

Development of Independent Curriculum Learning Tools to Increase 5th Grade Student Activeness and Science Literacy

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ABSTRACT

Development of independent curriculum learning tools in the form of teaching modules. The development of teaching modules aims to develop competencies that cover the cognitive, psychomotor and affective domains. This research aims to develop a teaching module by applying the Project Based Learning (PjBL) learning model to increase the activeness and scientific literacy of class V students. The type of research used is research and development with the research model developed being the Borg and Gall model. The product developed is a teaching module. Data collection is carried out through device validation sheets. Data analysis was carried out using qualitative and quantitative methods. The validity results obtained show that the teaching module with an overall average of 91.43% is in very valid criteria. The teacher's ability and student responses show good grades so that it can be said that the teaching module used meets the practicality criteria. The normality test on the use of teaching modules with the application of Project Based Learning (PjBL) shows an increase in students' scientific literacy abilities in experimental or treatment classes, so that the teaching modules used meet practicality criteria.

Keywords: Independent Curriculum, Project Based Learning, Scientific Literacy

INTRODUCTION

Advances in information technology and various environmental problems have created problems and challenges for life in the 21st century (Widiyawati et al., 2021). Competent human resources are urgently needed to face these challenges. Improving the quality of education in Indonesia is always carried out through improvements following the changes and developments in life that are occurring in the 21st century (Jayadi et al., 2020). One of these improvements is the improvement of the curriculum, which was previously Kurikulum 2013, now becomes the independent curriculum (Handayani et al., 2020). Nadiem Makarim stated that the duties and responsibilities of a teacher are noble (Septia & Raharjo, 2024). Eko Risdianto stated that the independent curriculum aims to answer educational challenges in the industrial revolution 4.0 to realize critical thinking skills, problem solving, creative thinking, and students are more skilled in communicating and collaborating in various matters (Anggraini & Wulandari, 2020).

The Merdeka curriculum is designed to be simpler and more flexible, with the aim of allowing teachers to focus on the material and students to be more active according to their interests (Vhalery et al., 2022).

Teachers also easily help students achieve their learning goals (Asnawati, & Sutiah, 2023). The independent curriculum requires teachers to be able to act as service providers or facilitators in the learning activities carried out and to always prepare and develop learning tools as a guide in teaching (Kusumaningrum & Djukri, 2016). Learning tools are a collection of components that teachers will use in designing learning strategies (Asnawati, & Sutiah, 2023). One of these components includes teaching modules. Trianto stated that learning tools are devices used in the learning process (Asnawati, & Sutiah, 2023). Meanwhile, Daryanto and Aris stated that learning tools are a form of preparation carried out by teachers before learning (Rahayu et al., 2022). So it can be concluded that a learning device is a device that must be prepared by the teacher before carrying out learning in class (Permata Puspita Hapsari & Zulherman, 2021).

In its implementation, the implementation of the Independent Curriculum prioritizes student activities, so a project-based approach is needed (Kurniawan et al., 2023). A project-based approach is usually called PjBL (Project Based Learning). According to Wahyuni, project based learning is a learning model that provides educators with the opportunity to manage learning in the classroom by involving project work (Tri Wulandari & Adam Mudinillah, 2022). The independent curriculum requires teachers to be able to act as service providers or facilitators in the learning activities carried out and to always prepare and develop learning tools as a guide in teaching (Permana et al., 2021). The independent curriculum is designed to be simpler and more flexible, with the aim of allowing teachers to focus on important material and students to be more active according to their interests. Teachers also easily help students achieve their learning goals (Rahmayanti & Jaya, 2020).

The facts that happen at school are the opposite. The results of observations at the Pengabean 02 State Elementary School,

Losari District, Brebes Regency, through interviews with grade 5 teachers and school principals, found several obstacles in implementing the independent curriculum, including teachers still having difficulty in developing learning tools, teachers still using conventional learning models, and student activities not yet reflects learning that can increase activity and scientific literacy (Priyangga, Sarwi, & Widiyatmoko, 2022). The obstacles above require the right solution, namely the use of teaching modules with the application of the Project Based Learning (PjBL) learning model (Sarwi & Nugroho, 2023). When creating learning tools, they must contain things that can increase student motivation so that students play a more active role in the learning process, where the learning carried out is student-centered learning (Priyangga, Sarwi, Widiyatmoko, et al., 2022).

MATERIALS & METHODS

The type of research used is Research and Development (R&D) with the Borg and Gall development model. The Borg and Gall model has ten 10 steps consisting of 1) Potential and problems, 2) Data collection, 3) Product design, 4) Design validation, 5) Design improvements, 6) Product testing, 7) Product revision, 8) Field implementation test, 9) Final product refinement, 10) Dissemination and implementation (Anggita, 2022). As for the procedures in this research, the stages carried out were limited to stage seven because conditions made it impossible to carry out all stages. The population in this study were 5th grade students at elementary School Pengabean 02, Losari District, Brebes Regency, academic year 2023/2024, consisting of 30 students. The teaching modules validated by the expert team cover several aspects, namely the appropriateness of content, language, presentation, graphics and character content (Sholahuddin et al., 2021). The activities carried out are creating and analyzing data and finding the average for each criterion from the validator (Rofiqoh, 2022).

RESULT & DISCUSSION

1. Information Gathering Stage

The first stage of research was carried out using documentation studies to identify potential and problems in developing learning tools. The results obtained based on the documentation study include that schools have used the independent curriculum, especially class 1, class 3, class 4 and class 5, but the majority of educators have never created learning tools based on Project Based Learning (PjBL), tools or media to assist learning. IPAS is still lacking. The level of students' scientific literacy skills and learning motivation is in the medium average range in science and science lessons.

2. Planning Stage

The next stage is planning to design the product. At this stage the researcher carries out the initial plan by creating a product in the form of a teaching module. Reference sources in developing teaching modules are obtained based on sources that focus on the material used through Project Based Learning (PjBL) steps in the learning tools. In preparing the design of learning tools, you must align the flow of learning objectives by taking into account the Pancasila student profile as the basis for the preparation.

3. Development Stage

The development stage is carried out by developing learning tools in the form of teaching modules based on Project Based Learning (PjBL). The steps taken are: (1) Identifying learning objectives that are grouped into one material scope. Through a Teach module which has several learning objectives. (2) Carrying out diagnostic assessments to identify initial competency mastery in students. (3) Determine summative assessment techniques and instruments along with indicators of the success of the summative assessment that will be carried out at the end of the material scope. (4) Determine the time period or amount of JP needed. (5) Determine formative assessment techniques and instruments based on learning activities. (6)

Creating a series of learning activities that are arranged systematically (7) learning activities are carried out in accordance with the learning objectives to be achieved by involving student activities according to the stages in the Project Based Learning (PjBL) model. (8) Attach assessment instruments in the form of checklists, rubrics or observation sheets as needed.

The teaching module components used include general information consisting of core components and attachment components. The general information component includes the identity of the module author, initial competencies, Pancasila student profile, facilities and infrastructure, target students. Meanwhile, the core component consists of the learning objectives to be achieved, understanding the meaning, trigger questions, as well as learning activities that are appropriate to the stages of the Project Based Learning (PjBL) model, assessment, enrichment and remedial, reflection (students and teachers). The attachment component includes student worksheets (LKPD), teacher and student reading materials, glossary, bibliography.

4. Product Validation and Test Stage

The validation stage is carried out with the aim that the learning device product being developed is worthy of being known based on the assessment of several experts, namely material experts, media experts and language experts. Media products that have been validated are then revised according to the experts' suggestions and input obtained during the process. validation. After the product on the learning device has been revised, a trial stage of the learning device product is carried out, with the aim of knowing the student's response to the learning device in the form of a Project Based Learning (PjBL) teaching module that was developed.

5. Teaching Module Validation Test

The validation results from three validators stated that the teaching module with the implementation of the Project Based Learning (PjBL) model developed included good criteria.

Table 1. Teaching Module Validation Results

No	Validation	Points
1	Material Validation	94,97%
2	Media Validation	96,00 %
3	Language Validation	83,33%
	<i>Average</i>	<i>91,43 %</i>

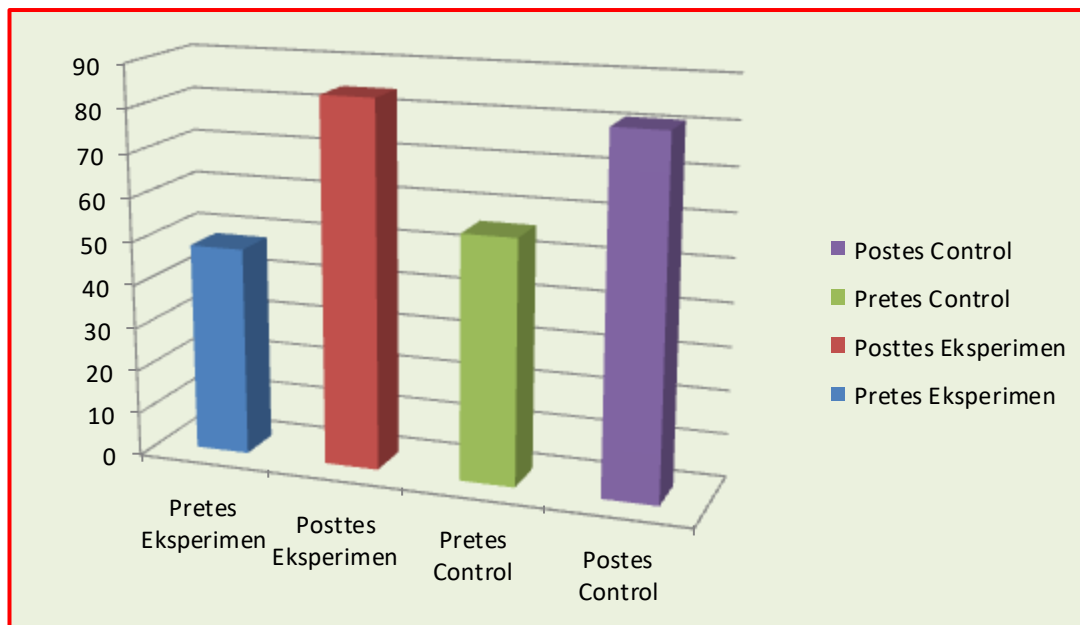
The table data above shows that material validation got a score of 94.97%, then media validation got a score of 96.00%, while language validation got a score of 83.33% so it can be said that the teaching module is in the good category.

6. Teaching Module Practicality Test

Development of teaching modules by implementing Project Based Learning (PjBL) after going through validation and revision by validators consisting of material validators, media validators, language validators and then implemented in student learning. This was done to obtain observation data on the teacher's ability to manage learning and student responses to obtain practical data, so it can be said that the development of teaching modules with the application of Project Based Learning (PjBL) can help and provide convenience for users, in this case the teacher's ability.

7. Teaching Module Effectiveness Test

The development of teaching modules by implementing the Project Based Learning (PjBL) learning model makes learning innovative and interactive. The implementation of teaching modules using the Based Learning (PjBL) model provides students with the opportunity to be creative by collaborating with fellow students to create products at the end of the lesson and increase scientific literacy and the teacher becomes the motivator. The results of the students' scientific literacy test on the science and science subject content on human respiratory organs in the control class obtained an average student scientific literacy score of 81.83, while the average score for experimental class students who were taught using teaching modules with the application of Project Based Learning (PjBL) was obtained. amounting to 83.83. The results of testing the effectiveness of using teaching modules with the application of the Project Based Learning (PjBL) learning model in the science and science lesson content on human respiratory organs on scientific literacy can be seen in the following histogram.



Histogram 1. Science Literacy Results for Control and Experiment Classes

The histogram above shows that the development of teaching modules by

implementing Project Based Learning (PjBL) on scientific literacy abilities can

improve students' scientific literacy abilities. The pretest and posttest results of the experimental class showed a significant increase in student learning outcomes, which initially was 42.50 and then rose to 83.83. while in the control class there was no significant increase, which was initially 53.00 and then increased to 81.83. There was an increase in the average student learning outcomes in the experimental class of 41.33 due to the development of teaching modules with the application of Project Based Learning.

CONCLUSION

The teaching module based on the Project Based Learning (PjBL) model developed is valid and reliable to increase the activeness and scientific literacy abilities of 5th grade students at Pengabean 02 Elementary School, Losari District, Brebes Regency. This is proven by the pretest and posttest results of the experimental class showing a significant increase in student learning outcomes, which initially was 42.50 and then rose to 83.83. while in the control class there was no significant increase, which was initially 53.00 and then increased to 81.83. There was an increase in the average student learning outcomes in the experimental class of 41.33 due to the development of teaching modules with the application of Project Based Learning.

Declaration by Authors

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