

## Development of Discovery Learning-Based Audio Visual Media to Improve Thematic Learning Outcomes

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### Abstract

*The problem in this study is that learning still uses the lecture method, there are still elementary schools that have not used audio-visual media, there are still educators who cannot operate audio-visual media, there are still students who have grades below the KKM. The aims of this study were (1) to analyze the characteristics of discovery learning-based audio-visual media to improve thematic learning outcomes of Class III Cluster IV Gadingrejo students and (2) to analyze the effectiveness of discovery learning-based audio-visual media to improve thematic learning outcomes of Class III Cluster IV students Gadingrejo. The type of this research is Borg & Gall Modification Budiyo's development research (R&D). The population in this study was all Class III Cluster IV Gadingrejo students with a total of 176 students. The subjects of this study amounted to 21 students. The results of the study can be seen from the differences in thematic learning outcomes in the experimental class. The average pretest score for the experimental class was 54.28 and the posttest average score for the experimental class was 79.04. Likewise, it can be seen from the average value of N-Gain or increased knowledge of the experimental class is 0.4642 which is in the "Moderate" category, meaning that the development of audio-visual media based on discovery learning is effective for improving the thematic learning outcomes of Class III Students of Cluster IV Gadingrejo. The tcount results obtained a value of 3.7415 while t table (5%; n-1) is 2.0860, these results can be interpreted that the results of students' posttests are better than the pretest results of students who study using audio-visual media based on discovery learning.*

### Keywords

audio visual media; discovery learning; thematic learning



## I. Introduction

Integrative thematic learning is learning that integrates various competencies from several studies into a theme (Syabrina & Sulistyowati, 2020). The purpose of this thematic learning is not only to master the concepts in learning but also its relation to concepts. So that after participating in learning that is carried out based on themes students will master the competencies of each integrated learning. Integrative thematic learning is learning that integrates various competencies from various studies into various themes (Setianingrum, Wardani 2018; Puspita, Herpratiwi, and Loliyana. 2019).

This integration is carried out in two ways, namely the integration of attitudes, skills, and knowledge in the learning process and the integration of various related basic concepts

(Setia et.al, 2018). Under these conditions, teachers in elementary schools can develop learning media so that learning activities become more interesting and students can easily understand learning (Karisma et al., 2019). One way to make learning more interesting and for students to easily understand learning is by using appropriate learning media (Rusmiati Aliyyah & Malia, 2017). Thus Educators should use learning media as learning aids and also to facilitate Educators in conveying material to create a learning atmosphere that makes Students active, learning becomes memorable, meaningful, and easy to understand in learning (Syabrina & Sulistyowati, 2020).

Based on the study of the literature, the researchers found that the use of instructional media during the learning process could be more interesting and enjoyable. One of the interesting learning media for students in elementary schools (SD) is audio-visual learning media (Karisma et al., 2019). Audio-visual media is included in multimedia, which is a type of media that, in addition to containing sound elements, also contains image elements that can be seen, such as video recordings, various film sizes, and sound slides (Khasanudin et al., 2020; Syabrina & Sulistyowati, 2020 and Elisa et al. al., 2019). With the use of audio-visual media here using audio-visual learning videos based on discovery learning in Theme 8 Praja Muda Karana Sub-theme 2 I am an Independent Child 6 Learning.

This can make it easier for students to understand the relationship between living things when learning takes place (Darmawan et al., 2022). Whereas in learning using audio-visual media it functions as a medium for conveying messages by presenting elements of images and sounds so that the material delivered becomes more concrete (real) and clear (Siddiq et al., 2020; Rusmiati Aliyyah & Malia, 2017). The learning process is a communication process and takes place in a system, so learning media has a very important position in learning. Without media, communication will never occur and the learning process as a communication process will also not be able to take place optimally (Kahfi et al., 2021; Astuti, 2022).

Based on observations and interviews with 8 grade III teachers at 8 SD Gugus IV Gadingrejo stated that the students' thematic learning outcomes were still low. This is because the learning motivation of students in learning is still lacking. Even though the teacher has tried variations of learning by discussing, it hasn't gone well either. Educators tend to use conventional learning models that use lecture, question and answer, and assignment methods in learning because they consider these methods to be most effectively used by educators to convey material to students.

The activeness of students is also less visible in listening to what is being taught by educators who are still dominant in the learning process in class (teacher centered) so that learning in class goes more in one direction only. Learners tend to be passive in following the learning process. This can be seen from the results of pre-research interviews conducted by researchers and educators as well as learning outcomes data obtained during observations at Cluster IV Gadingrejo. The results of the literature study that researchers conducted, to overcome these problems in this study, researchers used the discovery learning model (Pristiyono et al., 2021; Ariyanto et al., 2019). Discovery learning is one of the learning models used in the learning process at school. The discovery learning model teaches students to be active in the learning process (Devi et al., 2018). Students are expected to be able to develop or discover new things or new knowledge that has been given by Educators (Nini et.al, 2022; Devi et al., 2018 Ahda, 2016 and Wijianti, 2020).

## II. Research Methods

This research includes the type of research and development (Research and Development). Research and development (Barg and Gall, 1983) are research methods used to develop or validate products used in education and learning (Sugiyono, 2015). There are three stages in this research, namely 1) preliminary study stage, 2) product development stage and 3) product effectiveness testing stage.

### 2.1 Preliminary Study Stage

#### a. Needs Analysis

The researcher conducted a needs analysis for prospective product users. In the needs analysis stage the researcher found that teachers and students needed products in the form of audio-visual media that were suitable for thematic learning and learning models that facilitate students and educators to be able to exchange ideas with each other in finding learning concepts, and at this stage it is possible to implement product development desired by Educators and Students.

#### b. Study of Literature

This stage carried out theoretical and practical studies of the product to be developed. At this stage the product to be developed is in the form of audio-visual learning media based on discovery learning which is expected to improve the thematic learning outcomes of students according to learning objectives.

### 2.2 Product Development Stage

There are two types of expert validation in the product development stage, namely theoretical product validation and prototype product validation. Theoretical products (in the form of plans for making audio-visual media products based on discovery learning) are then asked for opinions from experts regarding the product.

#### a. Feasibility Test

The initial validation test was carried out by validating discovery learning-based audio-visual media in aspects of language, material, and media. The researcher involved 2 material experts, 2 linguists and 2 media experts. Assessment aspects in the product validity test can be presented in Table 1.

**Table 1.** Assessment Aspects in Product Validity Testing

No	Evaluation	Assessment Aspects
1.	Language Eligibility	Straightforward
		Communicative
		Writing
		Use of terms, symbols or icons.
2.	Material Eligibility	The suitability of teaching materials based on discovery learning
		The quality of teaching materials
3.	Media Eligibility	Appropriateness of teaching materials for didactic requirements
		Compatibility of teaching materials with construction requirements
		Suitability of teaching materials technical requirements

### b. Limited Scale Test

The purpose of the limited scale trial is to see the practicality of using the product (Educators and Students) and to see the effectiveness of the product (in the sense that it can fulfill the product development objectives, namely increasing the thematic learning outcomes of Class III Elementary School Students Cluster IV Gadingrejo), students who involved in the limited scale test were 10 students.

### 2.3 Product Effectiveness Test Stage

The purpose of the effectiveness test is carried out by testing a large scale of research products, but it is carried out on a larger number of educators and students and in a way that may be different compared to a limited scale trial. At this stage, to see the effectiveness of the product, an initial test was carried out before being given an audio-visual media product based on discovery learning, and a final test after being given an audio-visual media product based on discovery learning with One Group Pretest-Posttest Design, totaling 21 students. The product has been proven effective. The researcher still has to perfect the product based on input from large-scale trials and the results of the researcher's reflection. Analysis on the effectiveness test stage using the t test.

$$t = \frac{\bar{W}}{s_w / \sqrt{n}}$$

Based on the equation above,  $\bar{W}$  is the average between the post-test scores and pre-test scores. The alternative hypothesis in this study is that the students' posttest results are better than the pretest results of students who study using discovery learning-based audio-visual media.

## III. Discussion

### 3.1 Preliminary Research Study Results

#### a. Results of Needs Analysis

The findings on the needs analysis relate to the teacher's needs for discovery learning and the development of audio-visual media. The results of the needs analysis in this study can be presented in Table 2.

**Table 2.** Results of the Analysis of the Needs of Prospective Product Users

No	Question	Yes	No	Often	Seldom
1.	Using audio-visual media in the learning process?	30%	60%	-	10%
2.	Educators find it difficult to create and use audio-visual media in learning?	73,6%	4,4%	22%	-
3.	The learning model used is lecture and question and answer.	100%	-	-	-
4.	Applying discovery learning learning models.	-	100%	-	-
5.	Educators need the development of audio visual media for the implementation of discovery learning.	100%	-	-	-

Based on table 2, it can be explained that the learning phenomenon that occurs in Class III Elementary School Cluster IV Gadingrejo is still dominated by lecture and question and answer learning. Educators find it difficult to create and use audio-visual media in learning, but educators need the development of audio-visual media for the implementation of discovery learning.

### b. Literature Study Results

The results of the literature study related to this stage the researcher made a product development plan to overcome the problems that exist in elementary school, namely the development of discovery learning-based audio-visual media products that aim to improve thematic learning outcomes of Class III Students of Cluster IV Gadingrejo. Furthermore, the researcher determines the theme to be selected, the sub-theme to be selected, the type of product, Core Competencies, Basic Competencies, Learning Objectives, as well as the subject matter used to test the thematic learning outcomes of Class III students. Researchers make a grid and research instruments in the form of multiple choice test questions.

### c. Product Development Stage Results

There are two types of expert validation in the product development stage, namely theoretical product validation and prototype product validation. Theoretical products (in the form of plans for making audio-visual media products based on discovery learning) are then asked for opinions from experts regarding the product..

### d. Feasibility Test

The initial validation test was carried out by validating discovery learning-based audio-visual media in aspects of language, material, and media. The maximum score on the language assessment aspect is 65, the material aspect is 95, and the media aspect is 115. The results of the product validity test can be presented in Table 3.

**Table 3.** Results of Research Product Validity Test

No	Evaluation	Assessment Aspects	Expert judgment 1	Expert judgment 2	Percentage value	Interpretation
1.	Language Eligibility	Straightforward	60	64	95,38%	Very Valid
		Communicative				
		Writing				
		Use of terms, symbols or icons.				
2.	Material Eligibility	The suitability of teaching materials based on discovery learning	90	81	90,00%	Very Valid
		The quality of teaching materials				
3.	Media Eligibility	Appropriateness of teaching materials for didactic requirements	109	102	91,74%	Very Valid
		Compatibility of teaching materials with construction requirements				
		Suitability of teaching materials technical requirements				

### e. Limited Scale Test

The purpose of the limited scale trial is to see the practicality of using the product (Educators and Students) and to see the effectiveness of the product (in the sense that it can fulfill the product development goals, namely increasing the thematic learning outcomes of Class III Students Cluster IV Gadingrejo), students involved in limited scale test is 10 students and 1 teacher.

**Table 4.** The Results of the Research Product Practicality Test

No	Assessment Aspects	Teacher	Learners	Teacher Assessment	Student Assessment	Average user rating	Interpretation
1.	Ease of use of media	4	38	100%	95,00%	97,50%	Very Practical
2.	Time efficient	3	37	75%	92,50%	83,75%	Very Practical
3.	Compatibility with the material	4	37	100%	92,50%	96,25%	Very Practical
4.	Attractiveness	4	38	100%	95,00%	97,50%	Very Practical
5.	Can be used as self-learning	3	35	75%	87,50%	81,25%	Practical

Based on table 4, the evaluation aspect of the ease of use of media and attractiveness gets the highest average rating by users, this is because the products developed are designed to be used easily and attractively by users. This finding is also supported by research results (Pristiyono et al., 2021 Khasanudin et al., 2020; Syabrina & Sulistyowati, 2020 and Elisa et al., 2019) which states that the implementation of audio-visual media in learning can help teachers carry out learning more easily and interesting.

### f. Product Effectiveness Test Stage

The results at this stage the researcher aims to measure the effectiveness of the product by conducting an initial test before being given an audio-visual media product based on discovery learning, and a final test after being given an audio-visual media product based on discovery learning with One Group Pretest-Posttest Design, totaling 21 students. Product effectiveness test results are proven by calculating the tcount coefficient and comparing it with the ttable coefficient at the 5% degree of significance and degrees of freedom (n-1). The result of tcount is 3.7415 while ttable (5%;n-1) is 2.0860. The right-hand test applies ( $t \text{ count} \leq t \text{ table}$ ) accept  $H_0$  and if ( $t \text{ count} > t \text{ table}$ ) reject  $H_0$ . From the results of data analysis, it was found that  $t \text{ count} > t \text{ table}$ . These results can be interpreted that the students' post-test results are better than the pre-test results of students who study using audio-visual media based on discovery learning. In addition, the average value of N Gain or increased knowledge of the experimental class is 0.4642 which is in the "Moderate" category, meaning that the development of audio-visual media based on discovery learning is effective for improving the thematic learning outcomes of Class III Students of Cluster IV Gadingrejo. The findings in this study are relevant to research (Ariyanto et al., 2019 Ahda, 2016 and Wijianti, 2020; and Rudibyani B.R, Perdana. R. 2018) which states that learning with Discovery Learning will provide meaningful experiences for students so that it helps in improve learning outcomes.

## IV. Conclusion

The development of audio-visual media based on discovery learning to improve thematic learning outcomes of Class III Cluster IV Gadingrejo students is effectively used. It can be seen from the differences in thematic learning outcomes in the experimental class. The average pretest score for the experimental class was 54.28 and the average posttest score for the experimental class was 79.04. Likewise, it can be seen from the average value of N Gain or increased knowledge of the experimental class is 0.4642 which is in the "Moderate" category, meaning that the development of audio-visual media based on discovery learning is effective for increasing thematic learning outcomes of Class III Students of Cluster IV Gadingrejo Indonesia.

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