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Development of E-Modules Based on Character Education: Logic Subjects

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ABSTRACT

Character education-based e-modules are an innovation in education that aims to increase the effectiveness of learning and expand accessibility to subject matter by integrating positive values and attitudes in students. Currently, the Logic Learning Module at SMA Satu Padu Boarding School-Tiga Juhar still uses a conventional approach without integrating character education values and has not adopted online learning. This research aims to evaluate the feasibility and effectiveness of developing an e-module based on character education for class XI students in the Logic subject at SMA Satu Padu Boarding School-Tiga Juhar. The research method used was research and development (R&D), with research subjects totaling 19 class XI students. The object of this research is the Basics of Logic material. The research stages include validation tests by material experts, media experts, and design experts, as well as individual and group trials on the use of character-based e-modules. This research also tests the effectiveness of e-modules based on character education. The research results show that students who use e-modules based on character education are "more effective" than students who have not used e-modules based on character education. This was shown in individual testing of the use of character-based e-modules, with a score of 3.45 and a percentage of 68.97% deemed feasible. In the field group testing, it showed a score of 3.78 with a percentage of 75.01% where the criteria were eligible.

KEYWORDS

E-Module; character building; logic.

INTRODUCTION

Character exemplifies a way of thinking and doing that every person needs to have in order to survive and operate in the family, community, country, and state (Suprayitno, 2023). Character education is instruction that is incorporated into all subject areas with the goal of fostering and developing children's behavior overall and in accordance with the values that the school upholds. According to Kesuma (2011: 5), character education in schools is instruction that helps pupils develop and strengthen their overall behavior, which is predicated on particular values that the school upholds.

Damon (2002: 45) writes that character is a set of psychological characteristics of an individual that have an impact on the capacity and willingness of an individual to act morally. Every human being has a tendency to do something good or not, but everything has been regulated in accordance with applicable morals and rules so that what he has done can provide benefits for himself and others.

Character is in behavior. Character involves conscience. Character touches the heart and mind. Lickona (1991: 51) suggests that three interrelated components of character—moral knowing (knowledge about morals), moral feeling (feelings about morals), and moral

action (moral actions)—are emphasized as being important in character education. Knowing the good, loving the good, and seeking the good are the elements of good character.

According to Hurlock (1974: 8), character is "moral standards and involves a judgment of value." Samani (2012: 41) character is defined as certain qualities or traits that set apart a person, a group, or a country's mental complexity, ethical traits, and personal traits. In line with this statement, Kertajaya stated that character is a "characteristic" that a person has (Hidayatullah, 2019: 13). This characteristic is not something that is made up but is genuine and firmly attached to a person's personality and becomes a driving force that encourages a person to be able to do, say, act, and react in a certain way. Character will make a person liked or hated by other people. The formation of a person's character will never be separated from the influence of their environment.

Koesoema (2010: 80) also explains that character can be formed from environmental influences, be they family or society. Referring to some of the definitions above, character can be defined as the fundamental principles that comprise an individual's personality and are shaped by their surroundings that are able to encourage a person to act and behave in everyday life.

A person's personality does not develop overnight. Character develops over time in an individual and systematically. Zubaedi (2011: 45) writes that if a child has problems that are not treated, they will carry over into adulthood. This problem causes high schools to be the initial formal institutions for children to need to develop or integrate character education in the classroom.

One of the subjects that can help build character at Satu Padu Boarding School-Tiga Juhar High School is the logic subject. For high school students, language and logic play an important role in regulating their behavior or character (Bukatko, 2008: 409). A person's character will be seen in the way they convey understanding, concepts, and arguments through language. Pranowo (2009: 3) also stated that politeness in language describes attitudes, behavior, speech, writing, and appearance in everyday life. The importance of logic and language in character development can also be seen in the government's statement in the Education Unit Level Curriculum (KTSP), which states that learning a language is supposed to help students better understand themselves, their culture, and the cultures of others. Language plays a crucial role in the intellectual, social, and emotional growth of students and supports success in all academic pursuits (Depdiknas, 2006:113). With the current curriculum development where schools can develop local content in schools, the presence of the independent curriculum really opens up possibilities for developing student character.

Teachers need to realize that students need guidance from teachers in developing their cognitive, affective, and psychomotor aspects (Rukiyanto, 2009: 3). Every student has different potential. Students' potential will develop well if it is supported by a special connection between the learning environment and the instructor. Based on the statement above, teaching material that is contextual for students and accommodates students to be able to experience various values for themselves with teacher guidance as teaching material will help develop student character. At least eight basic values need to be integrated as the place where character development begins, as decided by the Ministry of Culture and Education. These characters are: religiousness, honesty, intelligence, responsibility, cleanliness and health, discipline, mutual help, logical thinking, critical thinking, creativity, and innovation.

Good teaching materials will help subject teachers deliver teaching materials that are integrated with character development. Thus, character education in teaching materials is

both a potential and a fact that must be an inseparable part of every person developing education, whether educators, education staff, or educational policymakers. Kafarisa (2019: 308) writes that modules are learning media in the type of printed instructional resource that is ready for independent study according to instructions, where the module has quite strong information power. The module can also be used as a guide and tool in an effective, flexible, interesting, and detailed learning process so that it is easy to understand, providing assistance or guidance in mastering the learning targets.

To understand more about the implementation of the character-based high school curriculum by linking the program implemented by SMA Satu Padu Boarding School-Tiga Juhar, namely the development of e-modules based on character education on local logic content at SMA Satu Padu Boarding School-Tiga Juhar, Based on observations and informal interviews at SMA Satu Padu Boarding School-Tiga Juhar, the teaching materials used by teachers and students are package books and diktats obtained, which were prepared by the teacher.

In Dinora and Sholahuddin (2020), Aristotle stated that logic is the teaching of thinking scientifically, discussing the form of thought itself and the laws that control thought. William Alston defined logic as the study of inference, precisely the attempt to determine the criteria that are able to distinguish valid conclusions. from those that are invalid. (Surajiyo and Paleni, 2020: 9). Meanwhile, Alfred Cryril Ewing (in Surajiyo and Paleni, 2020: 9) believes that logic is the study of various types of propositions and their relationship to each other, which can determine the truth of a conclusion.

Furthermore, Fudyartanta in Surajiyo (2020: 8) defines logic as a science that studies in depth the truth of thinking. In other words, logic is a fundamental and widespread science of correct thinking so that the results are correct and valid. Meanwhile, according to Hasbullah Bakry in Surajiyo (2020: 8), logic is a science that regulates research into the laws of human reason so that their minds can reach the truth. This is related to the fact that logic can also study rules and ways of thinking that can lead humans to truth, and logic studies the work of reason from the perspective of right or wrong.

Herawati and Muhtadi (2018: 182) stated that an innovative media that might boost students' enthusiasm in studying is electronic modules. An adequate learning guide is necessary to help a learning process that can raise the accomplishment of learning outcomes. This is a result of the extremely small amount of in-person time spent in front of the class relative to the amount of work that needs to be done. As a result, a learning guide that can engage pupils in the learning process is required. Electronic modules are one type of learning aid that enables teachers to enhance student learning outcomes while emphasizing students' active independence.

An electronic version of a module, or a "e-module," is one that can be accessed and used via computers, laptops, tablets, or even smartphones. You can use Microsoft Word to create the text in the e-module. However, in order to show interactive media, e-modules need to be made with specialized e-book applications like Caliber, iBooks Author, Flipbook Maker, and so forth. The fact that e-modules come with interactive media—such as audio, video, animation, and other interactive features—that students can use and replay gives them an advantage over printed teaching materials. Because they may present instructional materials that are comprehensive, engaging, interactive, and perform well cognitively, e-modules are regarded as innovative. E-modules have been shown to increase students' critical thinking abilities and elicit positive responses, according to Suarsana and Mahayukti (2013: 194).

Widiana and Rosy (2021: 3729) write that Modules are printed instructional resources intended for use by students in self-directed learning activities. Because they include

guidelines and methods for students to do self-study, modules are sometimes referred to as independent learning media. This indicates that pupils may complete the learning process on their own without the assistance of specific teaching personnel. Because e-modules provide instructions for the independent learning process, they are an effective and efficient way to compile material for students to use as instructional material on their own. This implies that even in the absence of an instructor, pupils are still able to complete their teaching and learning tasks on their own. Electronic modules, which include animation, audio, and navigation, are a method of presenting autonomous learning materials that are methodically organized into the smallest learning units to accomplish specific learning objectives. Nurmayanti et al. (2015: 337) further clarify this point. increase user interaction with the software.

Several principles in developing e-modules from research by Laili et al. (2019: 309) are: E-modules have the following benefits: (a) They can pique students' interests; (b) They are written and designed with students in mind; (c) They formulate learning objectives; (d) They package flexibly; (e) They arrange in accordance with the needs and learning objectives that students wish to attain; (f) Practice opportunities are the main focus. (g) Assisting those who struggle with learning; (h) necessitates a cautious navigation system; (i) offering summaries; (j) semi-formal, communicative, and interactive language is employed; (k) it was designed with the learning process in mind. (l) necessitates a learning plan that includes an introduction, a presentation, and a conclusion; (m) offers feedback; (n) facilitates self-evaluation; (o) describes how to utilize the e-module; and (p) offers comprehensive usage instructions.

The formulation of the problem in this research includes: (1) Is the Character Education-based Logic e-Module developed suitable for use by class XI students in Logic Local Content at Satu Padu Boarding School-Tiga Juhar High School?; and (2) Is the Logic Module based on Character Education that was developed effective for class XI students in Local Logic Content at SMA Satu Padu Boarding School-Tiga Juhar?

RESEARCH METHODS

Research and development techniques are used in this study. Using this research methodology, specific items are created and their viability, efficacy, and usefulness are evaluated. The research's output takes the shape of creating a product and determining its viability. Therefore, the goal of the development research will be to create an e-module that combines local logic content and character education.

This research was carried out at the Satu Padu Tiga Juhar Boarding School, Deli Serdang Regency. Additionally, the time needed to construct e-module learning tools based on local logic content character education People who participate in research are known as research subjects. This study's participants are local content logic students. The object of this research is students who use e-modules based on character education on local logic content.

The development steps chosen by researchers refer to the ten steps for implementing research and development tactics using Thiaragajan's 4D model. The 4D (four-dimensional) research and development model is referred to as the development model in this study. The four primary phases of the 4D research and development paradigm are define, design, develop, and disseminate, according to Thiagarajan et al., (1974: 5). Meanwhile, 4P, which stands for defining, designing, creating, and distributing, can be adopted from the 4D development model, claims Triyanto (2010: 189). The application of the key phases in research is not only according to the original form but is also modified to the features of the subject and the place of origin of the examiner.

The material experts referred to here are lecturers in the same scientific field. This feasibility validation instrument is intended to fulfill the requirements for developing a learning model regarding the appropriateness of the content, which can be seen in Table 1 below:

Table 1. Instrument Grid for the Appropriateness of Learning Materials for Character Education

No	Assessment Aspects	Indicator
1.	Relevance	1. The content is pertinent to the learning objectives that students need to achieve 2. The tasks are pertinent to the knowledge and skills that students need to acquire. 3. Illustrations pertinent to the knowledge objectives that pupils need to acquire. 4. The questions and exercises relate to the knowledge that students need to gain. 5. Extent of description based on pupils' developmental stage. 6. The material description is comprehensive and suitable for the pupils' developmental stage. 7. The material's description satisfies the curriculum's requirements. 8. An adequate quantity of experience
2.	Accuracy	1. The information provided is consistent with the veracity of science. 2. The information provided is consistent with advancements in science 3. The information provided is consistent with common knowledge. 4. The packaging material complies with scientific advancements.
3.	Completeness of the dish	1. Presents the competencies that must be mastered. 2. Outlines the advantages and significance of developing lifelong abilitie 3. Provides written references and sources of information.
4.	Systematic	1. The material description follows the logic of going from simple to complicated. 2. Adherence to a student-centered approach to learning. 3. Promote pupils' natural curiosity. 4. Promote communication. 5. Motivate pupils to expand their own knowledge. 6. Promote group learning among pupils.
5.	Method of Presentation	1. Supports devotion to God Almighty. 2. Support the emergence of local wisdom 3. Supports the emergence of nationalism 4. Supports logical thinking.
6.	Conformity with EYD rules	1. Accuracy of spelling. 2. Accuracy of term selection. 3. Accuracy of sentence structure preparation.
7.	Learning Communication	1. The sentence's length is suitable for the comprehension level of the pupils 2. The sentence structure is easy for pupils to understand since it is appropriate for their level of knowledge (semi-formal). 3. The language used is not very standard

Table 2. Level of Tendency in Material Assessment of Character Education

No.	Categorization	Score Range	Information
1	Very good	85% - 100%	No need for revision
2	Good	75% - 84%	No need for revision
3	Sufficient	65% - 74%	Needs to be revised
4	Not good	55% - 64%	Needs revision

The following formula can be used to determine the assessment's overall score:

$$\text{Percentage of eligibility} = \frac{Total\ scores\ from\ data\ collection}{maximum\ ideal\ scores}\ x\ 100\%$$

The percentages that have been obtained are then converted into a table to make it simple to read the study findings. Establishing qualitative criteria is accomplished by:

1) Ascertain that the maximum score, or ideal score percentage, is 100%.
2) Find the lowest percentage score, or minimum score, which is 0%.
3) Calculate the range: 100-0 = 100.
4) The desired interval is equal to 4 (very feasible, practicable, fairly feasible, and less feasible).
5) The interval's breadth is equal to 100/4 = 25.

The homogeneity test is used to determine whether the sample obtained comes from a homogeneous population or not. To test homogeneity, an F test will be carried out. The procedure used to test homogeneity of variance in groups is to find the value of $Fmax$. The Ho test decision is accepted if the $Fhitung \leq Ftabel$ F value is not significant, this means that there are no differences which means the samples are similar, or homogeneous.

The F test is used to calculate the variance homogeneity test, specifically:

$$F = \frac{Largest\ Variance}{Smallest\ Variance} \text{ or } F\ \frac{s_1^2}{s_2^2}$$

(Sudjana, 2002)

Information:

S_1^2 = Variance of the larger group

S_2^2 = Variance of the smaller group

Tester criteria:

If Fcount < Ftable then the sample has normal variance

If Fcount > Ftable then the sample does not have normal variance

T test (Paired and Two Independent Samples (Parametric) The purpose of this test is to compare the experimental class's and the control class's cognitive aspect scores. Use spss to calculate the calculated t. The following formula is used to measure the effectiveness using the t-test:

$$T = \frac{x-\mu}{\frac{s}{\sqrt{n}}}$$

Information:

T = Calculated value of t

$\bar{X}$ = sample mean

μ = parameter value

s = sample standard deviation

n = number of samples

RESULTS AND DISCUSSION

Character-based e-module products are verified by media and material specialists to ascertain whether or not the product's accuracy is appropriate for usage in high school logic lessons for regional content. The analysis data from the validation questionnaire shows the following validation results:

Table 3. Material Expert Validation Results

No.	Aspect	Indicator	Score	Percentage	Category
1.	Self Instruction	- The learning objectives align with the core and basic competences that are currently in place.	4	80	Worthy
		- The module's content is in line with both fundamental and core capabilities.	4	80	Worthy
		- The information is presented logically.	3,5	70	Worthy
		- Students can easily understand the subject that is being delivered.	4	80	Worthy
		- The material presented can be understood easily by students.	4	80	Worthy
		- The presentation of the illustrations complies with the module's material content.	4	80	Worthy
		- The issues raised may have to do with the task's context or the student's surroundings.	4	80	Worthy
2.	Self Contained	- Content of the module is appropriate for both core and foundational capabilities.	4,5	90	Very Worthy
		- The competency material presented contains core competency units and basic competencies.	4	80	Worthy
3.	Stand Alone	- It is possible to study module content independently of other modules.	3,5	70	Worthy
4.	Adaptive	- The module's content is in line with advances in science and technology.	4	80	Worthy
5.	User Friendly	- You can study the module content whenever and wherever you like.	4	80	Worthy
	Total		47,5		
	Mean		3,95	79,16	Worthy
	Category		Worthy		

As can be seen from Table 3 above, the Material Expert Validator's average response is 3.95, with 79.16% of the answers falling into the right category. This can be interpreted as meaning that, from the material or substance point of view, the logic material in Class XI High School Local Content from this character-based e-module device is suitable for use.

Table 4. Media Expert Validation Results

No.	Aspect	Indicator	Score	Percentage	Category
1.	Desain	- Ease of access to media (there are tools that help)	4	80	Worthy
		- Layout that is practical and easy to observe	3,5	70	Worthy
		- Contrast color selection	4	80	Worthy
		- Proportion of material to learning objectives	4	80	Worthy
		- When compared to the size of internet pages, the ratio of font sizes for titles, subtitles, and supporting text for modules is more pronounced and formal.	4	80	Worthy
2.	Layouts	- Component compatibility with the intended arrangement.	4	80	Worthy
		- The degree to which educational materials employ letters is appropriate.	3,5	70	Worthy
		- Uniformity and thoughtful photo selection that enhances the page with educational content.	4	80	Worthy
3.	Graphics	- The appropriateness of video content featuring graphics or visuals within the narrative presented in digital educational resources.	4	80	Worthy
		- Considering the pupils' age, the image or visual information in the chosen film is understandable and straightforward.	4	80	Worthy
4.	Visual Commu nication	- The material in the teaching materials is conveyed well	4,5	90	Very Worthy
		- Playing educational videos on engaging e-learning resources.	4	80	Worthy
		- The content being taught can be explained by the appropriate display of pictures, videos, and text.	4	80	Worthy
	Total		26		
	Mean		3,96	79,23	Worthy
	Category			Worthy	

From Table 4 above, it can be concluded that the average answer from Media Expert Validators is 3.96 in the appropriate category. This can be interpreted as meaning that, from the perspective of the substance of the learning medium, this character-based electronic module device is functional.

Table 5. Design Expert Validation Results

No.	Aspect	Indicator	Score	Percentage	Category
1.	Serving equip-ment	- Presents the competencies that must be mastered..	4	80	Worthy
		- explains the advantages and significance of developing lifelong competencies.	4	80	Worthy
		- Presenting sources of references/writing references	4,5	90	Very Worthy
2.	Syste matics	- The material's description proceeds from simple to complicated in thought.	4	80	Worthy

		- Compatibility with learner-centered learning.	4	80	Worthy
		- Encourage students' curiosity.	3,5	70	Worthy
		- Encourage interaction.	3,5	70	Worthy
		- Motivate pupils to expand their own knowledge. Students should be urged to study in groups.	4	80	Worthy
3.	Ways of Serving	- Supports devotion to God Almighty	4	80	Worthy
		- Support the emergence of local wisdom.	4	80	Worthy
		- Supports the emergence of nationalism.	4	80	Worthy
		- Supports logical thinking.	4	80	Worthy
4.	Communicativeness	- Communicativeness Sentence length is appropriate to the level of students' understanding.	4	80	Worthy
		- The sentence structure is appropriate to the level of students' understanding (semi-formal) so that it is easy for students to understand.	4	80	Worthy
		- The language used is not very standard	4	80	Worthy
	Total		59,5		
	Mean		3,96	79,23	
	Category			Worthy	

From Table 5 above, it can be concluded that the average answer from Design Expert Validators is 3.96 in the appropriate category. This can be interpreted as meaning that, from the perspective of the substance of the learning medium, this character-based e-module device is suitable for use.

Table 6 below displays the percentage responses from the material and media expert validation questionnaire:

Table 6. Material and Media Expert Validation

No.	Expert Validation	Score	Percentage	Category
1	Material Expert	3,95	79,16	Worthy
2	Media Expert	3,96	79,23	Worthy
3	Design Expert	3,96	79,23	Worthy
	Average	**3,96**	**79,2%**	Worthy
	Category		Worthy	

From Table 6 above, it can be concluded that the average validation questionnaire answers from Material Experts, Media Experts, and Design Experts are 3.96 (Worthy), with the category Suitable for Use in Local Logic Content at SMA Satu Padu Tiga Juhar. The next part of the development research is dissemination. This character-based e-module product can be used for all class XI high school students.

The results of individual trials using e-learning tools can be seen in Table 7 below:

Table 7. Results of Individual Trials of Character-Based e-Module Devices

No.	Expert Validation	Score	Percentage	Category
1	Design	3,96	79,2	Worthy
2	Layout	3,07	61,3	Worthy
3	Graphics	3,50	70	Worthy
4	Visual Communication	3,27	65,4	Worthy
	Average	**3,45**	**68,97%**	
	Category		Worthy	

In individual testing of the five people in the table above, it can be said that the use of character-based e-modules with a score of 3.45 and a percentage of 68.97% is said to be feasible. In the results of this trial, the local logic content teacher in class XI saw that the product directed students to character learning with logic material, which could support their understanding of how ethics starts with logic in their knowledge.

The results of individual trials using e-learning learning tools can be seen in table 8 below:

Table 8. Results of Field Group Trials on Character-Based e-Modules

No.	Expert Validation	Score	Percentage	Category
1	Design	3,83	76,53	Worthy
2	Layout	3,69	73,77	Worthy
3	Graphics	3,80	73,77	Worthy
4	Visual Communication	3,80	76	Worthy
	Average	**3,78**	**75,01**	
	Category		Worthy	

Data processing of 19 students from class XI A using SPSS from the results of student pretests through paper-based where the questions have been valid where the pretest questions are taken from the existing questions with the following processing results:

Table 9. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
NILAI PRETEST	19	65.00	7.071	1.622
NILAI POST TEST	19	77.89	3.843	.882

Table 10. One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
NILAI PRETEST	40.069	18	<,001	65.000	61.59	68.41
NILAI POST TEST	88.359	18	<,001	77.895	76.04	79.75

Table 11. One-Sample Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
NILAI PRETEST	Cohen's d	7.071	9.192	6.179	12.197
	Hedges' correction	7.384	8.803	5.917	11.680
NILAI POST TEST	Cohen's d	3.843	20.271	13.691	26.841
	Hedges' correction	4.013	19.412	13.111	25.705

a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation.
Hedges' correction uses the sample standard deviation, plus a correction factor.

The t test above shows that the pretest value is 40.069 > 2.100 and the post-test value is 80.359 > 2.100. This also explains that there are indications that the influence of the character-based e-module learning tools greatly influences students' learning and character, as demonstrated by the test results that were conducted. The alternative hypothesis is

adopted if the estimated t value is higher than the t table and indicates a distinct difference between the two differentiations.

Data processing on 19 students from Class XI using SPSS from the results of student posttests through online tests on character-based e-modules has the following values:

Table 12. Anova Model Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	284.530	1	284.530	7.859	.012[b]
	Residual	615.470	17	36.204		
	Total	900.000	18			

a. Dependent Variable: Score of pre-test
b. Predictors: (Constant), Score of post-test

Table 13. Coefficients Model Test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-15.594	28.782		-.542	.595
	NILAI POST TEST	1.035	.369	.562	2.803	.012

a. Dependent Variable: Score of pre-test

The F test above shows that the F value is 7.859 > 4.45. This also explains that it is indicated that the influence of the character-based e-module learning tools greatly influences students' learning and character, as demonstrated by the outcomes of the tests conducted, or it can be said that the alternative hypothesis from this development research is accepted.

Discussion

The research carried out to develop this character-based e-module product experienced several problems when meeting the needs of local content teachers who wanted learning media that could motivate students to think more critically in responding to issues of character formation in the midst of the family, school, and especially the environment. in society. Guided by the Thiaragajan 4D development model, researchers explored materials, questions, and approaches that could maximize the learning process of local logic content at Satu Padu Tiga Juhar High School, and this was not easy due to the psychological development of students to respond to local content. Logically, there is still little information available, but in reality, they have experienced a process of developing their thinking and in-depth knowledge.

The feasibility of this character-based e-module device is in line with research by Amartha et al., (2022), which explains that E-modules centered on character education are highly qualified and appropriate for use as a teaching tool. He added that e-modules can build student enthusiasm and increase students' curiosity to continue to try and hone students' abilities through practice questions to develop students' interests so that they can improve learning outcomes and increase students' character values.

In line with that, Denay et al. (2021) stated that the results of his research on character education during this pandemic could not be implemented optimally and that the learning process was not supported by the instructional materials provided. This still has an impact on several laziness factors that arise in high school students who are less challenged in their personal development to be able to show the potential of their respective

characteristics. If we look at the results of this research, it is also possible to argue that the work done on this character-based e-module product serves as a link for students to learn the fundamentals of knowledge. learning, and experience in students so that these character values are clearly visible. in learning itself.

Lestari (2020) also explained from their research that the development of contextual and character-based e-modules includes feasibility stages carried out by validators testing student replies to ascertain the degree of validity and practicality phases and learning implementation to find out whether the product is practical or not. e-module that has been created. The testing carried out was in line with the process carried out by researchers for this character-based e-module, where what was obtained during development was to test how the biases that existed in the research were minimized so that students could independently develop their learning experiences in developing their own characters.

The novelty of this research is that logic learning materials at the high school level have not yet been developed in several schools in Indonesia. Testing at Satu Padu Tiga Juhar High School is relatively new and can really support students' character learning in class and at home with further research and development of certain points that need to be developed on a large scale. And this is the big hope that researchers will continue the next research.

CONCLUSION

The following conclusions can be drawn from the formulation, goals, findings, and discussion of character-based e-module development research:

1. In individual testing, the use of character-based e-modules with a score of 3.45 and a percentage of 68.97% was said to be feasible.
2. In the field group testing, it showed a score of 3.78 with a percentage of 75.01%, where the criteria were appropriate. The variety of 15 classes
3. Material Expert Validator 3.95 has a percentage of 79.16% in the appropriate category. This can be interpreted as meaning that, from the material or substance point of view, the logic material in Class XI High School Local Content from this character-based e-module device is suitable for use.
4. Media Expert Validator 3.96 is in the appropriate category. This can be interpreted as meaning that, from the perspective of the substance of the learning medium, this character-based e-module device is suitable for use.
5. Design Expert Validator 3.96 is in the appropriate category. This can be interpreted as meaning that, from the perspective of the substance of the learning medium, this character-based e-module device is suitable for use.

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