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The Effect of Using Interactive Multimedia-Based Learning Media to Improve Learning Outcomes in MI Al-Khairat Students, Hampalit village, Katingan District

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Abstract. *The interactions that occur during the learning process at MI AL-Khairat, Empalit Village, Katingan Regency, are influenced by the learning environment, including the effectiveness of the learning media. This research examines Multimedia which is a new technique in the field of multimedia, one of which is computers which combines more than one media in a form of communication which includes text, sound, graphics, animation and video into a computer system. The use of multimedia such as computers in the teaching and learning process at MI AL-KHAIRAT Hampalit village has practical values, including that media can arouse new desires and interests. By using media, children's learning experiences become broader, their perceptions become sharper, and their concepts become more complete, so that new desires and interests in learning always arise. Media can arouse motivation and stimulate students to learn. Posting pictures on bulletin boards, showing films and listening to audio programs can cause certain stimuli towards the desire to learn.*

Keywords: Learning Media, Interactive Multimedia, Multimedia Base

Introduction

Learning is a process carried out consciously by each individual or group to change their attitude from not knowing to knowing throughout their life. Meanwhile, according to Oemar Hamalik, the teaching process:

"Teaching is an activity in which students learn and teachers teach in an interactive context, and educational interactions occur between teachers and students, so that there are changes in students, both changes in the level of knowledge, understanding and skills or attitudes."

Teaching and learning activities in the classroom are separate communications where teachers and students exchange ideas to develop ideas and understanding. In communication, deviations often arise and occur so that communication is not effective and efficient, partly due to students' unpreparedness for learning and lack of interest and enthusiasm. Muhammad Basyiruddin Usman and Asnawir (2002) argue that one effort to overcome this situation is the integrated use of media in the teaching and learning process, because the function of media in these activities is not only to provide stimulus for learning, information, attitudes and so on, but also to increasing harmony in receiving learning information.

According to Azhar Arsyad, "the interactions that occur during the learning process are influenced by the learning environment, including the effectiveness of the learning media." A similar thing was also stated by Sadiman (2007) that "the use of appropriate learning media will be able to overcome the passive attitude of students."

Therefore, the teaching and learning process which is held in schools or formal institutions, is intended to direct planned changes in students' personalities, whether changes in knowledge, understanding and skills or attitudes. The use of media must be in line with reforms in the curriculum sector that are currently being intensively carried out by the government. The emergence of the Competency Based Curriculum (KBK) which was then updated with the Education Unit Level Curriculum (KTSP) and subsequently the 2013 curriculum (K.13) requires appropriate application in learning methods, so that it is in accordance with the educational characteristics and objectives contained in the curriculum.

This is in line with the opinion expressed by Anita Lie, that:

"The updated curriculum requires a teaching and learning process that no longer relies solely on the teacher as the sole owner and source of knowledge who must transfer that knowledge to students continuously, but on the students themselves who must build their knowledge."

Along with the times, progress in science and technology is increasingly advanced and also encourages teachers to make efforts to reform the learning process and utilize the results of technology. As stated by Sadiman, teachers are required to be able to use tools that can make it easier for them to carry out the teaching and learning process and make it easier for students to learn, including tools that are appropriate to current developments such as computer devices that display slide media, flash animations, and so on. . There are simple, cheap and numerous teaching aids such as pictures, graphs and charts as well as audio-visuals which can be packaged in multimedia-based learning media. To achieve learning objectives, teachers are also required to be able to use these tools.

The aim of this research is to find out how motivation and achievement improve the learning outcomes of MI AL-Khairat students in Hampalit village by learning using interactive multimedia. The next process in data processing is conducting hypothesis testing. independent.

Methods

Research design

This research method uses a type of research and development method. According to Sugiyono (2013:407) Research and Development is a research method used to produce certain products and test the effectiveness of these products. The product developed in this research is interactive multimedia-based learning media to improve learning outcomes for MI Al-Khairat students in Hampalit Village, Katingan Regency.

This research process aims to obtain interactive multimedia-based learning media that can be used as an introductory practical theory. The design stage in this research was carried out with the process of data collection, data preparation, system design, system testing and report preparation.

Population and Sample

The population in this research was all 75 MI Al-Khairat students, the sample in this research was carried out and determined randomly.

Time and Place of Research

This research was conducted at MI Al-Khairat, Kampung Village, whose address is Jalan Tjilik Riwut KM 26 (Kasongan-Sampit). This research was carried out for 2 months starting on April 3 2024.

Research variable

The independent variable in this research is guided inquiry learning approach including syllabus, teaching materials, lesson plans and worksheets, while the dependent variable is learning outcomes in accordance with research objectives, students' skills and performance in accordance with research objectives. The variables controlled in this research are the syllabus, questions, books, student and teacher abilities.

Research Instrument

This research instrument includes syllabus, lesson plans, worksheets, key to worksheets, assessment sheets, key to assessment sheets, teaching materials, and observation sheets on the effectiveness of learning activities regarding the effectiveness of interactive multimedia-based learners.

Data collection technique

a) Data collection

Collect data requirements related to the system and everything that supports the creation of the system and the required data. The data needed is the results of interviews with teachers and textbooks used during the teaching and learning process in elementary schools.

b) Data Preparation

Prepare all data that will be used in the design to get an overview of the system that will be created. The design created includes process flow and system visualization.

c) System planning

Interactive multimedia created based on the flow of a gradual explanation of natural science subject matter about alternative energy.

d) System Testing

Testing is carried out to look for deficiencies so as to obtain maximum results.

e) Report Creation

This process explains in writing all the data obtained from the research location, the process of creating interactive multimedia and packaging it in the form of a desktop-based application program.

The targets of this interactive multimedia learning are Mi Al-Khairat students in the village of Empalit, Katingan district. The following development steps in this research are presented as follows:

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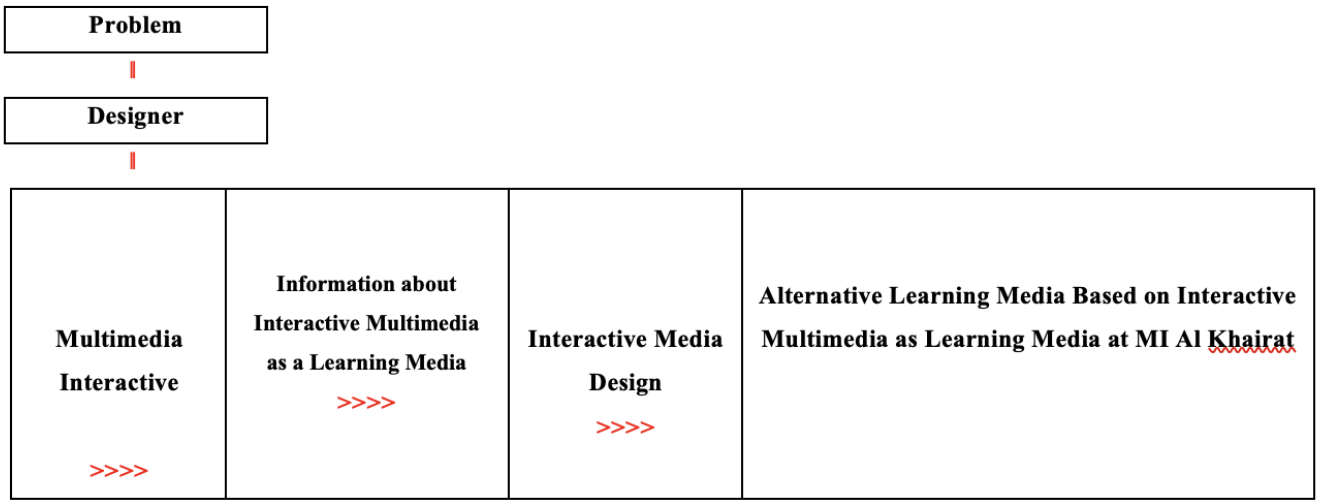

Figure 1. Mindset Scheme

Pre-production is divided into six parts, namely planning, concepts or ideas for the interactive media work being created, conducting research or exploration of data related to the idea that will be realized.

a. Planning

Planning is the initial stage before entering the interactive media design stage which is carried out in a certain period to achieve predetermined goals. Part of the planning in this research is the type of media, hardware, software.

b. Concept or Idea

The concept in designing this information media is cheerful where the colors that will be used are bright but not flashy colors and using a background that is in accordance with the concept that will attract students' attention when using this learning media. The images used are student characters and nature in the hope of attracting students' interest in learning.

c. Research

Research is carried out by re-imagining reality objects, simulating or reconstructing things that already exist in real life. Research is also related to what you want to simulate, so that at this research stage information and analysis will be carried out related to what you want to realize.

Data analysis technique

Data analysis of the research results is explained as follows:

a) The research results are in the form of quantitative data, namely student learning outcomes in the form of products obtained from interactive multimedia pre-test and post-test scores from the experimental class and control class. The data obtained was then analyzed using covariance analysis techniques, where the average initial test score was used as the covariance.

b) The research results are in the form of quantitative data, namely student learning outcomes in the form of processes obtained from interactive multimedia pre-test and post-test scores from the experimental class and control class. The data obtained was then analyzed using covariance analysis techniques, where the average initial test score was used as the covariance.
c) Student performance data during interactive multimedia learning will be analyzed descriptively.

Results and Discussion

Product Learning Outcomes

The average project learning outcomes for the treatment class and control class are presented in Table 1.

Table 1. Average Product Learning Outcomes

Meeting I				Meeting II				Meeting III			
Control		Treatment		Control		Treatment		Control		Treatment	
Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
17,9	28,21	14	29,5	18,21	28,93	19	51,2	12,14	27,14	16,9	70.2

A summary of the significance test data for student learning outcomes in the form of products is presented in Table 2.

Table 2. Significance of Product Learning Outcomes

Meeting	Source	DB/DF	JK/SS	RK/MS	F-Rasio	Pr>F	Information
1	Regression	2	0.85	0.424	16.76	0.0001	Significant
	Residual	79	2.00	0.025			
	Total	81	2.85				
2	Regression	2	1.65	0.824	43.60	0.0001	Significant
	Residual	80	1.51	0.018			
	Total	82	3.16				
3	Regression	2	4.04	2.020	140.47	0.0001	Significant
	Residual	79	1.13	0.014			
	Total	81	5.17				

Note:
R-squared = 0.29, c.v. = 10.91 (meeting I),
R-squared = 0.52, c.v = 8.44 (meeting II).
R-squared = 0.78, c.v = 6.99 (meeting III).

Process Learning Outcomes

The average learning outcomes of the treatment class and control class are presented in Table 3.

Table 3. Average Process Learning Outcomes

Meeting											
I				II				III			
Control		Treatment		Control		Treatment		Control		Treatment	
Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
17,5	30,36	32,8	53,8	20	37,5	24,1	60	13,21	31,43	21,9	72,1

A summary of the significance test data on student learning outcomes in the form of processes that have been obtained is presented in Table 4.

Table 4. The significance of the Results of the Learning Process

Meeting	Source	DB/DF	JK/SS	RK/MS	F-Rasio	Pr>F	Information
1	Regresi	2	1.70	0.851	88.77	0.0001	Significant
	Residual	79	0.75	0.009			
	Total	81	2.46				
2	Regresi	2	1.05	0.526	98.76	0.0001	Significant
	Residual	79	0.42	0.005			
	Total	81	1.47				
3	Regresi	2	2.89	1.446	245.92	0.0001	Significant
	Residual	79	0.46	0.005			
	Total	81	3.35				

Note:
R-kuadrat = 069, c.v. = 5,90 (Meeting I),
R-kuadrat = 0,71, c.v = 4,22 (Meeting II),
R-kuadrat = 0,86, c.v = 4,38 (Meeting III).

A summary of the results of the student activity sheets is presented in Table 5.

Table 5. Summary of student worksheet results

Meeting	Score of the entire group	Average	% result	Category
I	610	61	61	Medium
II	795	79,5	79,5	Good
III	640	64	64	Medium

Note :
Good : 76 – 100%, Medium : 56 – 75%, Not enough : 40 – 55%, Very less :< 40%.

Student Performance during Learning Activities

1. Student Performance

a) Group Activities during Learning

A summary of group activities during learning is as shown in Table 6.

Table 6. Summary of student worksheet results

No.	Type of Behavior	Meeting			∑	Average	Category
		I	II	III			
1	Teacher-Student interaction	3,82	5	5,64	4,82	14,46	Very Good
2	Student-Student interaction	4,28	5,18	6,36	5,27	15,82	Very Good
3	Identify tasks against supporting materials	3,27	4,82	6	4,69	14,09	Very Good Very Good
4	Identify tasks against supporting materials	5,18	5,27	6,18	5,54	16,63	Very Good

Note :
0-1,9 = Lack, 2-2,9 = Sufficient, 3-3,9 = Good, 4-5 = very good

b) Results Of Observations of Multimedia-Based Learning Demonstration Activities

A summary of the results of observations of demonstration activities is as shown in Table 7.

Table 7. Summary of the Results of Observation of Multimedia-based Learning Demonstration Activities

No.	Type of Behavior	Meeting			∑	Aver age	Category
		I	II	III			
1	Writing assignments	3,82	4,82	6	14,64	4,88	Very Good
2	Use of multimedia	3,27	5,27	6,36	14,9	4,96	Very Good

Note :
0-1,9 = Lack, 2-2,9 = Sufficient, 3-3,9 = Good, 4-5 = very good

c) Summary the Results of Observations Of The Effectiveness Of Multimedia-Based Learning
A summary of the observation results is presented in Table 8.

Table 8. Summary the Results of Observation of the Effectiveness of Multimedia-based Learning

No.	Behavior	Meeting			∑	Average	Category
		I	II	III			
1	Oral Performance	4,72	5,27	6,27	16,26	5,42	Very Good
2	Multimedia questions	4,45	5,18	6,36	15,99	5,33	Very Good
3	Reading/presenting						Very Good
	Task	3,9	4,82	5,9	14,62	4,87	Very Good
4	Discuss ideas/material						Very Good
	Taught	4,9	5,36	6,45	16,71	5,57	Very Good
5	Criticize/Analyze responses						Good
	from other students	3,18	3,09	4,09	10,36	3,45	Very Good
6	Reading text/material						Very Good
	Learning	5,36	6,09	7,09	18,54	6,18	Very Good
7	Give an opinion						Very Good
	informal/report	4,54	4	5	13,54	4,51	Very Good

Note :
0-1,9 = Lack, 2-2,9 = Sufficient, 3-3,9 = Good, 4-5 = very good

d) Summary of Performance Assessment Results for the Effectiveness of Multimedia-Based Learning
A summary of assessment in learning is presented in Table 9.

Table 9. Summary of Performance Assesment Results

No	Type of Behavior	Meeting	∑	Aver	Category

		I	II	III		age	
1	Product criteria	5,73	4,82	5,82	16,37	5,45	Very Good
2	Process criteria	5,82	4,64	5,64	16,1	5,36	Very Good
3	Incorporate classroom instruction with a realistic context	5,27	3,36	4,36	12,99	4,33	Very Good
4	Knowledge Integration	4,36	3,45	4,45	12,26	4,08	Very Good
5	Do routine things By using information which is obtained	3,45	3,36	4,36	11,17	3,72	Good
6	Real world competent standards	6,36	4,73	5,64	16,73	5,57	Very Good
7	Represent real life not a workbook	6,18	5,27	4,45	15,9	5,3	Very Good

Note :
0-1,9 = Lack, 2-2,9 = Sufficient, 3-3,9 = Good, 4-5 = very good

2. Social Skills

A summary of social skills is presented in Table 10.

Table 10. Summary of Social Skills Results

Parameter	Meeting					
	I		II		II I	
	∑	Average	∑	Average	∑	Average
Ask a question	25	2,27	29	2,63	39	3,55
Express an Opinion	22	2	28	2,55	42	3,82
Communication	28	2,55	28	2,55	41	3,73

3. Character Behavioral Skills

Summary of observations of character behavioral skills in Table 11.

Table 11. Summary of Observation Results of Character Behavior Skills

Parameter	Meeting					
	I		II		III	
	∑	Average	∑	Average	∑	Average

Accuracy	18	1,64	25	2,27	39	3,55
Responsibility	29	2,64	33	3	40	3,63
Cooperate	28	2,55	29	2,63	39	3,35
Respect your friends' opinions	22	2	28	2,55	40	3,63

4. Psychomotor Assesment

Summary of psychomotor assesment in Table 12.

Table 12. Summary of Psychomotor Assesment

Group		Meeting			Average	Category
		I	II	III		
Class	1	69	84	95	82,67	Good
	2	70	86	92	82,67	Good
	3	73	87	94	84,67	Good
	4	68	82	97	82,33	Good
	5	73	89	93	85	Good
Class	1	75	82	95	84	Good
	2	73	82	96	83,67	Good
	3	73	82	96	83,67	Good
	4	72	84	93	83	Good
	5	70	85	94	83	Good

Note:
Good: 76-100%
Deficient: 40-55%
Currently: 56-75%
Very Deficient: <40%

To find out how the research results, both motivation and achievement, improve the learning outcomes of MI AL-KHAIRAT students in Hampalit village by learning using interactive multimedia. The next process in processing the data is to carry out hypothesis testing. In testing this hypothesis, the researcher uses independent t-test comparison analysis. but before that the researcher needs to explain the hypothesis formulation of the research.

a. Students are more motivated and have better learning achievements if learning uses a multimedia basis rather than conventional methods.
b. Students are no more motivated and their learning achievements are no better if learning uses an interactive multimedia basis than if they do not use (conventional) multimedia.

Figure 2. Teacher and Students at MI Al Khairat

After explaining the hypothesis above, to find out the comparison of student motivation and learning achievement between learning using interactive multimedia and conventional methods at MI Al-Khairat, Hampalit village.

The use of multimedia such as computers in the teaching and learning process at MI AL-Khairat Hampalit village has the following practical values:

a. Media can generate new desires and interests. By using media, children's learning experiences become broader, their perceptions become sharper, and their concepts become more complete, so that new desires and interests in learning always arise.
b. Media can arouse motivation and stimulate students to learn. Posting pictures on bulletin boards, showing films and listening to audio programs can cause certain stimuli towards the desire to learn.
c. Media can overcome various limited experiences that pupils or students have. The experiences of each individual are varied because family and community life determine the kinds of experiences they have. Two children living in two different environments will have different experiences. In this case the media can overcome these differences.
d. Media can transcend the classroom. There are many things that are difficult for students to experience directly in the classroom, such as: objects that are too fast or too slow. So through the media these difficulties can be overcome.
e. Media allows direct interaction between students and the environment. Physical and social symptoms can be communicated with.

Researchers are guided by the motivation developed by Abraham Maslow which essentially revolves around the opinion that humans have five levels or a hierarchy of needs, namely:

a. Physiological needs, namely basic human needs for life, for example the need for food, water, oxygen, warmth and so on.
b. The need for security, in this case not only in the physical sense, but also mental, psychological and intellectual. The need for affection and relationships, namely the need to have affectionate relationships with other people and be accepted as part of a group.
c. The need for appreciation, this is generally reflected in various status symbols.

d. Self-actualization, in the sense of providing opportunities for someone to develop the potential contained within themselves so that it turns into real abilities.

Figure 3. Students at MI Al Khairat

From the description above, it can be understood that interactive multimedia-based learning media can provide many benefits as long as the teacher plays an active role in the teaching process. According to Muhammad Basyirudin Usman, the relationship between teachers and students remains an important element in the education system. Teachers must always be present to present material with the help of any media, especially computer learning media so that the interactive benefits of multimedia can be realized.

Conclusion

The research results obtained show that the teaching and learning process which is held in schools or formal institutions, especially MI Al-Khairat, Hampalit Village, Katingan Regency, is intended to direct planned changes in students' personalities, both changes in knowledge, understanding and skills or attitudes. In this study, the researcher concluded that the use of media must be in line with reforms in the curriculum sector which are currently being intensively carried out by the government. Interactive multimedia-based learning media can provide many benefits as long as the teacher plays an active role in the teaching process. Because the relationship between teachers and students remains a very, very important element in the education system.

Teachers must always be present to present material with the help of any media, especially computer learning media so that the interactive benefits of multimedia can be further realized in the implementation process. The use of media must be in line with reforms in the curriculum sector that are currently being intensively carried out by the government. The emergence of the Competency Based Curriculum (KBK) which was then updated with the Education Unit Level Curriculum (KTSP) and subsequently the 2013 curriculum (K.13) requires appropriate application in learning methods, so that they are in accordance with the educational characteristics and objectives contained in the curriculum.

Learning using interactive multimedia, the next process in the author's data processing research is conducting hypothesis testing. In this hypothesis testing, the researcher uses

independent t-test comparison analysis, but before that the researcher needs to explain the hypothesis formulation of the research.

a. Students are more motivated and have better learning achievements if learning uses a multimedia basis rather than conventional methods.
b. Students are no more motivated and their learning achievements are no better if learning uses an interactive multimedia basis than if they do not use (conventional) multimedia.

After presenting the hypothesis above, it can be seen the comparison of student motivation and learning achievement between learning using interactive multimedia and conventional methods at MI Al-Khairat, Hampalit village. The researcher used quantitative analysis to obtain comparative results. To find out how motivation and achievement improve the learning outcomes of MI AL-KHAIRAT students in Hampalit village.

By learning using interactive multimedia, the next process in data processing is conducting hypothesis testing. In testing this hypothesis, the researcher uses independent t-test comparison analysis as described in the explanation above. It can be understood that interactive multimedia-based learning media can provide many benefits as long as the teacher plays an active role in the teaching process. The relationship between teachers and students remains an important element in the education system. Teachers must always be present to present material with the help of any media, especially computer learning media so that the interactive benefits of multimedia can be realized.

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