declared "SL" (Very Feasible). This shows significant improvement after the revision, supporting the theory that feedback from experts can improve the quality of the material (Khasanah et al., 2023; Shahputra et al., 2024). For the material aspect, the initial score only reached 50% in validation I, but increased to 83.33% in validation II, also in the "SL" category. The average results of the material expert's validity showed a value of 62.22% for validation I and 82.96% for validation II, indicating a substantial increase in content quality. Previous research by Daniyarti et al., (2024) emphasized that repeated evaluation of learning content is important to ensure that the material is in accordance with applicable education standards. Thus, these results illustrate the effectiveness of the revision process based on expert feedback, which has a positive impact on the feasibility of learning materials. The following is a bar chart of the results of the material expert validation, namely:
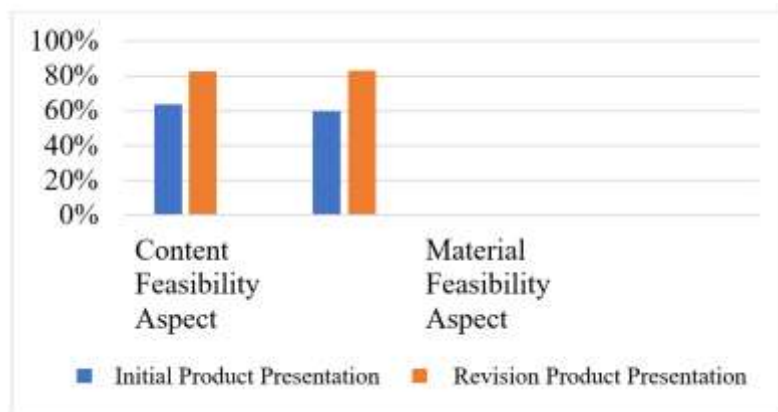

Figure 3. Material Expert Results Diagram

The diagram above illustrates the comparison of the percentage between the aspects of content feasibility and material feasibility in the initial product and the revised product. From the results shown, it can be seen that the percentage of content feasibility for the initial product is in the range of 70%, while after revision, the percentage increased significantly to almost 90%. This shows that the revision process has succeeded in improving the quality and relevance of the content of the material. Meanwhile, for the aspect of material feasibility, the initial product showed a lower percentage, around 60%, but also increased after revision, reaching 85%. This increase indicates that the feedback received during the evaluation stage has been well accommodated in the revision. The development process involving evaluation and revision can have a positive impact on the quality of learning materials, in line with the findings in research by Hardiansyah et al., (2023) which emphasizes the importance of ongoing assessment to improve the effectiveness of educational materials.

In addition to being validated by media and material experts, the electronic module product was validated by educational practitioners. One selected educational practitioner was a class teacher who teaches Indonesian language subjects at SD N 1 Sumber Rejo. The following are the results of the educational practitioner validation presented in the table below:

Table 7. Results of Educational Practitioner Validation

Aspect	I	II	Max score	Percentage I	Criteria	Percentage II	Criteria
KI and KD	87	109	135	64.44%	L	80.74%	L
Material (Content and Learning Evaluation) Validation	54	72	90	60%	CL	80%	L
Average Result	141	181	225	62.67%	L	80.44%	L

The table above shows the results of the validation of educational practices covering aspects of Core Competencies (KI), Basic Competencies (KD), and materials, as well as learning evaluation. In validation I, the score for KI and KD reached 109 out of a maximum score of 135, resulting in a percentage of 64.44% and categorized as "L" (Feasible). However, after revision in validation II, the score increased to 141, with a percentage reaching 80.74% and the category "SL" (Very Feasible). This shows a significant increase in the quality of the material after receiving feedback. The aspects of material and learning evaluation also showed improvement. In validation I, the score for this aspect was 72 out of 90, with a percentage of 80% and the category "L". After revision, the score increased to 91, with a percentage of 87.78% in validation II, so it was also categorized as "SL". The average results of overall validity showed an increase from 62.67% in validation I to 80.74% in Validation II. This improvement supports the theory put forward by Asidiqi et al., (2024), which states that repeated evaluation of learning materials is essential to improve the effectiveness and relevance of educational content. Furthermore, the data from the results were converted into a bar chart to see the percentage of products before and after revision, namely:
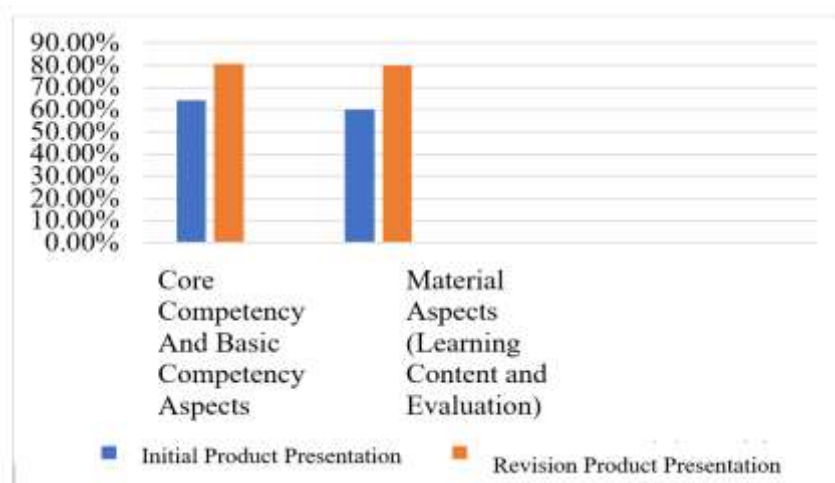
Figure 4. Diagram of Educational Practitioner Results

The bar chart above illustrates the comparison of the percentage between the core competency and basic competency aspects and the material aspects (content and learning evaluation) for the initial product and the revised product. From the diagram, it can be seen that the percentage for the core competency and basic competency aspects in the initial product is around 70%, while after the revision, the percentage increased significantly to almost 90%. This shows that the revision has succeeded in increasing the understanding and relevance of the competencies proposed. Meanwhile, the material aspect in the initial product shows a slightly lower percentage, around 60%, but also experienced a significant increase after the revision, reaching almost 85%. This increase reflects the effectiveness of the evaluation process carried out, where the feedback received is well accommodated in the revision. In line with the opinion Adiningrum & Tyas, (2023) that emphasizes the importance of revising materials based on needs analysis and feedback to improve the quality of education. This significant increase indicates that the development process involving evaluation and adjustment can have a positive impact on the effectiveness of learning materials.

After the electronic module product has been validated by experts, the *fourth stage* is implementation. At this stage, the module is applied to students in grade V of SD N 1 Sumber Rejo. Before being applied to students, this electronic module is applied to Indonesian language subject teachers so that they can use the module effectively during learning. From the application of this electronic module, a field trial was obtained which is described in the following table:

Table 8. Field Test Results

No	Statement	Score
1	Delivery of material	73
2	Physical appearance of the e-module	71
3	Breadth of material	70

4	Summary	74
5	E-module content display	72
6	Display image of e-module contents	71
7	Color display	74
8	Use of language	67
9	Suitability of the concept of environmental care character values	74
10	Motivation and guidance in e-modules	65
Total Score Amount		711
Maximum Score		800
Percentage		88.87%
Criteria		Very interesting

From the results of the table above regarding student responses in the electronic module of Indonesian language based on environmental care character values, the average percentage is 88.87% with a very interesting category, so it means that the electronic module of Indonesian language based on environmental care character values has an effective category as a teaching material. In addition to conducting field tests on the attractiveness of the electronic module product, observations were also made on student activities to determine student performance in using the electronic module. The following is a description of the results of observations of student activities on the operation of the electronic module, namely:

Table 9. Results of Student Activity Observations

Information	n (Question)	
	n1	*n2*
Many students ask	5	4
Asn	16.6%	13.3%
RACE	14.95%	
Criteria	Can be used without revision	

From the table above, the percentage of students asking questions related to the Indonesian language learning module (*n1*) is 16.6%, while the percentage of students asking questions related to understanding the material (*n2*) is 13.3%. So the average percentage of students asking questions (*RAS*) is 14.95%. This percentage shows that the Indonesian language e-module teaching material based on environmental care character values can be used without revision. The *fifth* or final stage is evaluation. This stage is carried out formative evaluation during implementation to see student progress. Collect feedback for improving the electronic module, then conducting a summative evaluation after using the electronic module to assess the attractiveness of the module in achieving learning objectives.

The use of electronic modules in learning has a very positive impact on the formation of the character of elementary school students because electronic modules are one of the learning media that have complete contents, so they are effective in facilitating students in learning activities both at school and at home (Ramadhan et al., 2023; Sa'idah et al., 2024). It can be said that modules are quite ideal for use as independent learning media or distance learning (Azkiya et al., 2022). Learning with modules can increase students' learning motivation (Capinding, 2022; Delıta et al., 2022; Ndoa & Jumadi, 2022); after the end of the lesson, teachers can immediately find out which ones have met the learning achievements and which ones have not; the speed of students in achieving learning outcomes according to their abilities; the learning load is divided more evenly throughout the semester; education is more effective. Electronic modules are equipped with various activities that invite students to do real learning. Instructions for use and guidelines for learning steps in electronic modules are also written clearly and systematically, making it easier for students to know what steps and activities they will do. Electronic modules are also equipped with simple practical activities for students. These practical activities provide students with learning to prepare each tool and material properly and can return them in good condition.

The development of this electronic module has several advantages, but also has several disadvantages. The advantages of this teaching material are (1) this teaching material is designed to be more practical and simple and can be used anytime and anywhere because the media is online-based. (2) The material in the electronic module is packaged by including information from books, *YouTube* and the internet. (3) Exercises can be worked on directly on the electronic module. In addition, the Indonesian language electronic module has several shortcomings, including (1) this media takes a long time in the product manufacturing process. (2) Materials and evaluations cannot be changed according to the teacher's wishes. (3) Media cannot be used *offline*.

4. Conclusion and Suggestions

The development of Indonesian language electronic modules with non-fiction text material can be done using the ADDIE development model which consists of the stages of Analysis, Design, Development, Implementation, and Evaluation. Based on the validation of media experts, it obtained 82.35%, validation of material experts obtained 82.96%, validation of education practitioners obtained 80.44% so that it is categorized as very feasible. Meanwhile, *the* results of field tests on students showed that this module has a very high level of interest with a percentage of 88.87%, and is considered effective as teaching materials. Eelectronic module of non-fiction text material in Indonesian language based on environmental character values. The use of electronic modules has been proven to have a positive impact on student learning, especially in terms of ease of access and relevance of learning. This module is designed interactively with additional features such as images,

videos, animations, and quizzes to create an interesting and non-monotonous learning experience. Further researchers can develop electronic modules that can integrate other technologies, such as augmented reality (AR) or virtual reality (VR), to increase interactivity and student learning experiences.

5. Author Contribution

HR drafted the research concept and design, collected data, and presented tables. JAB and SBO drafted the discussion, conclusion, and abstract.

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