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THE USE OF *BIG BOOK* MATHEMATICS MEDIA ON STUDENT LEARNING OUTCOMES ON BUILDING MATERIAL FLAT CLASS IV MIN 11 ACEH TENGAH

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Abstract

The main problem in this research is that the process of learning mathematics in plane material only relies on memorizing formulas, this occurs in students who do not understand the material. This research aims to determine the influence of the big book mathematics media on the learning outcomes of class IV MIN 11 Central Aceh students. The research was conducted using quantitative methods with a Nonequivalent Group Design. The population in this study were all class IV students at MIN 11 Central Aceh, while the sample was IV_a class totaling 16 students and class totaling 14 students. This research instrument uses a learning outcomes test sheet and the data collection technique used is the test technique and uses the t-test in analyzing the data. Based on the results of the analysis that has been carried out, the average score obtained in the Pre-Test for the experimental class was 50.642 and for the control class with an average score of 46.437. Meanwhile, in the Post-Test, the average score obtained by the experimental class was 74.5 and the control class had an average score of 62.81. IV_cThe results of

statistical analysis obtained = 2.1047 and = 1.70, because > then Ho is rejected and Ha is accepted. $t_{hitung} t_{tabel} t_{hitung}\ t_{tabel}$

Key Words: Big Book Math Media, Learning Outcomes, Two-Dimentional Figure

Abstrak

Pokok masalah permasalahan pada penelitian ini ialah proses pembelajaran matematika pada materi bangun datar hanya mengandalkan penghafalan rumus, hal ini berdapat pada siswa yang kurang memahami materi. Penelitian ini bertujuan untuk megetahui pengaruh media *big book* matematik terhadap hasil belajar siswa kelas IV MIN 11 Aceh Tengah. Penelitian dilakukan menggunakan metode kuantitatif dengan desain *Nonequivalent Group Desain.* Populasi dalam penelitian ini adalah seluruh siswa kelas IV di MIN 11 Aceh Tengah, sedangkan sampelnya adalah kelas IV_a yang berjumlah 16 siswa dan kelas IV_c yang berjumlah 14 siswa. Instrumen penelitian ini menggunakan lembar test hasil belajar dan teknik pengumpulan data yang digunakan adalah teknik test serta menggunakan uji-t dalam menganalisis data. Berdasarkan hasil analisis yang telah dilakukan, nilai rata-rata yang diperoleh pada *Pre-Test* kelas eksperimen adalah 50,642 dan kelas kontrol dengan nilai rata-rata 46,437. Sedangkan pada *Post-Test* nilai rata-rata yang diperoleh kelas eksperimen adalah 74,5 dan kelas kontrol dengan nilai rata-rata 62,81. Hasil analisis statistik diperoleh t_{hitung}= 2,1047 dan t_{tabel} = 1,70, karena $t_{hitung} > t_{tabel}$ maka Ho ditolak dan Ha diterima.

Kata Kunci : Media Big Book Matematik, Hasil Belajar, Bangun Datar

INTRODUCTION

The development of educational paradigms in various countries continues to grow rapidly, one of which is in Indonesia. The development of education in Indonesia today focuses on the ability to think creatively that must be possessed by teachers in creating a pleasant learning atmosphere so that students can easily understand the material studied. The learning process is carried out, of course, with the main goal of creating an educated and knowledgeable generation. In addition, the learning process requires educators who are able to deliver learning materials well and continue to develop their knowledge. The importance of education is in accordance with the revelation that first came down through the intermediary of the angel Gabriel, namely QS. Al-Alaq verses 1-5 which imply that every human being should learn the knowledge of Allah Almighty and put it into practice in life. This verse is reinforced by a fragment of QS. Al-Mujis verse 11 which means "Allah will elevate (the degree of) believers among you and those who are given some degree of knowledge.

The final result in carrying out learning is the achievement of learning objectives. Learning objectives can be achieved by creating a fun and meaningful learning atmosphere for students. One way to create a fun and meaningful learning atmosphere for students is to use various learning techniques or media. According to Kusnah N, the use of varied learning techniques can solidify the learning process and the presentation of information becomes more concrete so that children easily understand learning. The use of different learning techniques according to Kusnah has several benefits including improving the quality of learning, increasing learning productivity, increasing individual and group abilities of students, increasing student understanding, presenting broader and scientific learning materials (Mislan, & Irwanto, 2022)[1] In addition to using various learning techniques, teachers can optimize learning by using learning media that are used as learning aids and make it easier for students to understand the material being studied. In teacher learning activities, teachers certainly need various strategies in presenting information in the form of models, methods, media and other supporting tools so as to facilitate the achievement of learning goals (Oviana, 2023).

Learning media is a teaching aid that can be used by educators to facilitate the delivery of material taught to students. The use of learning media is very necessary in the learning process because it can help increase student understanding and improve student learning outcomes. According to Gagne, media are different types of components in a student's environment that can stimulate learning. In addition, Reiser and Gagne argue that media is any physical tool used to convey the content of teaching materials (Jalinus,N & Ambiya, 2016).

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Smaldino, Lowther, and Russell, on the other hand, view the media as *means of communication*. In line with the understanding of media according to Newby et al, according to him the media is a channel *of communications* (Yaumi,M, 2018). According to Rossi and Breidle, media is all the tools and materials that can be used to achieve educational goals, such as radio, television, books, newspapers, and magazines

Learning media consists of several types, forms and uses. Learning media can be used by educators in accordance with the subject matter to be delivered. Gagne and Briggs, argue that media or tools are physically used to convey the content of teaching materials such as books, tape recorders, tapes, cameras, video recorders, films, slides, photos, images, graphics, television, and computers (Abdul,W.R. 2009).

Learning media can be used for all subjects including mathematics subjects. Mathematics is one of the subjects that must be studied by every human being, especially students. The word mathematics in the Big Indonesian Dictionary (KBBI) means the science of numbers, number relationships and operational procedures used in solving problems regarding numbers. Reiser and Gagne argue that media is any physical tool used to convey the content of teaching materials (Jalinus,N & Ambiya, 2016). One of the learning media can be used on flat building material. Any object that is flat with a two-dimensional design, namely length and width and has a thickness is called a flat shape (Handayani,P.2021).

The results of initial observations conducted at MIN 11 Central Aceh obtained information that the learning process that took place in the school, especially in mathematics subjects, flat building material did not run optimally because the teaching and learning process did not use learning media. Usually, teachers present flat building material by drawing flat wake models on the blackboard and explaining the concept of material based on drawings that have been written by the teacher concerned. This causes students to lack understanding of the material presented and the average student learning outcomes have not reached the minimum school completeness criteria of 75 (seventy-five). Therefore, learning media is needed that can help give students an understanding of flat building material. One of the media that teachers can use is the big *book* math media.

Big book mathematics is a learning medium for mathematics material in the form of a large, simple, and motive book that can be used as a means of conveying messages or learning materials. This is in line with the theory put forward by Holdaway, *big books* are reading books that have large sizes, writings, and pictures that can be used by teachers and enjoyed by students in the teaching and learning process so as to improve student abilities and learning outcomes (Tse,L& Tom,N. 2014).

Big book is one type of picture book that can provide the greatest benefit for students in learning Siti,N.J. 2018). *Big books* can be storybooks with special characters according to teaching materials that contain large texts and images, allowing interaction between students and teachers. Images are an illusion in two-dimensional form that is often used to help convey learning material in the teaching and learning process. According to Hamalik, everything that is visually realized in two-dimensional form as an outpouring of feelings and thoughts is called an image (Simarmat,J. 2020).

The main purpose of using mathematical big book *media in learning is in accordance with the purpose of using* the media itself. The purpose of using media is so that the information contained in teaching materials and learning media can be absorbed as much as possible by students as learners. The function of *the mathematical big book* media is as a distributor of teaching material information. According to Hamalik, the function of the media is to increase students' curiosity and interest in learning, increase motivation and stimulation in the teaching and learning process, and can affect children's psychology. The uses of *mathematical big book* media as mentioned by Arif S Sadiman, Raharjo, Anung Haryono and Rahardjito, namely: 1) Provide a clear picture of a message or information so that it is not too verbalistic both in the form of written and spoken words. 2) Does not burden space, time and sensory power when using it. 3) Creating interaction between students and between teachers and students (Abdul,W.R. 2009).

Big book *mathematics media* has several characteristics, such as containing short stories, clear sentence patterns, meaningful images, clear *font* types, clear *font* sizes , and storylines in *big books* are easy to understand. *The* big book used in this study is a *mathematical big book* that contains flat building material or flat plane parts that are limited by lines, both straight lines and curved lines. Flat shapes contained in the *big book* of mathematics that will be used include squares, rectangles, triangles, parallelograms, rhombuses, trapezoids, kites and circles.

The research conducted proves the learning outcomes that will be obtained when carrying out learning using *mathematical big book media with learning that does not use* mathematical big book media . Learning outcomes themselves mean something that students obtain after carrying out the teaching and learning process. Similar to the understanding of learning outcomes according to Arikunto, according to Arikunto, learning outcomes are evaluations which are tools to measure student learning outcomes. Arikunto further stated that grading is a job that provides feedback that reflects the extent to which a student achieves the goals that have been set (Rumiyati. 2021).

Based on previous research conducted by Disyacitta Neolia Firdana and Trimurtini, entitled "Development of *Big Book Media* to Improve Fractional

Learning Outcomes Worth of Elementary School Students". The results of the research conducted showed that *big book media uses fractional material and uses an effective approach and is feasible to use in the teaching and learning process because* big book media *meets the validity value of media experts of 3.75 with very good criteria and a score of 3 with good criteria from material experts* (Disyacitt,N.F & Trimutini. 2018).

Another research was conducted by Fahmi Chairurozika Lubis with the title "Development of *Big Book* Media on Thematic Learning in Class V of State Elementary School 163080 Tebing Tinggi'. The results of the research conducted stated that *the big book* media was effectively used to improve student learning outcomes, evidenced by the increase in student learning outcomes when carrying out *the post-test obtained an average score of 72.40 and after the action, the average* post-test score *was 86.80.* The research that has been carried out aims only to see the level of validity of Big book media in improving fractional learning outcomes. While this study aims to determine the influence of Big book media in improving the learning outcomes of grade IV students. In addition to differences in goals and matei, there are also differences in research subjects and regions. (Fahmi, C.L. 2022).

In addition to previous research, Holdaway put forward a theory about big book media, according to him big books are reading books that have large sizes, writing, and images that can be used by teachers and students in the teaching and learning process so as to improve student learning outcomes (Tse,L& Tom,N. 2014).

METHODS

The method used in this study is a quantitative method because this study requires processing data according quantitatively to obtain actual results. This study used a type of experimental research with *Nonequivalent Group Design design.* This study used two randomly selected classes, consisting of a control class and an experimental class. The research design used in this study is as follows:

Table 1. ***Nonequivalent Group Design Research Design***

Group	Pre-test	Treatment	Post-test
Control class	O_1	-	Y_1
Experimental class	O_2	X	Y_2

Information:
O_1 : Average rating *Pre-test* control group.
O_2 : Average rating *Pre-test* experimental group.
X : Treatment or treatment is learning by using Big Book *Mathematics Media*.
Y_1 : Average rating *post-test* control group.
Y_2 : Average rating *post-test* experimental group (Arikunto,S. 2006).

This research was conducted at MIN 11 Central Aceh, precisely on Jl. Takengon-Atu Lintang, Gelelungi village, Pegasing district, Central Aceh regency. This research was conducted in the middle of the second semester of the 2022-2023 academic year, precisely at the end of May 2022 to the beginning of June 2022.

The population in this study was all grade IV students of MIN 11 Central Aceh consisting of three classes. While the sample in this study was class students IV_a (control class) totaling 16 students and class (experimental class) totaling 14 students. Both classes are IV_crandomly selected.

Meanwhile, to measure the success of research during conducting research, researchers use data collection instruments in the form of learning outcome test sheets given to students. The data collection technique used in this study is a test technique in the form of an initial test (pre-test) *and a final* test (post-test*).* The data analysis technique used in this study is the analysis of learning outcome test data which is carried out in several steps including making a list of frequency distributions with the same class length, calculating the average, calculating standard deviation, conducting homogeneity tests, conducting normality tests and performing t-tests.

RESULTS AND DISCUSSION

The research conducted at MIN 11 Central Aceh began with the provision of *pre-test questions* to each student in the experimental class and control class. The provision of *pre-test* questions to each student aims to determine the ability of students to understand flat material.

Based on the results of research and data processing carried out, the average *pre-test* score of the experimental class was 50.642, while in the control class the average score was 45.875. Furthermore, to determine the suitability of a sample with other samples, researchers conduct a homogeneity test. The homogeneity test conducted by the researcher obtained data that, thus accepted and it can be concluded that both variants are homogeneous for the initial test value data. Then the researcher conducts a normality test to find out whether the data in the study conducted comes from a normal distribution population or not. The normality test results show that the preliminary test data of the experimental

class and the control class really follow the normal distribution.$F_{1,28} < F_{0,05\ (2,53)}H_0$

The results of the initial test research (*pre-test)* that have been obtained are then carried out hypothesis tests. Hypothesis testing, initial tests are carried out to determine the ability of students in each class (experimental class and control class). Based on the results of data processing, obtained $t_{(0,95)(28)} = 1{,}70$ and the calculation results obtained t = 0.8206. So, or then it can be concluded that the ability of the experimental class students is the same as the ability of the control class students.$t < t_{(1-\propto)}0{,}8206 < 1{,}70$

After knowing the results *of the pre-test,* researchers conducted further research in the experimental class using the *medium of* big book mathematics flat material and in the control class treatment was carried out without using *big book* mathematics media. The treatment was carried out using the same learning model, namely the Student *Team Achievement Divisions* (STAD) type cooperative learning model. Slavina revealed that the STAD learning model has three important concepts, including group appreciation, individual responsibility and equal opportunities for equal success (Sabarina, E.M. et.al. 2022)

Furthermore, researchers provide *post-test* questions to determine student learning outcomes after treatment. The results showed that the average *post-test* score in the experimental class was 74.5, while in the control class the average score of students was 62.81. Based on the results of the *post-test normality test* on the learning outcomes of experimental and control class students, researchers found the value of the calculated chi-squared was greater than the chi-squared of the table or Thus it can be concluded that the final test without using the media $\chi^2_{38,3451} > \chi^2_{11,1}$ *of the mathematical big book media* does not follow the normal distribution.

Researchers then conduct a hypothesis test. The results of data processing of hypothetical tests carried out in both classes (experimental class and control class), the researcher obtained the data or, thus rejected and accepted. It can be concluded that there is an influence on the learning outcomes of grade IV MIN 11 Central Aceh students between the learning process that uses mathematics big $t_{hitung} > t_{tabel}t_{2,1047} > t_{1,70}H_0H_a$ book media and the learning process that does not use *mathematics big book* media.

The results of this study are in line with research conducted by Nuri Ramadhan and Khairunnisa in 2021, which stated that *big book* media is effectively used in learning with the subtheme "The Beauty of My Country's Cultural Togetherness". The results of research conducted by Nuri Ramadhan and Khairunnisa showed that there were differences in the learning outcomes of students who *were taught using big book media in experimental classes and*

students who were not taught using big book media *in control classes (Ramdhana,N. & Khairunnisa. 2021).*

Disyacitta Neolia Firdana and Trimurtini in 2018 conducted a research entitled "Development of *Big Book* Media to Improve Fractional Learning Outcomes of Elementary School Students". The results showed that *big book* media is effectively used in the learning process. This is evidenced by the assessment of experts or validators regarding *big book materials and media*. Media experts gave a score of 3.75 with very good criteria and material experts gave a score of 3 with good criteria (Disyacitt,N.F & Trimutini. 2018).

One way to support learning is to use learning media. According to Djamarah, he said "one of the factors that affect student learning outcomes is the learning method factor". The learning method factor is the way of teaching and learning used by educators. The teaching method includes the use of teaching media to support the teaching and learning process. Meanwhile, according to Suharsimi Arikunto, who explained that "factors that affect student learning outcomes are internal factors (related to student physique, intelligence, motivation, ninat, attitude, student talent) and external factors (related to the environment, instrumental factors, facilities, infrastructure and weather conditions)". These factors include the learning media used by educators in delivering learning materials.

The results of the study proved that there were differences in student learning outcomes between *the learning process using Mathematics big book media and the learning process without using* mathematics big book *media*. The use of *mathematical big book* media in learning poses helps students better understand the material delivered by educators. Arif S Sadiman, Raharjo, Anung Haryono and Rahardjito revealed that the use of Mathematics big book media *can clarify the delivery of information so that it is not too verbal, overcome time constraints, and overcome students' passive attitudes because by using* mathematics big book media *there will be interaction between students and between teachers and students.*

CONCLUSION

Based on the results of research conducted by researchers entitled "The Effect of Using *Mathematical Big Book* Media on Student Learning Outcomes in Class IV MIN 11 Central Aceh Flat Build Material", it can be concluded that there is an influence on the learning outcomes of grade IV MIN 11 Central Aceh students between the *learning process using mathematics big book media and the learning process that does not use* mathematics *big book* media . This is evidenced through data analysis using the statistical formula of the t test at the level $\propto$ = 0.05 with a degree of freedom (dk) of 28. The test criteria are "accept Ho if and reject Ho if you have other prices".$t < t_{1-\propto}$ The result obtained is greater than (= 2.1047 > = 1.70), thus rejected and accepted.$t_{hitung} t_{tabel} t_{hitung} t_{tabel} H_0 H_a$.

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