SPEKTRA: Jurnal Kajian Pendidikan Sains
Vol. 10, No. 2, 2024, pp. 318-325
ISSN: 2548-642X, DOI: 10.32699/spektra.v10i2.7774

DEVELOPMENT OF INDEPENDENT CURRICULUM TEACHING MODULES BASED ON LOCAL WISDOM TO IMPROVE STUDENTS' CRITICAL THINKING SKILLS

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Article Info

Article history:
Received 30/07/2024
Accepted 07/10/2024
Published 10/10/2024

Keywords:
Teaching module;
Teaching module based on local wisdom;
Critical thinking skills;

ABSTRACT

This study is Research and Development (R&D). Development was conducted by referring to the ADDIE model. The ADDIE stages included the analysis, design, development, implementation, and evaluation stages. This development research aims to: (1) create self-contained curriculum teaching modules based on local knowledge to enhance students' critical thinking abilities that satisfy acceptable standards, (2) produce independent curriculum teaching modules based on common sense to enhance students' critical thinking abilities that satisfy realworld requirements, (3) describe the effectiveness of using independent curriculum teaching modules based on common sense to enhance the developed critical thinking skills of students. The test subjects for this research were 35 students in grade X.B of SMAN Negeri 12 Luwu. This study used validation sheets for modules of instruction based on local wisdom as its instruments, practitioner assessment questionnaires, namely Physics subject teachers, and critical thinking skills test instruments. The eligibility criteria for teaching modules were based on the content validity aspect. The assessment of practitioners, or Physics teachers, served as the basis for the practicality of the teaching modules, and student improvement on critical thinking tests served as the basis for the effectiveness of employing local wisdom-based teaching modules. The following deductions are made based on the analysis's findings: (1) The Aiken's V content validity coefficient results show that the independent curriculum teaching modules based on local wisdom that were developed meet the valid/feasible category; (2) the practitioners' responses to the independent curriculum teaching modules based on local wisdom which had been developed, gave positive responses in excellent category;(3) the effectiveness of using independent curriculum teaching modules based on local wisdom with a percentage of 57% is in effective category. This means that the local wisdom-based teaching module that had been developed is beneficial for raising kids' critical thinking abilities.

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1. INTRODUCTION

Students are expected to be more aware of their surroundings and capable of using their own skills to solve problems in the 21st century. Technology advancements have made learning

easier and the search for different learning resources easier because learning is no longer restricted by time or place. The use of technology as a learning medium is an effective tool in improving students' critical thinking and problem solving skills (Sitaman, 2023). According to Trilling & fadel (2009), in the 21st century the learning skills that students must have are "7C", namely critical thinking and problem solving, creativity and innovation, collaboration, teamwork, and, cross-cultural understanding, communications, information, and media literacy, computing and ICT literacy, and career and learning self-reliance. Based on a study conducted by an institution called the Partnership for 21st century skills, critical thinking skills are one of the essential skills that students must have. This skill is very useful for students in facing the conditions that exist in society today.

The Republic of Indonesia's (Kemendikbud Ristek RI) Minister of Education, Culture, Research, and Technology, Nadiem Makarim, personally introduced the "Freedom to Learn" curriculum, whose central tenet is the freedom to think. According to Izza et al., (2020), teachers are allowed to independently develop and translate the curriculum before explaining it to students. This allows teachers individual as they are. Teachers need to make sure the learning process is well-planned before they can begin any learning activities. This kind of planning is referred to as a teaching module in the autonomous curriculum. Teaching modules are educational resources that include content, instructional strategies, constraints, and techniques for assessing learning activities that are methodically and creatively created to support the acquisition of the required competencies. According to Maipita et al., (2021), the independent curricular teaching module is currently regarded as an essential tool for the successful implementation of learning under the new paradigm.

The phrase "Independent Curriculum teaching module" describes a range of materials, such as media facilities, strategies, instructions, and guidelines, that are naturally, pleasantly, and methodically developed with the needs of the students in mind. As an application of the Learning Objectives Flow (ATF), which was developed with the Pancasila Student Profile as its goal, the teaching module itself can be understood and evolved from Learning Achievements (CP). The order of teaching modules is determined by the stage or phase of student growth. Clear learning objectives and the content to be learned are also considered in teaching modules. The foundation for development is, of course, long-term focused. To increase the significance and engagement of the learning process, teachers must also be aware of and comprehend the idea of teaching modules (Rahman, 2022).

If one were to interpret the Independent Curriculum, it would emphasize allowing instructors the autonomy to create their own modules. The federal government provides educational modules that teachers can select from or even alter (Utami, 2022). Instructors must, of course, create autonomous curriculum teaching modules that use local wisdom that has long been ingrained in and followed by students as members of the local community in order to construct learning so that it appears "*user friendly*" to students. Modifications must still be appropriate for the corridor, tailoring the lesson plan to the individual needs of the pupils. The training modules that have been approved by professionals and experts are the ones that can be used.

Utilizing a research model modified from the ADDIE development model, the local wisdom-based physics learning module comprises of Analysis, Design, Develop, Implement, and Evaluate, which is categorized as valid and received a positive response from teachers and students. This is consistent with research conducted by Afdalia, Arsyad, and Kaharuddin (2020).

Validation is used to ensure that learning products are appropriate for use in the learning process and to develop high-quality, pertinent, and theoretically-based goods. Aside from that, the effectiveness of utilizing the module is deemed successful, leading to the classification of the local wisdom-based module as an educational tool that can encourage a love of the regional culture in the immediate area. It is imperative that teaching modules incorporate local wisdom values in order to instill strong character qualities in students. Acquiring knowledge of local wisdom is very suitable for a self-directed curriculum that prioritizes the development of character.

2. METHOD

The ADDIE (analysis, design, development, implementation, and evaluation) development paradigm was applied in this study, which is classified as research and development (R&D) to create an autonomous curriculum teaching module based on traditional knowledge that will enhance students' critical thinking abilities. This development research was conducted at SMA Negeri 12 Luwu, which is situated in Kamanre District, Luwu Regency, in the Even Semester of the academic year 2023/2024. Validation sheets, practitioner assessment questionnaires, and tests of critical thinking abilities were the instruments employed in this study. It has undergone expert validation and analysis utilizing the expert agreement index of AIken's V.

The content validity coefficient (Aiken's V) was employed in the analysis by three experts to ascertain the degree of relevance. The results of each expert's evaluation of an item using equation 1 form the basis of the content validity coefficient, is determined by the Aiken's V formula (Retnawati, 2016).

$$\mathrm{V} = \frac{\Sigma s}{n(c-1)} \tag{1}$$

Critical thinking skills exams are used to gauge how well autonomous curriculum teaching modules based on local wisdom are being used. The test used to measure critical thinking abilities by conducting tests before (*pretest*) and after (*posttest*) using local wisdom-based teaching modules is arranged as follows in Table 1 according to the categories listed below.

Table 1. Category Percentage of Critical Thinking Skills (Adapted from Arini & Fikri, 2018).

Percentage (%)	Criteria
$24 < X \leq 30$	Very high
$18 < X \leq 24$	Tall
$12 < X \leq 18$	Currently
$6 < X \leq 12$	Low
$0 < X \leq 6$	Very low

Sundayana (2014), states that the following formula is used to determine N-gain:

$$Normalized\ Gain\ (G) = \frac{X_{posttest} - X_{pretest}}{X_{max} - X_{pretest}} \times 100\% \tag{2}$$

Table 2 shows the following criteria for interpreting the gain index:

Table 2. Normalized Gain Criteria (Sundayana, 2014)

Gain Value Normalized	Interpretation
$0.70 \leq g < 1.00$	Tall
$0.30 \leq X < 0.70$	Currently
$0.00 < X \leq 0.30$	Low
$g = 0{,}00$	No Increase Occurred
$-1.00 \leq g < 0.00$	There was a decline

Next, for effectiveness use module teach based wisdom local categorized as based on interpretation effectiveness *N-gain score* on Table 3 as following :

Table 3. Interpretation Effectiveness *Gain Score* (Adapted Febrinita, 2017)

Percentage (%)	Classification
<40	Ineffective
40 – 55	Insufficiently Effective
56 – 75	Effective
>76	Very Effective

3. RESULTS AND DISCUSSION

The development results, practitioner assessment analysis results, and analysis results of students' improved critical thinking abilities following the research's conclusions are incorporated into the use of locally wise teaching modules. Further details are provided below:

3.1. Results of Expert Assessment of Local Wisdom-Based Teaching Modules

Table 4 below lists the expert agreement indexes for the topic suitability, presentation, language, and graphics components as well as the findings of the expert evaluation of the local wisdom-based training modules using the content validity coefficient analysis test:

Table 4. Results Validation of Content Based Teaching Modules Wisdom Local

Aspect Appropriateness	Score Acquisition	Score Ideal	Percentage Score (%)	Index Validation	Inf.
Contents	158	192	82.3	0.76	Valid
Presentation	159	192	82.8	0.77	Valid
Language	153	192	79.6	0.72	Valid
Graphics	81	96	84.3	0.79	Valid

According to Table 4 above, which shows the outcomes of the validator's validation of the developed local wisdom-based teaching module using Aiken's V formulation, namely in the aspect of content suitability, obtained a score of 158 from the ideal score of 192, obtained an expert agreement validation index of 0.76 and was declared valid. In the feasibility aspect of presentation,

a score of 159 was obtained from the ideal score of 192, an expert agreement validation index was obtained of 0.77 and it was declared valid. In the language suitability aspect, a score of 153 was obtained from the ideal score of 192, it was deemed legitimate after an expert agreement validation index of 0.72 was obtained. With an expert agreement validation index of 0.79 and a score of 81 out of a possible 96 for graphic feasibility, the result was deemed valid.

3.2. Results of the Critical Thinking Skills Test Validation

Table 5 below displays the findings of the critical thinking skills test validation coefficient analysis for each indicator of interpretation, analysis, and inference:

Table 5. Results Validation Test Skills Think Critical

Aspect Skills Think Critical	Score Acquisition	Score Ideal	Percentage Score (%)	Index Validation	Inf.
Interpretation	99	120	82.5	0.77	Valid
Analysis	101	120	84.2	0.79	Valid
Inference	99	120	82.5	0.77	Valid
Index Agreement Expert				0.78	Valid

Based on the findings of the validation analysis for the three indicators that comprise the criteria for the critical thinking skills test instrument, an average validity value (V) of 0.78 was obtained. This means that the value is greater than the minimal validity value, which is ≥ 0.4. The utilization of local wisdom-based teaching modules was tested using a critical thinking skills test instrument, and the results indicate that the test is valid and appropriate for usage with minor modifications.

3.3. Practitioner Responses to Local Wisdom-Based Teaching Modules

Data from the analysis of practitioners' assessments of the local wisdom-based teaching modules that have been developed is displayed in Table 6 below.

Table 6. Percentage Evaluation Practitioner to Teaching Module Based Wisdom Local

Rated aspect	Percentage (%)	Category
Content Eligibility	83.3	Excellent
Appropriateness Presentation	84.4	Excellent
Appropriateness Language	82.7	Excellent
Appropriateness Graphics	86.3	Excellent

Based on Table 6, it displays the findings of the evaluation of the local wisdom-based teaching module that was created by ten physics subject teachers. Specifically, an average of 83.3% of teachers evaluated the suitability of the content in the module in the very good category;

an average of 84.4% evaluated the suitability of the presentation in the module in the very good category; an average of 82.7% evaluated the suitability of the language in the teaching module in the very good category; and an average of 86.3% evaluated the suitability of the graphics in the offering. Based on the combined interpretation standards, the percentage point worth of every element.

3.4. The efficiency of using modules from the independent curriculum based on local wisdom to enhance students' critical thinking abilities

Table 7 below tabulates the critical thinking skills test analysis results before and after the local wisdom-based training module was administered.

Table 7. Results Analysis Statistics Skills Think Critical Participant Educate

Parameter	Skills Think Critical Participant Educate	
	Pretest	***Posttest***
Sample	35	35
Maximum Ideal Score	30	30
Minimum Ideal Score	0	0
Score Empirical Maximum	25	28
Score Empirical Minimum	6	11
Average Score	15.74	23.57

It is evident from Table 7 above that students' critical thinking abilities have improved between the pretest and posttest. Thirty-five students participated in the local wisdom-based teaching module trial. While students' average score on the posttest was 23.57, their average score on the pretest was 15.74. Figure 1 below shows the format of the pretest and posttest results diagram:

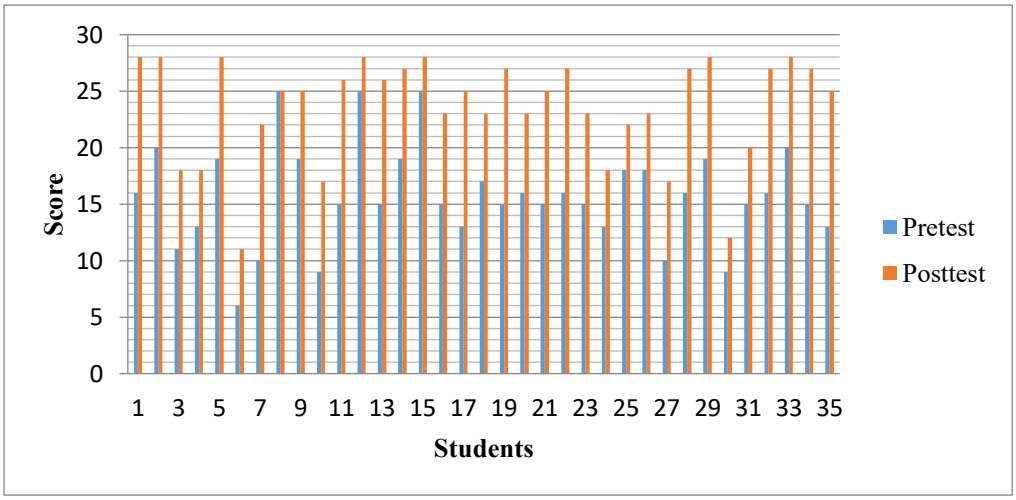

Figure 1. Critical thinking abilities on the pretest and posttest

The students' pretest and posttest data were analyzed using N-gain to see if using local wisdom-based training modules had enhanced their critical thinking skills. The analysis's findings demonstrated that most students' critical thinking abilities increased both before and after utilizing teaching modules based on local wisdom. The N-gain analysis's findings are displayed as follows in Table 8.

Table 8. Skill N-gain Value Think Critical Participant Educate

Normalized Gain Quantity	Meaning	Rate	Percentage (%)
0.70 ≤g ≤1.00	Tall	15	43
0.30 ≤g ≤0.70	Currently	14	40
0.00 <g ≤0.30	Low	5	14
g =0.00	No Happen Enhancement	1	3
-1.00 ≤g <0.00	Happen Decline	0	0
Amount		35	100
Overall N-Gain Score		0.57	
%N-Gain		57 %	

According to Table 8, the number of students who have improved their thinking skills is as follows: 15 students in the high category (with a percentage of 43%), 14 students in the medium category (with a percentage of 40%), and 14 students in the critical thinking skills improvement category (with a percentage of 40%). crucial. There were no students in the declining category, five students with a percentage of 14%, and one student with a percentage of 3% who did not demonstrate growth in critical thinking abilities. Students' average N-Gain score for critical thinking abilities is 0.57 overall, falling into the medium range. Table 9 below shows the outcomes of how well local wisdom-based teaching modules work. Table 9 shows that, with a percentage of 57%, the efficacy of employing local wisdom-based teaching modules is in the effective group. so that the class X.B students at SMA Negeri 12 Luwu can effectively develop their critical thinking abilities using locally relevant wisdom-based teaching modules.

Table 9. Percentage Effectiveness Use Teaching Module

Percentage (%)	Category	Amount Participant Educate	Average	
			N-gain	*% N-gain*
<40	No Effective	35	0.57	57 %
40 - 55	Not enough Effective			
56 – 75	Effective			
>76	Very Effective			

4. CONCLUSION

The following conclusions were drawn from research and experimentation on the impact of locally wisdom-based teaching modules on students' ability to think critically at SMA Negeri 12 Luwu: 1) An autonomous curriculum teaching module based on local wisdom was developed using the findings of the Aiken's V content validity coefficient, and the module was found to be both viable and legitimate.2) The autonomous curricular teaching modules that were created based on local wisdom received positive feedback from practitioners, with ratings falling into the very good range. 3) With a percentage of 57%, the usefulness of employing autonomous curriculum teaching modules based on local wisdom falls into the effective group. This indicates that the developed local wisdom-based teaching modules are successful in raising students' critical thinking abilities.

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