Journal of Learning Improvement and Lesson Study
Volume 3 Number 1 2023, pp, 23-30
ISSN: Online 2798-9011
DOI: 10.24036/jlils.v3i1.47
Received June 14, 2023; Revised June 18, 2023; Accepted June 24, 2023
Availaible Online: http://jlils.ppj.unp.ac.id/index.php/

Development of Fern Media to Increase the Active Learning in Material Places of Living Creatures Learning Content in Natural Sciences

Vera Fitriana, Imam Maulana S, Rifan Yunianto, Siti Masfuah, Fitri Budi Suryani, Fatikhatun Najikhah
Universitas Muria Kudus
*Coressponding Email : verrafitriana@gmail.com

Abstract
The background of this research is the low learning activity of class II students of MI Nurul Falah Brati on Material Places of Living Creatures Living Science Learning Content with a score of 50% which is due to limited learning media. The purpose of this study was to measure the increase in class II student learning activeness by using Pakis media. The type of research used is*Research & Development* (R&D) with the ADDIE model on stage *Development*. The research subjects used were class II students at MI Nurul Falah Brati, totaling four students. The data analysis technique used is qualitative and quantitative data analysis. the data collection techniques used were interviews, validity questionnaires, observation, and limited scale trial questionnaires. Interview instruments were used for initial data from educators, validation questionnaires to validate the media used were appropriate for use, observation sheets were used as data to measure increased student learning activeness, and limited scale trial questionnaires were used as data from students who had done learning. The results of media expert validation obtained an average score of 96% in the "Very feasible" category. In the observation of learning activity, a score of 88.875 was obtained in the "very decent" category. In the limited scale trial questionnaire, an average score of 91.225% was obtained in the "Very feasible" category. The pretest and posttest results increased by 1.36 with moderate criteria. So it can be concluded that the use of PAKIS media can increase the learning activity of class II MI Nurul Falah Brati students.

Keywords: Fern Media, Student Activity, ADDIE

Introduction

The aim of education is to educate the nation so that education is very important in one's life, education is one way for a person to worship God Almighty (YME) with the aim of protecting oneself, the glory and dignity of life in this world and in the hereafter (ZTF, 2020) .Therefore in Education there is a need for improvement and change, one of which is to perfect the learning conditions to make it more ideal. Learning leaders who are fully held by the teacher, are transformed into students who play an active role in leading learning, so that students are more active in interacting with the media, tools and learning resources used during learning, in this case the teacher acts as a facilitator, motivator and evaluator.

As an innovator, the teacher must be able to foster interest in and develop students' talents in learning. Media in learning activities is able to foster curiosity so that it fosters student activity and increases learning motivation, arouses enthusiasm and stimulates students in learning activities, and is even able to have a positive influence on student psychology.

In transferring natural science (IPA) subjects which include knowledge, skills, and attitudes the teacher must understand the learning strategies that will be applied, starting from the models, media and teaching aids used during learning. Understanding of learning strategies is very important for a teacher to master because mastering learning strategies will increase student activity and achievement. Especially in teaching science lessons, learning media is really needed as a tool so that the material delivered is easy to understand and keeps students interested so that there is no longer the notion that science lessons are boring for students.

Learning strategy is defined as a plan or method that will be carried out by a teacher in teaching and learning activities. Therefore the teacher should determine the strategy that will be used in the learning process so that the teaching and learning process can go according to plan. In determining the strategy it must be adjusted to the level of cognitive development of students (Aprinawati, 2017). In accordance with the times in the world of education requires various innovations. This is done in order to improve the quality of education.

Learning using media*Fern (Quiz board)*can create a pleasant atmosphere in the teaching and learning process and is able to arouse student learning motivation. Students will easily understand basic concepts and ideas more and better by sharing knowledge information (Ahmad Rifaldi Djahir et al., 2014)*Fern Learning Media (Quiz Board)*is a media that uses wooden boards as the basic material for boards, dice, pawns, and also art paper as the basic material for the cards to be used. This board consists of 100 circular holes containing the multiplication numbers and the multiplication results, This media can help students learn to follow rules, answer questions, wait their turn and learn interactively. Science learning by using learning media*Fern (Quiz Board)*will be more motivating so that students become active in learning because there is a lot of science material that must be understood by students in learning so that the teacher does not tend to give material using the lecture method and there is no meaningful activity for students, therefore researchers use learning media*Quiz Board*can make a the solution to these problems, because by using learning media*Fern (Quiz Board)*learning can be done by throwing dice and taking cards so that students become active, and they can also answer questions well and correctly. Prasetyaningtyas SMP, (2020) explained the results of his research showed that the application of the game method to Classification of Living Things material could improve learning achievement and student learning engagement. Learning achievement is indicated by the increase in the percentage of learning completeness.

The results of interviews with class II teachers and four students can be concluded that student activity in the learning process is still low. This can be seen during the learning process, with the limited media used by the teacher in the learning process.

Therefore, in this article the author will discuss the development of learning media*Fern (Quiz Board)*to increase learning activity and science learning achievement in class II MI NURUL FALAH BRATI students.

Method

This study used a mixed research approach (Mix Methods) with Research & Development (R&D) methods. research and development R&D is a process carried out to develop and validate educational products such as teaching material media and management systems in learning (Vebrianto et al., 2020). The product developed in this research is PAKIS learning media. The development model in this study is the ADDIE model developed by (Yanti et al., 2021) The model involves five stages namely (1)analysis (analysis), (2)Design (design), (3)Develop (development), (4)Implementation (implementation), (5)Evaluation (evaluation). The flow of the model development stages is shown in the following figure.

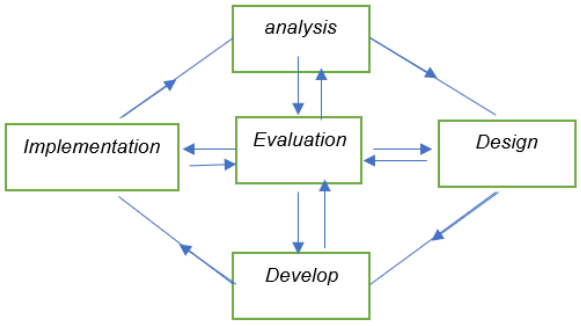

Figure 1. Flow of the ADDIE model stages

Product trial design in research using design*one-group pretest and posttest.* By using this design the results obtained will be more accurate because it can compare the conditions of the research subjects before and after being given treatment (Kuncoro W A & Sugiono, 2019)*Pretest* used before the use of PAKIS media, meanwhile*posttest* carried out after the use of PAKIS media. The pretest and posttest questions consisted of ten descriptive questions given to 4 students in grade II MI Nurul Falah Brati. The data collection techniques used are interviews, questionnaires and tests. Interviews were conducted with teachers to obtain initial data

regarding the problems that occur and the need for the development of the required learning media. The questionnaire used was a limited trial questionnaire and a validity questionnaire. The test is used to determine the results of students' active learning from the use of media that has been developed.

The data analysis technique used in this study is a qualitative data analysis technique to analyze teacher interviews. Quantitative data analysis techniques using Validity, Normality, N-Gain and observation tests. The validity test was carried out to determine the validity of the PAKIS media which was developed based on expert judgment. The formula used to obtain the percentage of invalidity of the developed media is as follows,

$$\text{Resulth} = \frac{\Sigma \text{ The score obtained}}{Maximum\ score}\ x\ 100\%$$

The results of the percentage validity of the developed media are interpreted in the validity category with the following criteria,

Table 1. Media Validity Criteria

Score in percent (%)	Criteria
< 20 %	Very unworthy
21-40 %	Not feasible
41-60%	Pretty decent
61-80%	Worth it
81-100%	Very worth it

The normality test in this study was carried out to test the normality of the pretest and posttest data values, so that further data analysis techniques could be determined to be used. The normality test in this study was carried out using the normality test*Shapiro-wilk* in the SPSS 25 program. Data can be said to be normally distributed if the significance value is > 0.05, while data that has a significance value < 0.05 means that the data is not normally distributed. While the N-Gain test is used to measure the average increase in student learning activity before and after using the PAKIS media that has been developed.

The N-Gain formula used is as follows,

$$\text{N-Gain} = \frac{\Sigma \text{ Shoes Postest} - \text{ Shoes Pretest}}{Shoes\ Ideal - Shoes\ Pretest}\ x\ 100\%$$

of interpretation of the effectiveness of N-Gain follows to determine the effectiveness of using the developed PAKIS media.

Table 2. The Effectiveness of Using PAKIS Media

Presentase (%)	Interpretation
< 40	Ineffective
40-55	Less effective
56-75	Effective enough
>76	Effective

Observation is a data collection technique where researchers make direct observations of research objects to see the activities being carried out and to find out the results of observations regarding students' active learning in using PAKIS media

Table 3. Observation of students' active learning

Presentase (%)	Interpretation
< 40	Ineffective
40-55	Less effective
56-75	Effective enough
>76	Effective

Results and Discussion

The results of the development that has been carried out by researchers in research and development of PAKIS learning media on Class II Science material at MI Nurul Falah Brati. Based on the results of interviews with class II teachers who stated that class II students at MI Nurul Falah Brati were less active in learning due to a lack of learning media. The learning media used by the teacher are only in the form of textbooks and worksheets. The learning media is felt to be less effective and less attractive to students' learning interest. So the teacher must innovate in developing learning media.

The learning media developed in this study is PAKIS media. PAKIS media is media designed using boards, dice, pawns, and art paper.

Figure 2. PAKIS media

The fern media that has been developed is then tested for validation to determine the validity of the product in terms of the validation results. Learning media that are valid and feasible to use must be in accordance with the contents of the learning material. The results of the assessment of the validation aspect are as follows:

Table 4. Media Validation

Assessment aspects	Score(%)	Average per aspect		Category eligibility
	V1	V2	V3	
The media size is standard	-	5	5	Very worth it
Appropriate size of the media used	-	4	4	Very worth it

Media design describes the material	5	5	5	Very worth it
Don't use too many combinations of fonts	5	5	5	Very worth it
The suitability of the material with the learning objectives	5	5	5	Very worth it
The attractiveness of media appearances	5	5	5	Very worth it
Easy to store	5	5	5	Very worth it
Easy to use	5	5	5	Very worth it
Clarity of instructions for using the media	5	5	5	Very worth it
Media packaging	5	5	5	Very worth it
Media durability	5	5	5	Very worth it
Communicative	5	5	5	Very worth it
Media display simplicity	5	5	5	Very worth it
Text readability	5	5	5	Very worth it
Selection of type and size of letters used	4	5	4,5	Very worth it
Display image presented	5	5	5	Very worth it
Color composition	5	5	5	Very worth it
Color compatibility	4	5	4,5	Very worth it
Design neatness	5	5	5	Very worth it
Design attractiveness	5	5	5	Very worth it

Fern media that has been validated until declared feasible, then tested on class II students on a limited scale. limited scale trials were conducted to four students through direct learning using PAKIS media that has been developed. After conducting a limited trial, the four students were then given a questionnaire to find out student responses regarding the use of PAKIS media. The questionnaire given consisted of 35 statements. The recapitulation of the results of the questionnaire in the limited trial can be seen in table 4 as follows.

Table 5. Student Response Questionnaire

Assessment Aspects	Score (%)				Flat average per aspect	Criteria
	V1	v2	V3	V4		
Media display attractiveness	95%	90%	95%	85%	91,25%	Very worth it
The ability of the media to achieve learning objectives	90%	90%	85%	90%	88,75%	Very worth it

Presentation of material	95%	95%	90%	95%	93,75%	Very worth it
Total score	93,3%	91,6%	90%	90%	91,225%	Very worth it
Gain Score	91,225					Very worth it

After it was known that PAKIS media was very suitable for use in learning, then a trial was carried out to find out the learning activity of class II MI Nurul Falah Brati students. The trial was conducted on 4 class II students. Recapitulation of test results is presented in the table. 5 as follows.

Table 6. Recapitulation of Test Results

No	Information	Test Type	
		Pretest	Posttest
1	Mean	8.00	9.25
2	Maximum	9	10
3	Minimum	7	8
4	Number of students completed	3	4
5	The number of students is not complete	1	0
6	Mastery learning	75%	100%
The difference between the average posttest and pretest scores		1.25	

Based on the recapitulation of pretest and posttest scores, it can be concluded that the learning activity of class II MI Nurul Falah Brati students after learning using PAKIS media is greater than before using PAKIS media.

Data on students' pretest and posttest scores were then analyzed statistically by analyzing the initial data using the normality test to find out whether the data was normally distributed or not. The normality test results are as follows.

Table 7. Normality test results for pretest and posttest values

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PreTest	.250	4	.	.945	4	.683
PostTest	.283	4	.	.863	4	.272

After knowing the normality test results of the pretest and posttest scores, then the N Gain test was carried out to find out the increase in the average student test before using the media and the final test score after using the media. The results of the N-Gain test in this study can be seen in table 8 below.

Table 8. N-Gain Test Results

	N	Minimum	Maximum	Mean	Std. Deviation
N_Gain	4	0	0	.01	.010
N_Gain_persen	4	0	2	1.36	1.034
Valid N (listwise)	4				

In this case the researcher made non-participant observations which according to (Koerniantono, 2019) argues that non-participant observations are researchers who are not involved and only as independent observers. Observations were made to observe the increase in student learning activeness. The observations used to observe in this study are in the form of a checklist (√)

Table 9. Observation Results

No	Assessment Aspects	Score (%)				Flat score average	Criteria
		V1	v2	V3	V4		
1	Ask the teacher	3	2	3	2	10	Very worth it
2	Answer the question	3	2	2	3	10	Very worth it
3.	using media	2	3	3	3	11	Very worth it
4	Observing learning activities	3	3	3	3	12	Very worth it
5	Listening to friends while using media	3	3	2	3	11	Very worth it
6	Confidence in learning activities	3	3	2	2	10	Very worth it
Total score		17	16	15	16	64	Very worth it
Mark		94,4%	88,8%	83,3%	88,8%	88,875%	Very worth it

Maximum score = 18

$$\text{Value} = \frac{\text{Gain Score}}{\text{Max Score}} \text{X100}$$

Conclusion

PAKIS learning media on material where living things live, science learning content is declared suitable for use based on validation results obtaining an average validation score of 96% with a very feasible category. The implementation of PAKIS media was carried out through a limited scale trial. The results of the limited scale trial questionnaire obtained an average score of 91.225% and were categorized as very positive. In the N-Gain test, the average pretest to posttest score increased by 1.36. and a percentage of 136%. So PAKIS media is effective to use. In observing the activeness of student learning using PAKIS media, a score of 88.875% was obtained so that PAKIS media was effectively used in learning so that it could increase student learning activity.

References

Ahmad Rifaldi Djahir, Daud K., Walanda, & Baharuddin Hamzah. (2014). PENERAPAN MODEL PEMBELAJARAN SNOWBALL THROWING BERBANTUA N KODE SMILES PADA MATERI HIDROKARBON TERHADAP HASIL BELAJAR SISWA KELAS XI SMA NEGERI 5 PALU.

Aprinawati, I. (2017). Penggunaan Media Gambar Seri Untuk Meningkatkan Kemampuan Berbicara Anak Usia Dini. Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini, 1(1), 72. https://doi.org/10.31004/obsesi.v1i1.33

Koerniantono, M. E. K. (2019). Pendidikan Sebagai Suatu Sistem. SAPA - Jurnal Kateketik Dan Pastoral, 4(1), 59–70. https://doi.org/10.53544/sapa.v4i1.69

Kuncoro W, A., & Sugiono. (2019). PENGEMBANGAN MEDIA PEMBELAJARAN KOMPETENSI PEMBUATAN CAKE BERBASIS ANDROID DI SMK NEGERI 4 SURAKARTA. https://gs.statcounter.com/os-

Prasetyaningtyas SMP, S. N. (2020). PENERAPAN METODE PERMAINAN KARTU KWARTET UNTUK MENINGKATKAN PRESTASI BELAJAR DAN KEAKTIFAN BELAJAR PADA MATERI KLASIFIKASI MAKHLUK HIDUP KELAS VII SMP N 1 SEMIN APPLICATION QUARTER-CARDS GAME OF METHODS TO IMPROVE LEARNING ACHIEVEMENT AND LEARNING ACTIVITIES IN CLASSIFICATION OF LIVING THINGS AT CLASS VII C SMP N 1 SEMIN. In JURNAL IDEGURU (Vol. 5, Issue 1).

Vebrianto, R., Thahir, M., Putriani, Z., Mahartika, I., Ilhami, A., & Diniya, D. (2020). Bedelau: Journal of Education and Learning Mixed Methods Research: Trends and Issues in Research Methodology. In Bedelau: Journal of Education and Learning (Vol. 1, Issue 1).

Yanti, I., Affandi, L. H., & Rosyidah, A. N. K. (2021). Pengembangan Media Permainan Ular Tangga untuk Meningkatkan Kemampuan Berhitung Siswa Kelas II SDN 12 Taliwang. Jurnal Ilmiah Profesi Pendidikan, 6(3), 509–516. https://doi.org/10.29303/jipp.v6i3.280

ZTF, P. B. (2020). From the centre to periphery: The Middle Eastern impacts on Islamic education in Indonesia. Journal of Social Studies (JSS), 16(1), 65–82. https://doi.org/10.21831/jss.v16i1.34702