



Analysis of the Validity of PBL-Based Interactive Teaching Materials on Materials Respecting Diversity in Grade IV Elementary School

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ABSTRACT

Education aims to develop the potential of students as a whole, covering the cognitive, psychomotor, and affective realms, one of which is realized through learning Pancasila Education. As an important subject at every level, Pancasila Education is expected to encourage active learning. However, the implementation is often monotonous with the dominance of printed books, so students are less encouraged to delve into the material and depend on teachers. This research aims to develop interactive teaching materials for Respecting Diversity material that are feasible for use in Grade IV of elementary school to increase activeness while accommodating students' learning needs. The method applied is in the form of research and development with the ADDIE model which consists of the stages of analysis, design, development, implementation, and evaluation. Validation was conducted by three experts: material, media, and language. Results indicated scores of 86% from material experts, 86.7% from media experts, and 92% from linguists, with an overall average of 88.23%, categorized as highly valid. These findings show that the PBL-based interactive teaching materials developed are feasible for use in learning, are able to relate the material to the context of real problems, and have the potential to increase students' engagement and critical thinking skills.

1. Introduction

The Merdeka Curriculum that is currently being implemented in Indonesia highlights the need to use technology in learning activities. This curriculum is designed to support student-oriented, contextual, and in line with technological developments and the demands of today's society (Noor et al., 2025). In the Merdeka Curriculum, Pancasila Education has undergone major changes. According to Government Regulation Number 4 of 2022, the subject of Pancasila and Citizenship Education (PPKn) is now called Pancasila Education. However, the subject matter still includes Pancasila values and civic aspects. This change was made due to a transition when the COVID-19 outbreak occurred. The latest change

to Pancasila Education is expected to strengthen the understanding and practice of Pancasila values in a more focused and integral manner for students.

Education in general seeks to build the potential of students from all fields, not only in the cognitive field but also in developing psychomotor and affective. All of these goals can be realized in Pancasila Education. The Pancasila Education Program in Indonesia aims to build character and identity in accordance with the values of Pancasila and the 1945 Constitution of the Republic of Indonesia. This is in line with the focus of Pancasila Education on the formation of citizens who understand and are able to carry out their rights and obligations to become intelligent, skilled, and behave Indonesian citizens in accordance with Pancasila and the 1945 Constitution of the Republic of Indonesia.

With the rapid development of technology, various fields, including education, have also undergone significant changes. Based on the study presented by Supardi (2014) the advancement of science and technology has driven a transformation in the education system, from traditional learning to a modern approach. Technology integration has led to a shift in learning methods from face-to-face to digital-based, including the use of computers as the main medium of learning. In the process, there are many important components that support the success of teaching and learning activities, one of which is teaching materials.

According to Pane in Magdalena et al. (2020), teaching materials are subject matter that is systematically compiled and used by teachers and students during the learning process. Teaching materials include various types of materials, such as information, tools, and texts, that are used in the learning process. According to Sugiarni (2021) in Juliana (2022), the purpose of teaching materials is to help plan and evaluate the implementation of learning so that the material presented is able to provide students with a new understanding of the topic being studied. With the development of technology, teaching materials have begun to shift to a more up-to-date and interactive digital form.

Interactive teaching materials are a type of teaching materials that have been integrated with technology. Interactive teaching materials are learning materials that combine various media such as audio, video, text, and graphics, and have interaction features that allow students to respond or control the course of the presentation Jamilah et al. (2020). Thus, interactive teaching materials not only provide information but also encourage learners to actively participate in the learning process. Interactive teaching materials allow students to communicate two-way with teachers and students, making the material easier for students to understand (Rafianti et al., 2018). In addition, interactive teaching materials utilize various types of media to adjust to the different learning styles of each student. This is in line with the opinion of Lasekan et al. (2024) who stated that in the midst of rapid technological developments, the presentation of material interactively is an important aspect of modern learning because it is able to encourage student activity and accommodate a diversity of learning methods.

In addition to teaching materials, learning models also play an important role in supporting an effective learning process. According to Asyafah (2019), the learning model helps achieve learning goals, presents meaningful information, and increases interest and motivation to learn. In learning Pancasila Education, the selection of the appropriate learning model plays a very important role in building a deep understanding and ability of students to solve citizenship problems. This is in line with the opinion of Nursella et al. (2025) who stated that the Problem Based Learning (PBL) model is one of the models that can be applied by teachers to activate the role of students in learning Pancasila Education in elementary schools.

In general, the Problem Based Learning (PBL) learning method is a learning process that encourages students to think critically and solve real problems faced (Amris & Desyandri, 2021). Reinita et al. (2019) stated "said a learning model used in the classroom will be able to create an effective, efficient, fun, and meaningful learning atmosphere. It can be used as a pattern of choice for teacher to choose appropriate and efficient learning model to achieve educational goals". PBL encourages students to think critically by relating the material to their daily experiences and finding solutions to problems. This model is very suitable for Pancasila Education because it helps students understand and deal with social dynamics in society.

Previously, researchers had conducted observations and interviews at three schools that would be the location of the research. Based on observations and interviews that have been conducted, the researcher found problems including: 1) One school still uses conventional teaching materials such as printed books while several other schools have used teaching materials in the form of videos but their use is not consistent and tends to be passive; 2) All schools have used the Problem Based Learning (PBL) model but the application is not optimal; 3) It is indicated that students ask more questions to teachers, this dependence shows that teaching materials have not been able to encourage students' learning independence or accommodate various learning styles; and 4) Schools that have used video as teaching materials say that they can increase students' interest in learning. However, they have never used interactive teaching materials.

These problems indicate that there is a gap between the needs of 21st century learning and the availability of teaching materials that are able to accommodate them. In modern learning, the role of teaching materials is not only as a source of information, but also as a means that can foster learning independence and adapt to the diverse learning styles of students. As explained by Habibullah & Suyanti (2024), interactive e-book-based teaching materials are able to increase the activeness and effectiveness of learning because they combine text, visual, and interactive features elements that facilitate students' comprehension as a whole. Arun et al. (2024) in their study showed that the use of interactive teaching materials is able to create a student-centered learning environment by encouraging active participation and collaboration in the classroom.

Based on the various problems found, the researcher took the initiative to develop interactive teaching materials that are feasible and can combine various types of learning media, so that they are able to accommodate the different learning styles of students. These teaching materials are designed not only to increase the effectiveness of learning, but also to support the teacher's role as a facilitator. The development was carried out by integrating the Problem Based Learning (PBL) model and focused on the material Respecting Diversity for grade IV elementary school students. This material was chosen because it is included in the scope of learning that is carried out in even semesters.

2. Methodology

This research was conducted in three elementary schools that have met the research criteria. The research subjects are elementary school grade IV students. The type of research used is research and development. Along with the advancement of science and technology, there is a need for continuous updates. Creativity and innovation are the keys so that science and technology are able to provide solutions to various life problems. Therefore, development research is a relevant approach in answering these needs (Waruwu, 2024).

Development research includes the use of knowledge in the manufacture and development of existing and new products (Rusdi, 2018). Analysis, design, development, implementation, and evaluation are the five main stages that designers and developers follow when implementing the ADDIE framework (Rusdi, 2018). The data collection technique carried out in this study was through a validation questionnaire sheet given to validator experts. Validation consists of 3 aspects, namely the material aspect, the media aspect, and the language aspect. The assessment material aspects include Content Accuracy, Relevant Content, Completeness of Content, and Integration of Problem Based Learning (PBL) Models. Scoring on the data is based on the Likert scale. According to Aini et al. (2019), the likert scale is a bipolar scale method that can be used to measure whether a person gives a positive or negative response to a statement. The likert scale used for validation can be seen in table 1.

Table 1. Assessment Scale for Validation

Category	Description	Score
SS	Very Agree	5
S	Agree	4
N	Neutral	3
TS	Disagree	2
STS	Strongly Disagree	1

Source: (Aini et al., 2019)

This study uses a percentage value calculation formula to process the data from the assessment results of the three validation experts. This formula converts the score obtained from each element into a percentage form, making it easier to understand the results of the assessment. The calculation is done by comparing the expert score

with the highest achievable score for each aspect of the analysis. The following is the calculation formula used in this study:

$$NP = \frac{R}{SM} \times 100\%$$

NP : Percent value sought
R : Scores obtained from each aspect
SM : Maximum score of all aspects

The results of the calculation with this formula will produce a percentage that will be compared to the eligibility standard. Next, the percentage obtained is entered into a certain interval to determine the feasibility level of the validated instrument or medium. The interval can be seen in table 2.

Table 2. Category Interval Validity Level

Interval	Category	Information
80% - 100%	Highly Valid	Highly valid, can be used without the need for repair
60% - 79,99%	Valid	Quite valid, usable but needs minor repairs
40% - 59,99%	Quite Valid	Less valid, usable but in need of major improvement
20% - 39,99%	Less Valid	Invalid, unusable
0% - 19,99%	Invalid	Very invalid, unusable

Modification: (Aini et al., 2019; Akbar, 2013)

3. Results and Discussion

In this study, a product was produced in the form of interactive teaching materials with the material Respecting Diversity. This interactive teaching material consists of a front cover, table of contents, instructions for use, introduction, material pages filled with learning videos, videos on diversity problems, diversity images, summaries, author biographies, and bibliography.

A. Results of Validity of Interactive Teaching Materials

Validation of interactive teaching materials was carried out by three experts who assessed aspects of the material, media, and language. Each expert provides input in two stages, namely the initial stage and the stage after the revision, so that each expert fills out two validation sheets. In the initial stage, the material aspect obtained a validity percentage of 60%, the media aspect 25.33%, and the language aspect 66%, with an overall average of 48.67% which is included in the category of quite valid. After revision based on expert input, the percentage of validity increased to 86% in the material aspect, 86.7% in the media aspect, and 92% in the language aspect, so that the overall average reached 88.23% with the very valid category. For more details, the overall results of the validation are presented in Table 3.

Table 3. Overall Validation Results

No	Validated Aspects	Validation I	Category	Validation II	Category
1	Material	60%	Valid	86%	Highly Valid
2	Media	25,33%	Less Valid	86,7%	Highly Valid
3	Language	66%	Valid	92%	Highly Valid
Overall Average		48,67%	Quite Valid	88,23%	Highly Valid

The validation of this interactive teaching material aims to assess the feasibility of the product before it is implemented in the learning process. Three experts were involved in the validation process, each assessing different aspects: the subject matter expert evaluated the relationship between the content of the teaching material and the basic competencies and suitability of the content, the media expert assessed the visual appearance, the use of multimedia elements, and the ease of navigation, while the linguist reviewed the accuracy of sentence structure, the use of language according to EYD and suitability with the characteristics of grade IV elementary school students.

The high validity score in the development of interactive teaching materials is in line with the findings of previous research that affirm the importance of using interactive media to improve students' motivation, interest, and learning outcomes. Experts have also established that interactive materials such as multimedia presentations, virtual labs, and digital simulations significantly increase learners' engagement and understanding of learning (Tharapos et al., 2023). This product is not only valid in substance and design, but also makes a real contribution to Problem-Based Learning practices that are more inclusive, contextual, and support various learning styles of learners.

B. Product Revision

The product revision stage is carried out after the researcher receives input and suggestions from experts, both material experts, media experts, and linguists. This revision aims to improve the interactive teaching materials developed to suit the learning objectives and needs of students. Improvements are made based on the results of the analysis of the validation sheets and special notes provided by the validators. With this revision, it is hoped that the final product will have better quality and are suitable for use in the learning process.

Validation of Material Aspects

Before use, interactive teaching materials based on the Problem Based Learning (PBL) Model for Pancasila Education subjects in grade IV elementary school were discussed and consulted with lecturers who are experts in the material. The goal is to ensure that the content is in accordance with the learning objectives and needs of students. After receiving input, the researcher makes revisions to certain sections as improvements before implementation. The revision can be seen in table 4 and figure 1.

Table 4. Suggestions and Revisions of Material Aspects

Suggestions	Revision
Adding images of tribes and traditional clothing in complete with all provinces in Indonesia	Tribes and traditional clothing were added as many Indonesian provinces as the original image

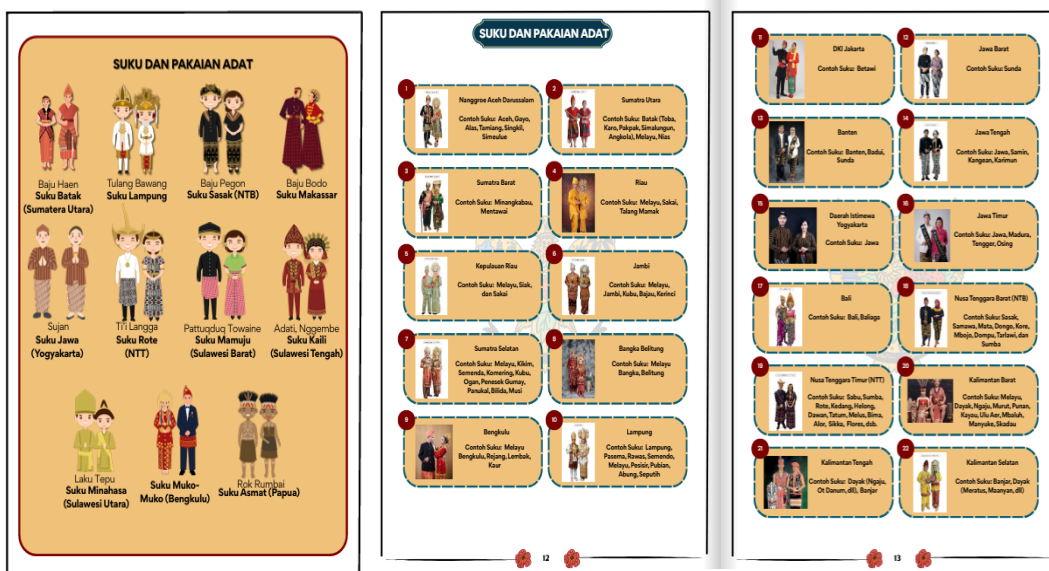


Figure 1. Material Changes Before and After Revision

Validation of Media Aspects

Before use, interactive teaching materials based on the Problem Based Learning (PBL) Model for Pancasila Education grade IV elementary school subjects were discussed with media expert lecturers. The goal is to ensure that the content is in accordance with the learning objectives and needs of students. After receiving input, the researcher makes revisions to certain sections as improvements before implementation. The revision can be seen in table 5 as well as in figures 2 and 3.

Table 5. Suggestions and Revisions to Media Aspects

Suggestions	Revision
Change interactive teaching material mode from scroll mode to flipbook	Interactive teaching materials turned into flipbooks using heyzine
Adding an explanation of Jambi culture	The explanation of Jambi culture lies at the beginning of the material
Song videos using songs from Jambi	Video of a diversity song with the song Selendang Mayang from Jambi
Traditional dance and house images using original images do not animate	Pictures of traditional dances and houses adapted to the original images of the area
Existing videos can be played directly without the need to go to youtube	Videos can be played directly in interactive teaching materials via heyzine



Figure 2. Mode Display before Revision



Figure 3. Mode Display after Revision

Validation of Language Aspects

Before the Problem Based Learning (PBL)-based interactive teaching materials for Pancasila Education grade IV elementary school were implemented, the researcher consulted with linguists to ensure the suitability of the use of language for learning purposes. After receiving input, the researcher revised several parts of the teaching material as improvements. The revised section can be seen in table 6 as well as in figures 4 and 5.

Table 6. Suggestions and Revisions of Language Aspects

Suggestions	Revision
It is recommended that the teaching materials developed must be PBL-based. But currently the PBL is not visible	On the front page there is a video orientation on diversity issues and discussion materials

Create such a table of contents that lists numbering	Table of contents changed as per page numbering
Competency writing in learning objectives abolished	Just write down the learning objectives
Writing an expert opinion does not need to be written	Expert opinion writing is eliminated
The words "Mari Kita Menonton" were changed as per the suggestion	"Let's Watch!" changed to "Let's Watch the Following Video!"
Existing chapters are converted into one large chapter and do not need to be written in the table of contents of the sub-chapters	Chapter Respecting Diversity as the Main Chapter
LKPD does not need to be in interactive teaching materials	LKPD changed to video problem orientation



Figure 4. Front Page Display of Teaching Materials Before Revision

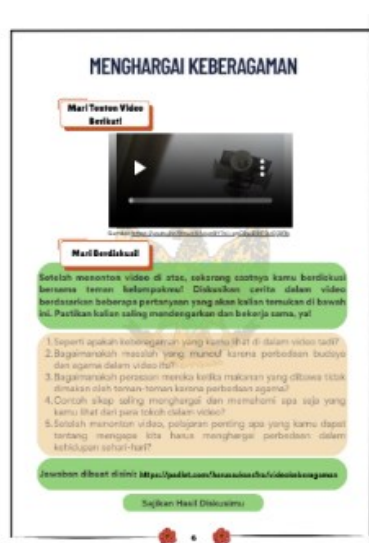


Figure 5. Front Page View of Teaching Materials After Revision

4. Conclusion

This study proves that interactive teaching materials based on Problem Based Learning (PBL) on the material Respecting Diversity in grade IV of elementary schools have very good validity and are able to support the improvement of the quality of learning in Pancasila Education. The use of visualizations in the form of pictures, videos, and story illustrations stimulates students to explore more deeply the diversity within their surroundings. The interactive teaching materials also provide opportunities for students to engage with various topics related to respecting diversity, while fostering critical thinking skills when confronted with diversity-related issues. Developed using the ADDIE model, this product is adjusted to the characteristics of students, material needs, and the use of technology, so as to provide more optimal learning opportunities. The results of the experts' assessment on the aspects of material, language, and media confirm the feasibility of this teaching material to be used without major revisions. The findings also demonstrate the importance of the role of experts in the validation process to ensure product quality, while demonstrating their potential in creating more effective, engaging, and contextual learning.

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