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The Effectiveness of Blended Learning Assisted by Interactive PowerPoint on Student Achievement of Elementary School Students in Bintarum Group, Demak District

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Abstract: Professional teachers must have the ability to select and apply learning methods in order to obtain graduates who meet the established standards. Teachers play a very important role in learning activities. The role of the teacher as a facilitator and motivator of students The main key to improving the quality of learning is to increase the teacher's knowledge as a person who teaches and uses the most appropriate methods to achieve a given goal, taking into account the characteristics of the learner. Research objectives for analyzing the effectiveness of the interactive power point-assisted blended learning model on the learning achievement of sixth-grade students in the Bintarum Group, Demak District. The method in this research is quasi-experimental using a quantitative model. Non-equivalent control group design research. The population of this research is the sixth-grade students of the elementary school in the Bintarum Group, Demak District. The sample in this study were all students of sixth grade Karangmlati 2 elementary school as the experimental class and Mangunjiwan 3 elementary school as the control class. The research instrument used a test. Data analysis techniques in this study are data description, normality test, homogeneity test, and hypothesis testing using a t-test. The results showed that there was the effectiveness of blended learning assisted by interactive PowerPoint media on the learning achievement of sixth-grade students in the Bintarum Group, Demak District. This is evident from the value of t count > t-table (6.420 > 2.0167). The value of Sig. is 000<0.05. and a significant difference in the average posttest value (86.30 > 62.96). Based on findings from research complemented by an interactive power point on student achievement. It can be concluded that blended learning media is a power point of interaction rather than direct learning through learning success.

Keywords: Blended learning, PowerPoint, Learning Achievement

1. Introduction

Professional teachers are required to have competence in selecting and applying learning methods to obtain graduates who meet the specified standards. A teacher plays a very important role in learning activities. The task of the teacher as a facilitator and motivator for students.

The main key to improving the quality of learning is to increase the knowledge of the teacher as a person who teaches and uses the most appropriate method to achieve the goals that have been set taking into account the characteristics of the learner. Therefore, 6 factors must be considered in determining the learning method, namely: the learner (who is the learner), the content (the content being taught: facts, concepts, principles, etc), the objectives (knowledge, attitudes, behavior), the learning environment (in the classroom). classroom, laboratory, library, field) lecturers (who is the lecturer) learning resources (books, videos, computers, peers) (Singh, 2021).

Indonesia is currently facing a coronavirus (Covid-19) pandemic. Based on the Circular of the Ministry of Education and Culture Number 15 of 2020 concerning guidelines for organizing learning from home in an emergency period of the spread of the coronavirus disease (covid-19), in the implementation of Distance Learning (PJJ), learning is carried out online (in a network) or from home (remotely).) for all students to university students due to social restrictions as an effort to overcome or at least minimize the spread of the coronavirus. Distance learning is a system that is intentionally designed for various purposes that have not been met by regular education (Savov, Antonova, & Spassov, 2019). According to Diva, Chairunnisa, & Mufidah (2021) online or online learning is a learning process carried out by utilizing an internet connection with connectivity, flexibility, accessibility, and the ability to generate and create several

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interactions in the learning process. So, to implement online learning, all parties involved in the learning process must have readiness such as an internet network with adequate connectivity and other facilities that can support the online learning process to be carried out properly.

The omission of face-to-face at the school caused many problems, and the teacher's stuttering in the application of online learning caused a lot of complaints from students, parents, and even the teachers themselves. The application stuttering is considered reasonable because, in an emergency and urgent situation, teachers and schools try to formulate e-learning activities that are following the conditions of their respective students. In addition, however well the online learning process is implemented, it has not been able to replace the face-to-face learning process directly because the implementation of face-to-face learning is still more effective than online learning. Although online learning facilitates students to get learning anywhere and anytime easily, students as humans still have the desire to be in a real study group (Hadjerrouit, 2008).

The above is following the results of observations and interviews with sixth-grade teachers in an elementary school in the Bintarum Group, Demak District, where the school has implemented an online learning model and only uses the application through the WhatsApp group in delivering assignments. The teacher only gives assignments that are in the textbook. Teachers are also less able to create interactive learning media. With online learning through WhatsApp group classes in science learning the average value of the material for the shape, nature and magnetic force is still below the minimum learning completeness criteria. Based on the average value, it shows that student achievement is still low (Chong & Sungap, 2021). This is because students are less able to understand the subject matter. After all, the teacher only gives assignments without explaining the subject matter. Students are required to learn independently with different student abilities also because of the lack of learning media that can make students understand the subject matter. With the low learning achievement of students, the learning objectives are not achieved (Amin et al., 2021).

Therefore, we need a learning model during the Covid-19 pandemic that is right on target so that it can be used and helps students get maximum learning. An appropriate learning model is needed during the pandemic so that students are still able to learn safely and comfortably.

1.1 Conceptual Framework

The omission of face-to-face at schools during the Covid-19 pandemic caused many problems, and the lack of infrastructure for the teacher's stuttering in the application of online learning caused many complaints not only from students, parents, and even from the teachers themselves. Therefore, it is necessary to plan to learn during the covid-19 pandemic so that it is right on target so that it can be used and helps students gain learning. An appropriate learning model is needed during the pandemic so that students are still able to learn safely and comfortably with blended learning.

Integrated learning (Blended learning) is one solution in the learning process to be relevant to the times and in the future, fully online learning can be applied (Pratama et al., 2020). Learning model blended learning was also chosen to anticipate a policy from the government to leave students and start implementing learning methods from home with an online system (on the network) or online due to the Covid-19 pandemic. The online learning system (on the network) is a face-to-face learning system face-to-face directly between teachers and students but is done online using the internet network. The learning system is implemented through a personal computer or laptop connected to an internet network connection.

Implementation of blended learning requires media to facilitate the delivery of learning materials using PowerPoint. media PowerPoint is used because it is used to provide point-point presentations on science lessons. PowerPoint will help convey an idea more interestingly and clearly. Microsoft PowerPoint will help in making slides, electronic presentations outlines, and displaying dynamic slides, including interesting clip art, all of which are easily displayed on a computer monitor screen (Baker et al., 2018). With blended learning with the help of power pint media, it is hoped that it will be able to overcome the problems of online learning so that student learning achievement can increase.

2. Literature Review

One of the efforts to meet the learning needs of students in the current pandemic is by making learning plans that combine online and face-to-face learning by designing learning models that can be applied today. Integrated learning (Blended learning) is one solution in the learning process to be relevant to the times and in the future, fully online learning can be applied (Yuh-Tyng, 2012). Blended learning is a learning method that represents the digital era because it has been integrated with the internet. Blended learning is learning that combines the application of traditional learning in the classroom with online learning that utilizes information technology and is flexible (Ningsih & Misdalina, 2017).

Blended learning is learning that combines learning delivery strategies using face-to-face activities, computer-based learning (offline), and computerized online (internet and mobile learning) (Singh, 2021). Through blended learning, all learning resources can "facilitate the learning process for people who learn". The main purpose of blended learning is to provide opportunities for various characteristics of learners so that they can learn independently, sustainably, and develop throughout their lives (Singh, 2021).

Dwiyanto (2020) also said that blended learning is a solution to the challenges in assembling learning and individual development of students. So, it is very appropriate to use in the current situation. In addition, research conducted by Amrizal (2016) shows that the implementation of blended learning in mathematics subjects can increase motivation and

student learning outcomes. The results of research by Rusdiana et al. (2020) shows that learning based on blended learning google classroom with the POE2WE model can be used as a solution to problems in the process. learning during the covid-19 pandemic.

Blended learning takes the advantages of traditional learning methods (face-to-face in a pandemic condition is replaced by virtual face-to-face), and combines them with the advantages of e-learning. Weaknesses in online learning can be overcome by advantages in face-to-face learning. Vice versa, the weaknesses in face-to-face can be overcome by the advantages of online learning.

Requires Blended learning media for teachers to deliver innovative online subject matter. Teachers are encouraged to be more creative in providing online learning materials, namely by making media PowerPoint interactive WhatsApp. The key to all of this is communication, where teachers must continue to pay attention to the development of their students, namely by ensuring that the right to education continues even with the intermediary of technology. PowerPoint was chosen because it can explain the points of the learning material.

PowerPoint will help convey an idea more interestingly and clearly. Microsoft PowerPoint will help in making slides, electronic presentation outlines, and displaying dynamic slides, including interesting clip art, all of which are easily displayed on a computer monitor screen (Baker et al., 2018). Microsoft PowerPoint is a windows-based application program that serves to create presentation materials. Besides being very familiar, Microsoft PowerPoint is easy to use and provides many facilities to make presentations more interesting. Through Microsoft PowerPoint, we can insert sound, video, images, and photos and add animation effects in presentations.

Interactive PowerPoint media is used because it is used to give presentations on science material in points only. Microsoft PowerPoint users can design and make interesting presentations on computers (Yuh-Tyng, 2012) This facility is commonly used in educational facilities, learning to explain problems related to learning. Microsoft PowerPoint is one of the presentation programs that many people use to present their slides (Jamilah, 2019). The use of interactive power points in blended learning according to Saadjad (2018) in his research shows that the use of power points with animation through a blended learning system affects increasing motivation and understanding of concepts in students.

Research findings from Anindyas, Sudiarta, & Mertasari (2015) show that there is a positive influence between blended learning based on whiteboard animation video on students' mathematics learning achievement. This can also be seen from the fact that students who participate in blended learning based on whiteboard animation videos are easier to understand mathematical concepts and are also more motivated to learn mathematics compared to students who take conventional learning.

3. Methodology

This study used a quasi-experimental method to compare the treatment of the teaching and learning process in the experimental class and the control class. A quasi-experiment is an experimental design that does not perform randomization in sampling. Researchers used quasi-experiments because conditions were not possible and time constraints in providing treatment were purely experimental.

3.1 Research Design

The research design used in this study is a non-equivalent control group design (pretest-posttest control group design without being random in Sugiyono (2017). In this design, group subjects are not randomly assigned, for example, the experimental class in a particular class with existing students or as they are. Where in this design the test was carried out twice in the experimental group, namely before the experiment/initial test was called the pretest, and after the experiment/final test was called the posttest. The form of the research design can be seen at Table 1.

Tabel 1: Research design

Kelompok	Pre-test	Variabel	Post-test
Eksperment Class	O_1	X_1	O_3
Control Class	O_2	X_2	O_4

Information:

O_1 : Pre-test in the experimental class
O_2 : Pre-test in the control class
O_3 : Post-test in the experimental class
O_4 : Post-test on the control class
X_1 : Blended Learning assisted by PowerPoint media
X_2 : conventional learning

3.2 Population and Sample

According to Sugiyono (2017) The population is a generalization area consisting of subjects or objects that have certain qualities and characters determined by researchers to be studied and then drawn conclusions. The population in this study was sixth-grade elementary school students in the Bintarum cluster, Demak Demak sub-district, for the 2021/2022 academic year.

According to Sugiyono (2017), the sample is part of the number and characteristics possessed by the population. In this study, the research sample was taken using a purposive sampling technique. Purposive sampling according to Sugiyono (2017) is a sampling technique for data sources using certain considerations.

The sample in this study were two elementary schools, namely Public Elementary School No. 2 Karangmlati and Public Elementary School No. 3 Mangunjiwan 3 which were located in the Bintarum Cluster in the Demak District, Demak Regency. The Table 2 shows the number of samples in this study.

Table 2: Sample Research

No.	School Name	Class	Total	Information
1	Karangmlati 2 Elementary School	VI	20	Blended Learning Assisted by Interactive Powerpoint Media
2	Mangunjiwan 3 Elementary School	VI	25	Online
	Jumlah		45	

3.3 Research Variables

According to Sugiyono (2017) variables are everything in any form that is determined by the researcher to be studied so that information is obtained about it, then conclusions are drawn. The variables in this study include the independent variable or the independent variable and the dependent variable or the dependent variable. The independent variable or independent according to Sugiyono (2014) is a variable that affects or is the cause of the change or the emergence of the dependent variable (bound). The independent variable in this research is Blended Learning assisted by interactive PowerPoint (X). The dependent or dependent variable according to Sugiyono (2014) is a variable that is influenced or is the result of an independent variable. The dependent variable in this study is science learning achievement (Y).

3.4 Data Collection Techniques

The collection technique used in this study was a test. Mardapi (2017) explains that a test is a form of instrument used to make measurements. The test consists of several questions that have answers. The purpose of conducting the test is to determine the achievement of learning outcomes or competencies that have been achieved by students in certain fields. The test instrument is used as a tool to determine the success of student learning achievement.

3.5 Research Instruments

The research instrument is a tool used to measure research variables (Sugiyono, 2017). The instrument used in this study was a test to obtain data about student learning outcomes. The test was given twice, namely pretest and posttest. The test method aims to determine the achievement of successful science learning with the material of form, nature, and magnetic force through blended learning assisted by interactive power points in the experimental class and online models in the control class. The test instrument is in the form of twenty multiple choice questions.

3.6 Data Analysis Techniques

Analysis techniques include instrument testing (validity test, reliability test, differentiating power test, and difficulty level test). The analysis prerequisite test was carried out after the test of the validity of the questions, namely the normality test and the homogeneity test. Hypothesis testing was carried out by the Independent Sample Test. Hypothesis testing was carried out after the prerequisite test to see the comparison of variables from the average of the two samples.

4. Research Results

4.1 Description of Data

In this chapter the researcher presents and discusses the research data in tabular form. Each variable is arranged in a table of pretest and posttest scores. The description of the data includes a description of the research variables, namely blended learning assisted by interactive power points and online learning. Description of the data obtained from the results of the pretest and posttest scores. The results of descriptive analysis using SPSS of the research variables are shows in the Table 3.

Table 3: Analysis of the Pre-Test and Post-Test Mean Values

Variable	Pretest		Post test	
	Blended learning class assisted by PPT	Control	Blended learning class assisted PPT	Control class
Sample	20	25	30	33
Average	33.25	37.80	86.30	62.96

The pre-test value data with the average in the control class and the experimental class tend to have the same value, so it is assumed that they have the same initial ability. Posttest value data there is an increase in the average learning outcomes. The improvement in the interactive PowerPoint-assisted blended learning class was higher than in the control class. so that the interactive power point-assisted blended learning class is better for increasing the average score in science lessons on the subject of shapes, properties, and magnetic forces.

4.2 Hypothesis Testing

To answer the formulation of the problem proposed, it is necessary to test the hypothesis by using an independent sample t-test. An independent sample t-test was conducted to determine the difference in the effect of learning outcomes in the interactive PowerPoint-assisted blended learning class and online class (control) on the paired sample. The hypothesis was formulated in the form of a statistical hypothesis (one-sided test). The test criteria are t-count compared to t-table with a significant level of a = 5% with DK = n1+ n2-2. The results of the t-test show in the Table 4.

Table 4: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Learning Achievement	Equal variances assumed	6.398	.015	6.420	43	.000
	Equal variances not assumed			6.803	39.272	.000

The results of the independent sample t-test table show the t count value of 6.420 while t table = with df = 43 of 2.0167 then 6.420 > 2.0167 (t-count > t-table). The value of sig 2 tailed is 0.000, then sig count <0.05. Because t-count > t-table, and sig arithmetic <0.05, it means that there are effective blended learning media interactive power point rather than direct learning.

5. Discussion

There is a difference in the average post-test in the class using the blended learning media interactive PowerPoint and the control class with direct learning (fully online). The post-test for the blended learning assisted interactive PowerPoint was 86.30 and the average post-test for the control class was 62.96. This difference occurs because the experimental class applies a blended learning media interactive PowerPoint. The application of the blended learning media interactive PowerPoint is very helpful for students in understanding the subject matter. because the blended application prioritizes independence to students who can create a more independent class by listening to the teacher's explanation, looking for other references when finding difficult learning, and asking friends who understand related to difficult-to-understand learning and interactive PowerPoint media are expected students have the provision in advance to understand the subject matter.

The initial abilities of students in the blended learning media interactive PowerPoint and the control class are almost the same. After being given treatment in the experimental class, there was a striking difference. This difference shows that students who have done blended learning media interactive PowerPoint are easier to understand the material and can think well to answer questions.

The ease of students in understanding and being able to think with the blended learning assisted by interactive PowerPoint was strengthened by the t-test results for the blended learning assisted by interactive power point and the control class. The t-count value is 6.420 while the t-table is 2.0167 then 6.420 > 2.0167 (t-count > t-table). The value of sig 2 tailed is 0.000, then sig count <0.05. Because t-count > t-table, and sig count <0.05, it means that there are effective blended learning media interactive power point rather than direct learning on the learning achievement of class VI students in the Bintarum Group, Demak District because H0 is rejected and Ha is accepted.

The results of this study are following the advantages of blended learning, namely learning becomes more flexible because learning occurs online and face to face. The disadvantage of blended learning is that not all students have facilities that support online learning because not all students come from economically well-off family backgrounds. Therefore, before implementing blended learning, careful planning should be needed so that the obstacles that may occur can be minimized. Blended learning is carried out with the help of interactive PowerPoint media.

Learning media Interactive PowerPoint was created to make it easier for students to learn learning materials more simply and can be visualized well and students can do the exercises that have been prepared. The teacher can explain the material in the teacher's voice or a learning video is made by the teacher, then sent for students to observe. In addition, the teacher can also provide an interesting and relevant background according to the learning material presented, and insert discussions, games, and motivational slides between the slides containing the material.

Research from Putri & Nurafni (2021) on interactive PowerPoint shows that there is an effect of interactive PowerPoint on social studies learning outcomes for fifth-grade students of Islamic Elementary School Nurul Hidayah Depok. According to Lawrence & Tar (2018), the use of PowerPoint has many benefits, including: 1) increasing self-confidence, as it is known that PowerPoint has various features that help make presentations more interesting and make a person more confident in explaining; 2) Help design slides to be more attractive, PowerPoint gives the best results with the provided background, animation and design features that can even be added with songs, videos or photos; 3) Make listeners more focused with the information presented. PowerPoint displays keywords or points from each presentation so that it makes listeners more focused, even the information conveyed can be in the form of images, videos, or sounds. Ariyanti (2016) makes it clear that there are several principles of children's learning, including: 1) Child-oriented learning, meaning that children must be actively involved in learning; 2) Through playing children can learn; 3) a supportive learning atmosphere; 4) Integrated learning tailored to the theme; 5) Learning is carried out gradually and repeatedly; 6) Diverse learning media and resources; and 7) Life skills based on habituation.

Mumaridah et al. (2018) argues about blended learning explained that the use of blended learning based on Edmodo for geography subjects for natural disaster mitigation and adaptation is more effective than the learning model using PowerPoint. With this Edmodo-based blended learning, students are given more opportunities to fulfill their curiosity about new things. In addition, students feel more interested in geography subjects, thus fostering enthusiasm for learning and giving maximum results.

Pramesti, Dibia, & Ujianti (2021). about interactive online media in the form of power point shows that there is a strong positive correlation in interactive multimedia-based PowerPoint to motivation to learn during online learning during the Covid-19 pandemic. interactive multimedia based on PowerPoint was chosen because interactive multimedia based on PowerPoint is a familiar application and consists of a combination of several elements of media so that it can facilitate various types of student learning, especially during the online learning period during the current Covid-19 pandemic. In addition, interactive which means interactive multimedia PowerPoint is two-way communication, learning will be active because students are allowed to be involved in the learning process. PowerPoint interactive multimedia is two-way communication, learning will be active because students are allowed to be involved in the learning process.10 By doing so, it is expected to be able to foster student motivation in learning history through interactive learning activities assisted by interactive PowerPoint. Based on the results of research and discussion about blended learning show that blended learning-assisted media interactive PowerPoint can improve student achievement in terms of shape, nature, and magnetic force. Hypothesis 2 that has been proposed is proven.

6. Conclusion

Based on the results of research and discussion that has been carried out with the title of the effectiveness of blended learning assisted by interactive power points on student achievement. it can be concluded that there are effective blended learning media interactive power point rather than direct learning on the learning achievement of sixth-grade elementary school students in the Bintarum Group, Demak District.

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Conflict of Interest

The authors declare no conflicts of interest.

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