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Development of a Project-Based Learning Model Based on Kudus Local Wisdom for Students Critical Thinking

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Abstract: This study aims to describe the design of the learning model and analyze the feasibility of a Project-based Learning model based on local wisdom for the developed students' critical thinking skills. The specification of the development product is in the form of a class IV learning module with the theme 1, The Beauty of Togetherness. It is development research (R&D) concerning the Borg and Gall model. The source of this research is the fourth-grade students of Public Elementary School No. 2 Karangmalang, with a total of 22 students as the control group, and Public Elementary School No. 4 Rahtawu with a total of 24 students as the experimental class. Data collection techniques with questionnaires and tests. The data analysis technique for the feasibility of the module uses data analysis by material validators, media, and practitioners. The results showed that developing a Project Based Learning model module based on local wisdom was feasible. The results of media validation obtained a score of 149 with an average of 3 percentages of 75%, and the results of material validation obtained a score of 61 with an average of 3.8 and a percentage of 95%. From the validator, practitioners obtained a score of 64 with an average of 3.64 and a percentage of 90%.

Keywords: Project based learning, local wisdom, critical thinking

1. Introduction

One of the learning processes needed by students is learning that provides a meaningful learning experience and is connected to the concrete situation of students. In line with this McFarlane (2013), the impact of learning needs and learning methods are different, which makes students able to understand learning by utilizing the surrounding environment. A project-based learning model is one of the learning processes that align with the above statement. The project-based learning model is student-centred and provides a meaningful learning experience for students (Susilowibowo & Hardini, 2019).

Project Based Learning is a learning model that uses the project as the core of the learning process (Manasikana et al., 2023). Project Based Learning model is a systematic teaching method involving students learning knowledge and skills through a structured process, real experience, and thoroughly designed to produce products (Hanipah et al., 2018).

The PjBL model provides opportunities for students to carry out interesting and meaningful learning activities. In line with Vidergor's (2022) opinion, project learning provides opportunities for students to manage learning in the classroom by involving project work. Project work makes complex tasks based on challenging questions and problems that require students to design, solve problems, make decisions, and provide opportunities for students to work independently.

In addition to problems regarding the lack of learning experience experienced by students, there are also problems related to students' need for knowledge about the culture in the student environment. Early introduction to local culture in elementary school students is useful for instilling the value of love for local wisdom in students' lives. In line with this, Zahroh et al. (2022) explains that the waning of local wisdom can cause a shift in behaviour and culture in the community. It is our refusal as teachers to always introduce culture to students. Local wisdom is the wealth that belongs to an area in the form of knowledge, beliefs, norms, customs, culture, insights, and so on, which is a legacy and is maintained as an identity in life (Retnowati et al., 2020). The value of local wisdom in schools can be instilled through teaching and learning activities (Widyaningrum & Prihastari, 2023). The freedom to choose teaching materials according to the characteristics of the material being taught can help students instil the values of local wisdom; one way is by combining the values of local wisdom that exist in the student's environment with the content of the material without neglecting the essence of the teaching materials themselves.

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In addition, one of the skills students must have critical thinking. Critical thinking skills are the ability of students to analyze arguments, make conclusions using reasoning, evaluate, and make decisions or solve a problem (Lai, 2011). Critical thinking skills should be empowered through learning in elementary schools because critical thinking skills are 21st-century thinking skills that must be possessed by all students (Sarwanto et al., 2021; Florea & Hurjui, 205; Torres & Cano, 1995). Critical thinking skills in learning in elementary schools have yet to be widely practiced. Survey research conducted by Sari et al. (2015) shows that 60% of students still have not developed critical thinking skills, so they need improvement.

Based on the results of interviews and preliminary research that has been carried out, it was found that there were problems in the learning carried out: 1) teachers in implementing learning have not integrated local wisdom in the area of residence, 2) lack of student motivation in learning 3) lack of learning that integrates real experience 4) lack of students' critical thinking skills. Based on reality, it is necessary to develop a learning model that can accommodate students to recognize local wisdom around the student environment, the existence of learning experiences in learning activities carried out, and develop students' critical thinking skills.

This study was conducted on the design of the learning model. It analyzed the feasibility of a Project Based Learning model based on the local wisdom form of a class IV learning module with theme 1, the beauty of togetherness. The gathered data results will be used to propose intervention materials for students' critical thinking.

2. Literature Review

Students who can think critically are students who can conclude what they know, know how to solve problems and are able to find relevant sources of information (Fajari, 2021). The importance of critical thinking makes students communicate their ideas to others (Kenedi et al., 2019). Students who have critical thinking skills will be able to review their knowledge (Wahyuddin & Ristiana, 2022). Critical thinking skills encourage students to think higher (Daga et al., 2022). In line with this, Monalisa et al. (2019) believe critical thinking skills can improve problem-solving abilities. Efforts made by teachers to develop critical thinking skills can be developed through learning that is student-centred.

The selection of a Project Based Learning model based on local wisdom is very appropriate because it can provide a real experience to students. Module teaching materials based on local wisdom allow students to study independently, according to their speed and learning ability (Irhasyuarna et al., 2022).

According to Fugate (2018), project-based learning is a modern learning strategy whose core is learning that connects students' experiences with their school experiences and can elicit serious thoughts when students encounter new situations. Students' connections to the actual world can be created through project-based learning. This way of learning is seen as a strategy that allows pupils to develop "twentieth-century skills," which are cognitive and socioemotional skills essential for success in college and profession.

According to do Amaral et al. (2015), learning at college is characterized as an active understanding process that includes meaning and skills acquired through project-based learning. The opportunity for teacher-to-be students to participate in this learning technique is critical for gaining direct experience in developing educational projects.

Local wisdom can be defined as local ideas that are characterized by wisdom, have a positive value, and are rooted and followed by the members of the society. Furthermore, Istiawati (2016) believes that local wisdom is the way people perceive and act in reaction to changes in their physical and cultural environments. A conceptual idea that exists in society, evolves and develops continuously in society's understanding, ranging from what is tied to sacred lives to what is profane (parts of daily life that are just common behaviors). Local wisdom can be defined as intelligent and valuable local views that are rooted in society and followed by its members (Anggraeni, 2017).

3. Methodology

The research design carried out in this study was Research and Development (R&D) research. Research and Development (R&D) is a method used to produce certain products and test the feasibility of these products (Laws et al., 2013). This development research involves ten steps by adopting the Borg and Gall (1983) model.

The research subjects in this study were fourth-grade students at Public Elementary School No. 4 Rahtawu, with 24 students as the experimental class, and fourth-grade students at Public Elementary School No. 2 Karangmalang, which amounted to 22 students as the control class. Data collection techniques using questionnaires and tests. The data collection instrument used a test containing 10 essay questions and a questionnaire given to the validator to validate the developed module product. Test the validity of the data in this study using triangulation of data/sources and theory. The data analysis of the module feasibility test was carried out using the validity test obtained by the validator. This study uses validity to test the product presentation, namely the module.

The research instrument used in the study was a questionnaire sheet. The questionnaire sheet is used in the form of questions that must be answered and responded to by teachers. Teachers were given a questionnaire as a student response to the developed module. The module feasibility test was carried out with a validity test obtained from the validator. This study used the validity test to test the product presentation. This assessment was carried out using a questionnaire.

Table 1. Mean and qualitative description for scoring guidelines

Mean	Qualitative description
1	Poor
2	Moderate
3	Good
4	Excellent

The results obtained from the average calculation score of each validator are then converted to statements to determine the criteria for the product developed.

Table 2. Product eligibility criteria

Quality Score	Feasibility category
>75%	Very feasibility
40% - 75%	Feasibility good
<40%	Not feasibility

4. Results

The following are the results of the data collected in determining the feasibility development of the module. Module feasibility development is carried out by design validation obtained from expert validators. Researchers in product development use three expert validators: media validators, material validators, and practitioner validators.

Validator 1: Product validation is carried out to assess the product developed regarding the material. The first validator is a lecturer in the PGSD study program at Muria Kudus University. Validation was carried out on August 1, 2022. Based on the results of validation 1 of the local wisdom-based PjBL learning module product conducted by the validator, the total score was 61 with a percentage of 95% and very feasible criteria. So, the local wisdom-based PjBL learning module is feasible and can then be tested.

Validator 2: Product validation was carried out to assess the products developed in terms of media. The second validator is a lecturer in basic education at UMK. Validation was carried out on August 1, 2022. Based on the results of validator 2 of the PjBL learning module product based on local wisdom conducted by the validator, the total score is 108, with decent criteria. So, the Project-based learning module based on local wisdom is feasible and can be tested.

Validator 3: Product validation was carried out in assessing the products developed regarding material and design (practitioner validators). Validator 3 is an elementary school teacher at Public Elementary School No. 4 Rahtawu. Validation was carried out on August 5, 2022. Based on the validation of 3 local wisdom-based PjBL learning module products conducted by validators, a total score 90 was obtained with very good criteria. So, the local wisdom-based Project-based learning module carried out by the validator is feasible as a module for students and can be tested.

To produce a valid learning model, it is necessary to test the feasibility of the model (Mudiartana et al., 2021). The learning model is feasible and valid to use if the learning developed meets the valid criteria by the validator.

Table 3. Recapitulation of Assessment Results of Three Validators

Validator	**Total assessment result**	**Maximum score**	**Percentage**	**Average score**	**Criteria**
Validator 1	61	64	95%	3.8	Very feasible
Validator 2	108	144	75%	3	Feasible
Validator 3	90	100	90%	6.64	Very feasible

5. Discussion

The Project-based learning model based on local wisdom emphasizes contextual learning. Module development is necessary, considering that the teaching materials used by students are only student books from the Ministry of Education and Culture and the absence of contextual teaching materials close to students' lives. According to Nurbaiti et al. (2016), a meaningful learning process, student activity, and direct student involvement in learning will make it easier for students to understand the material being studied. So, developing Project-based learning modules based on local wisdom can answer problems that occur during learning. It is in line with the results of research conducted by Jagantara et al. (2014), which shows a significant difference in learning outcomes between project-based and direct learning models.

Based on the established core competencies and basic competencies, project-based learning modules based on local wisdom are prepared. The material in the module is integrated with students' local wisdom so that students are expected to be able to recognize local wisdom in their environment. In addition, students are also expected to develop their critical thinking skills. In line with this, the research results of Ting & Siew (2014) explain that the application of outdoor learning can develop students' critical thinking skills and scientific curiosity. The learning model is feasible and valid to use if the learning developed meets the valid criteria of the validator. Validation was carried out by three expert validators: material experts, media, and practitioners (Syahidi et al., 2020).

Students can benefit from project-based learning when it is linked with local knowledge. Creative and imaginative project-based learning encourages students to construct "the bridge" that connects numerous material elements. the learning model's implementation PjBL based on local wisdom is useful in strengthening students' problem-solving skills in relation to their surroundings. According to Troyer et al. (2012), the learning model PjBL is a problem-based learning paradigm that helps increase students' problem-solving skills.

6. Conclusion

The development of the local wisdom-based PjBL learning model module is feasible, as the validation results from the validation of material experts, media, and practitioners. The percentage results of the feasibility test were 95% of the material expert validation, with an average of 3.8; 75% of the media experts, with an average of 3; and 90% of the practitioner experts, with an average of 3.64. The local wisdom-based PjBL learning module is feasible and can be tested from this percentage. Therefore, the research results in the development of module feasibility are very important as a reference in reviewing and assessing the quality of the developed products.

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