

The Influence of Sica Box Three-Dimensional Learning Media on Students' Learning Outcomes in Science Content

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Abstact:

The light material and its nature using simple media in science found that students' activeness and understanding decreased causing the low value obtained on the material so that this did not happen, innovation was carried out with the learning media used, namely Sica Box. The aim of the study was to find out the results of students before and after using the media and the effect of the occurrence of sica box media on student outcomes. This research uses quantitative methods with quasi-experiments. Research design with pretest-posttest control Group Design by taking data from 57 students with samples using saturated sample techniques. Calculation of data with the normality test, homogeneity, t-test, and u-test as well as the average, standard deviation, and variance. The results obtained before using the media were 68.39 and after using the media the results were 87.68. It can be seen that there was an increase in student learning outcomes with the values obtained using the sica box media. Furthermore, the calculation of the u test $Z_{count} < -Z_{table}$, namely $-5.75 < -1.96$, with this H_a is accepted and H_0 is rejected, it is found that there is an effect of using sica box media on the learning outcomes of students. The implication of the research is that Sica Box helped master the concept of light.

Keywords:

Influence, Learning Outcomes, Sica Box Media

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Introduction

Learning science for primary school students is a challenge in increasing their understanding of science concepts (Abrori, et al., 2022). A good understanding of science concepts can support students in active learning when applying science concepts in everyday life. With the application of good concepts by students, it can improve student learning outcomes better. Contextually based science learning and using engaging media can enhance understanding of science concepts (Istiadah, 2022). Science learning is not just theory but attracts students' interest in understanding the natural phenomena around them.

The science material that makes it difficult for students is the nature of light. The material nature of light becomes difficult for students because students understand concepts in everyday life with this theory (Wati, et al., 2022). Material properties of light are essentially given to students to introduce the concept of light from the start. The law of reflection of light can be practiced in learning so it's not just theory. Material properties of light can be taught to students by providing easy and interesting media (Serway and Jewet, 2008). Lighting diffraction law can make easy and simple media because lighting diffraction law the life time.

Good media is media that can use simple tools contextually and in everyday life (Faradita, 2022). Good media not only attract students to learn but understand students to be able to apply it in everyday life (Irfan dkk, 2019). Digital-based media or visual-based media have a role in understanding students' concepts. Concepts built from the media make students experience the process indirectly (Sari & Ghoni, 2021). The development of media is still an interesting thing because it is considered more modern than the visual media that is used daily (Masturah, et al., 2018). Media developed on virtual and classical chance teacher for develop media with need student (Taufiq et al, 2014). The good media is simple and easy for learning student.

The development of digital media is a challenge for primary school teachers (Ferawati, et al., 2022) because digital media is too difficult to be used by primary school students. In general, students do understand digital, but not all of them understand when it is used in a media. So digital media and learning in schools require synchronization. The use of digital versions of educational game learning media attracts students' attention but causes students to find it difficult to distinguish between learning and which is a science concept (Puspa, et al.). Digital media can not only be used as media but more for the benefit of understanding students' concepts. Digital media can also be developed by using local wisdom that exists in the surrounding community and is expected to increase cultural literacy and science concepts (Theresia, et al., 2023). The development of digital media and 4-dimensional media is a challenge in itself. For primary school teachers, using media is not just media that is easy to use, but rather science concepts, considering that in primary school age is not easy to distinguish between conceptual media and playing media (Anggraini, 2022).

Sica Box media is not digital media but direct interaction media that can be used for learning (Sartika & Bahri, 2022). Sica Box media is used as a means for students to learn the nature of light easily. Sica box media is easy to make and can be used by students to learn to understand the concept of the nature of light (Sandy & Yermiandhoko, 2018). Sica box media was developed as part of easy and economical media development. The use of Sica Box media is one of the interesting things in the midst of developing digital media (Adawiyah, et al., 2021). Sica Box Media does not utilize digital media in the hope that students can directly touch the media used (Riwanto & Budiarti, 2021).

Learning science with Sica Box media can attract students' attention to learning science. Students learn to be more real by using Sica Box media. Teachers can display Sica Box media more easily to understand without having difficulty using

other media. Sica Box media is a friendly medium for use by teachers so that it can help students in understanding concepts. The use of Sica Box media can attract interest and make students understand concepts better. Learning by Sica Box alternative classical media for help student learning sains. Sica Box is simple media and help student learning with ejoy play media.

Research Method

This type of research uses a quantitative approach. This quantitative approach focuses more on numbers as research data and calculations with statistics (Sugiyono, 2018). The research method used is the quasi-experimental method. Quasi-experimental is a method that only uses one variable, in this method, it uses a control class, although it does not fully work to review the external variables that affect the experiment (Ramdhan, 2021).

The research design used is the *Pretest-Posttest Control Group Design*, there are two groups in the design that will be determined, namely the control class and the experimental class. Experiment class the uses zica box media and control class with uses power point media. The population used in this study was from class IV at MIN 9 Banjar as many as 57 students with each class IV A totaling 28 and IV C totaling 29. The sample used was a saturated sampling technique in which all members of the population were applied as samples (Sugiyono, 2018). Data collection techniques used are tests, observations, and documentation. Data analysis techniques used are average, standard deviation, variance, Normality test, Homogeneity test, t-test, and U test.

Results and Discussion

The implementation was carried out in class IV at MIN 9 Banjar. The research was conducted December 13 - 20, 2022. There were two groups in this study, class IV A as the experimental class and class IV C as the control class. Implementation in the experimental class. Experimental class learning uses Sica Box media while the control class uses learning with powerpoint media.

Table 1. The mean, standard deviation, and variance of the two class students' pretest

Population	Mean	Standard Deviation	Variance s
Control Class	51,20	11,775	138,669
Experimental Class	68,39	11,226	126,025

From Table 1 it was found that the difference in the value of each population was 17.19. So that the data shows that there is no high difference between the experimental class and the control class because it is below 20.00 (Sugiyono, 2018).

Table 2. Pretest Normality Test of two classes of students

Population	N	Lcount	Ltable	Finding
Control Class	29	0,132	0,164	Normal
Experimental Class	28	0,118	0,167	Normal

From Table 2 it is found that each population has a normal distribution with Lcount smaller than Ltable.

Table 3. Pretest homogeneity test of two classes of students

Population	N	Variance	Fcount	Ftable	Conclusion
Control Class	29	138,67	1,10	1,89	Homogeneous
Experimental Class	28	126,02			

From Table 3 it is found that Fcount is less than Ftable, which means the data is homogeneous. The results of the calculation of the T-test show that Tcount > Ttable, then Ha is accepted with the conclusion that there are relevant differences between students' natural science pretest in the control class and students' natural science pretest in the experimental class.

Table 4. Mean, standard deviation and posttest variance of two class students

Population	Mean	Standard Deviation	Variance
Control Class	63,28	12,195	148,707
Experimental Class	87,68	8,658	74,967

From Table 4 it is found that the difference in the value of each population is 24.4. So it is continued in Tables 5 and 6 to test the Posttest Normality of students.

Table 5 Posttest normality test of two classes of students

Population	N	Lcount	Ltable	Finding
Control Class	29	0,193	0,164	Abnormal
Experimental Class	28	0,209	0,167	Abnormal

Table 5 shows that the two populations with Lcount are greater than Ltable which causes the two data to be not normally distributed. Then proceed with the homogeneity test to determine whether the hypothesis test uses parametric or non-parametric.

Table 6. Posttest homogeneity test of two classes of students

Population	N	Variance	Fcount	Ftable	Conclusion
Control Class	29	148,71	1,98	1,89	Inhomogeneous
Experimental Class	28	74,967			

Table 6 shows that Fcount > Ftable shows that the posttest results of the two classes are not homogeneous. So for the analysis test use the parametric no test and followed by the U test.

Table 7. U test Posttest results of two classes of students

Source	R1	R2	U Value	Zcount	Ztable
Between Classes	486,5	1166,5	61,55	-5,75	-1,96

From Table 7 it is found that Zcount < -Ztable so it is found that Ha is accepted and H0 is rejected. These results indicate that there is an effect of using the three-dimensional media Sica Box on science content on the learning outcomes of class IV students at MIN 9 Banjar. These results also show that science learning with Sica Box media has a good impact on student learning outcomes after making differences in learning before using Sica Box.

The use of Sica Box media provides opportunities for students to repeat concepts that are easy to understand in everyday life. Students who are familiar with the concept of the nature of light in everyday life increase their knowledge by using the Sica Box media. Sica Box media influences student learning outcomes better by introducing concepts through Sica Box media. Sica Box media is a visual media but it is more effective than digital media. Digital media will end up causing many difficulties when used at the primary school level. Sica Box media for learning can help student real introduction class. Sica Box media help student sure good and make application for life time (Riwanto, 2018).

Learning was proven to be better in the experimental class compared to the control class because the application of the media was carried out in this class, it was found that early learning with a boring atmosphere became interesting. Fun learning in terms of the cheerful expression on the faces of students, the activeness and creativity of students when asking questions, and questions that can be answered (Damansyah, 2010). In the experimental class, the use of Sica Box media was able to foster a sense of enthusiasm and activeness in students in learning. The use of media that is able to make students directly provide experience. Using lightbox media in learning, students become interested in learning science and students do not feel bored and excited about learning science (Faradita, 2022). Evidenced by the income value of students with media getting an average of 87.68 (very good).

In holding meetings with students using this media, it was seen that students were enthusiastic and active in learning by being able to answer various questions about the nature of light, students advanced confidently using the media and took turns using Sica Box media. After learning using the media, a posttest was carried out on the students, they seriously answered the questions given so that the scores obtained when learning with the media were 80.00 - < 95.00.



Figure 1. Sica Box Media

Figure 1 can explain the nature of light, namely light propagates straight. This concept reminds students of how the sun shines through the hollow walls in the morning. Through the Sica Box Media, students feel reminded of the concepts of everyday life so it helps students understand the concept of the nature of light. Sica Box media can application for real how make lighting concept and reflection law. Sica Box dengan bentuk yang sederhana membuat siswa tertarik untuk membuat media sederhana di rumah. Sica Box media this simple can make help student to uses mobile phone (Taufiq et al, 2014). Sica Box media alternative how make learning enjoy concept lighting reflection.

Sica Box media alternatif klasikal media can make help learning student and help teacher explanation materi light reflection. Sains materi contextual can make help with Sica Box. Sica Box media simple cube and make application learning and play enjoy. Sica Box help teacher learning mastery concept with moment life time. Zica Box get simple and easy for student. Easy media student and helped psikomotoric student. Zica Box can make helped student and teacher how is simple identification and explanation light reflection (Riwanto, 2018).



Figure 2. Activities using Sica Box Media in the classroom

Figure 2 also explains how students are enthusiastic about the Sica Box media so that students want to practice directly with the media used. Students were seen trying simple teaching aids and then conveying the results of the concepts obtained on the Sica Box media. After that students write down the concepts obtained on a piece of paper and share the information with their friends. Using the Sica Box media helps students share information related to the concepts that have been obtained (Zakirman, et al., 2022). Zica Box helped teacher learning at class with student focus and learning focus student. Zica Box is explanation describe mastery concept with teacher not just playing media. Classical media make opportunity is play and describe to the point light reflection (Muhtar et al, 2020).

Unpleasant learning is characterized by bored, sleepy students, lost motivation, and talking with friends (Damansyah, 2010). This was found in the control class, seen from the characteristics above, that some students were less active in answering various questions posed because this process only used image media. This image media only prioritizes the sense of sight, is complex, and is less effective in learning and in limited large groups (Sadiman, 2014). In the use of media images in the classroom, it was found that students get bored quickly because they are not optimal when discussing and solving information, the material conveyed by the teacher when using media images makes students less active and their responses, this will cause learning to be ineffective because it will mostly just paying attention to the teacher explaining (Suarni, 2017).

Observations were obtained in the control class, students were less focused on learning because they talked a lot with friends besides only one to three people who were willing to answer questions by mentioning the nature of light using picture media. When the Posttest was carried out, it was found that the scores obtained by students obtained the most with a range of 55.00- < 65.00, namely 11 people. The control class uses media images that attract students during apperception. But from apperception does not proceed to a complete understanding of the concept. Students learn more from books and book explanations so that existing concepts are accepted by students in everyday life and are not carried over during class lessons. The control class using media images has an impact on mastering concepts but does not increase learning outcomes (Farman, 2022). This is because students only learn to understand pictures, not to understand the concepts they have learned. Learning with visual aids makes students feel that they are repeating concepts in everyday life. The use of media images still uses media that attract students' interest, but the use of visual aids directly affects students' capture when learning the concept of the nature of light propagation (Charvan, 2016). Learning in the control class can be seen in Figure 3.



Figure 3. Learning with media images in the Control class

In Figure 3, learning in the control class uses image media. The image media is different from visual media (Media Sica Box) so students cannot get real-looking concepts (Suarni, et al., 2017). Control class research media power point without playing media student. Control class get make picture clascal but this play to the point student for learning. Visual media just helped picture for the sample materi light reflection. Visual media can make respon student not to the point play concept materi. Visual media can not practice materi light reflection for learning student. Visual media can make focus ten minute and the not practice student. Mixed media can make focus student and helped boring student learning. Media make sure materi for student and helping teacher (Fatmawati el al, 2020).

The application of using Sica Box Media can increase the value or results of students, especially in the experimental class. While the control class did not experience improvement between pretest and posttest. So that learning with Sica Box media provides good mastery of concepts and can be seen in increased learning outcomes. Penggunaan media visual membantu siswa untuk belajar dengan memfokuskan perhatian setelah itu tidak bisa membuat siswa interaktif dengan media pembelajaran.

Conclusion

The research quasi experiment with experiment class Zica Box media and control class media power point and the measure mastery concept light reflection. The result learning outcomes before being given learning activities using the media were obtained by students' pretest, with a score of 65.00-<80.00 good qualifications with an average of 68.39 obtained from 11 students. While the results after being given learning activities using Sica Box media after obtaining the posttest scores of students were obtained a value of 80.00-<95.00 with an average of 87.68 obtained from 14 students.

There is an effect on the use of Sica Box media when it is applied to learning, which is that it can improve student learning outcomes in class IV obtained with the results $Z_{count} < -Z_{table}$ with a value of $-5.75 < -1.96$ it can be concluded that H_a is accepted and H_0 is processed so that there is an influence in using Sica Box media on science lessons. The implication of this research is that the use of Sica Box media helps students understand science learning. Sica Box media can also be used in other learning adapted to teaching materials.

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