



Implementation of Lava Lamp Media on Light Material and Properties of Objects in Grade II Elementary Schools

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ABSTRACT

This study aims to describe how the implementation of the use of lava lamp media in science learning in grade 2 elementary schools. This study uses a qualitative descriptive method. The flow of this research is to make preparations before implementation, implementation, and analysis of implementation results. Preparation for implementation is carried out by preparing instruments in the form of materials used to make lava lamps and Student Worksheets (LKPD). Implementation is carried out by inviting students to make a lava lamp project and make observations during the manufacturing process, the results of which will be written in the form of writing on the LKPD. Analysis of implementation results is done by reducing data, displaying, and drawing conclusions. Based on data from the results of the analysis of student responses related to the lava lamp media used in science learning on the material of light and the nature of objects, it was found that 95% of students were happy and understood in participating in science learning through the lava lamp media. It can be concluded that the lava lamp media is very suitable for use in learning science in class 2 of States Elementary School IV Lidah Wetan.



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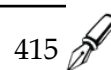


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INTRODUCTION

In both the 2013 curriculum and the *merdeka* curriculum, science is one of the subjects of study taught to phase A pupils at the basic education level. Science is defined as specific knowledge in a scientific area that is organized methodically using a technique. Science constantly necessitates the use of learning media to aid students' comprehension of the material (Fajrie & Masfuah, 2018). Educational media plays an important and much-needed function in learning, where it is no longer considered just a tool but has evolved into an integral aspect of learning and the education system (Wahid, 2018).

According to the study "The Influence of Colored Comic Media on Student Science Learning Outcomes" conducted by (Andriyani et al., 2019), the average score of students' natural science learning outcomes using colored comic media in learning was 22.88, which is included in the high category, and the mean score of students' science learning outcomes without using colored comic media is 18.50, which is included in the medium category. As a result, the use of learning media is a critical aspect in maximizing student learning outcomes and increasing student learning motivation because learning media provides excellent support for the creation of knowledge, particularly for students in the learning process (Audie, 2019). Learning media refers to media that may effectively deliver information in order to fulfill learning objectives. Effective learning is described as a process of individual change in cognitive, emotional or behavioral, and psychomotor functioning as a result of learning gained from his own experience and from his environment that has a definite effect, meaning, wisdom, or advantages (Yusuf, 2017).



Learning media is very important in order to make it easier for students to obtain information and explore the material being taught (Hasan et al., 2021). In science learning, there are various learning media that can be used which are adapted to the material being studied (Ningrum et al., 2023). Science learning materials in elementary schools really have to be taught well in order to achieve the goal. Previous research has shown that the media used by teachers in science learning is still less creative and effective. For example, in science learning, which requires a practicum, the teacher only shows pictures and results without inviting students to do practical work directly (Lestari et al., 2020).

In the *merdeka* curriculum and the 2013 curriculum, second-grade Phase A students are already exposed to a variety of science materials that may or may not be integrated into other learning content. Students in phase A, second grade, require appropriate and pertinent learning materials, such as the lava lamp media, to help them comprehend science materials, particularly those pertaining to light and the nature of objects. Lava lamp media is an interesting medium consisting of liquid and insoluble matter that forms bubbles and patterns of movement when heated. The lava lamp game is a simple experiment that utilizes tools and materials found in nature, for example, water, oil, food coloring, and soda (Kaisar et al., 2017).

The use of lava lamp media in learning light and the properties of objects can help students observe the properties of light, heat transfer, and aggregate changes. Through this media, students can experience interesting visual observations and construct science concepts concretely. Although the use of lava lamp media offers many benefits in learning light and the properties of objects, there are still some problems that need attention. One of them is the limited accessibility of the media in several schools. In addition, it is also necessary to consider the effectiveness of using lava lamp media in order to achieve the learning objectives that have been formulated. Therefore, further research is needed to explore the implementation of lava lamp media in learning light and the properties of objects in grade 2 elementary school. The purpose of this study is to explain how to implement the use of lava lamp media in science learning in grade 2 elementary schools.

RESEARCH METHOD

The method used in this study is descriptive qualitative. The term descriptive qualitative (QD) in qualitative research is used to describe a study that is descriptive in nature. This method was chosen to describe how the implementation of the use of lava lamp media in science learning class 2 elementary schools. The flow of this study is to prepare, implement, and analyze the results of implementation (Harahap, 2020). Preparation was carried out by preparing instruments in the form of materials used to make lava lamps and Student Worksheets (LKPD). Implementation was carried out by inviting students to make a lava lamp project and make observations during the manufacturing process, the results of which will be written down in the LKPD. Analysis of implementation results was carried out through data reduction, display, and drawing conclusions (Rijali, 2019).

This study was conducted in April-May 2023 with 9 students as subjects. The subjects in this study were grade 2 students at Lidah Wetan IV Public Elementary School, Surabaya. In practice, the implementation is done once.

RESULT AND DISCUSSION

Results

The results of this study are in the form of a description of the implementation of the use of lava lamp media in science learning in grade 2 elementary schools. The preparation consisted of making a LKPD, a research instrument and preparing lava lamp-making tools and materials for the practicum. The next step was to directly invite students to participate in a lava lamp lab. The researcher started the implementation by giving a brief explanation of the tasks to be done. The LKPD, which had been given to the students, was used to explain.



Figure 1. Preliminary explanation

The next activity was inviting students to form groups that worked together in doing practicum. Practicum began with preparing tools and materials in each group. Then each group carried out the practicum according to the instructions on the LKPD. Each group was accompanied by 1 research student. During the practicum, each group was also asked to observe the process that occurred until the making of the lava lamp was completed. The observations made were observing the properties of liquid objects in the form of oil and vinegar, observing the nature of the existing light, and observing what happened after all the ingredients were mixed and how long the lava lamp lasted.



Figure 2. Practicum process

The results of observations during the practicum were used as a basis for answering the questions presented in the LKPD. Students were also asked to write down the conclusions they get after doing the practicum.



Figure 3. Filling in LKPD

The practicum results in the form of a lava lamp were presented in front of the class by each group. Each group explained the manufacturing process and the results of observations during the practicum. All groups presented the results of the practicum well and were accompanied by the researcher.



Figure 4. Presentation of practicum results

From the activities carried out, students found it helpful in understanding the properties of liquid objects and light. Through the lava lamp media students could also learn other material that was included in the Science, Technology, Engineering, Art, and Mathematics (STEAM) components. Permanasari (2016) said that the STEAM model is able to encourage knowledge development, help answer questions, is based on investigations, and can encourage students to create new knowledge. Science is obtained from carrying out practicum in the form of mixing liquid objects in the form of oil and vinegar to determine their properties and using a cellphone flashlight to determine their properties that are able to penetrate clear objects. Technology obtained from the use of HP flashlights. Engineering is obtained from a practicum process that uses the technique of mixing several liquids to test their properties. Art is obtained from the practical results in the form of a lava lamp which is very beautiful and has its own aesthetic value. Mathematics is obtained by calculating the percentage of materials used.

This activity gave a distinct impression to students because previously such activities had never been carried out in grade 2 elementary schools. Students also felt happy and helped in understanding the material. The practicum also received a very enthusiastic response from the students because they could learn while playing. This is evidenced by the acquisition of the results of the questionnaire shown in the following diagram.

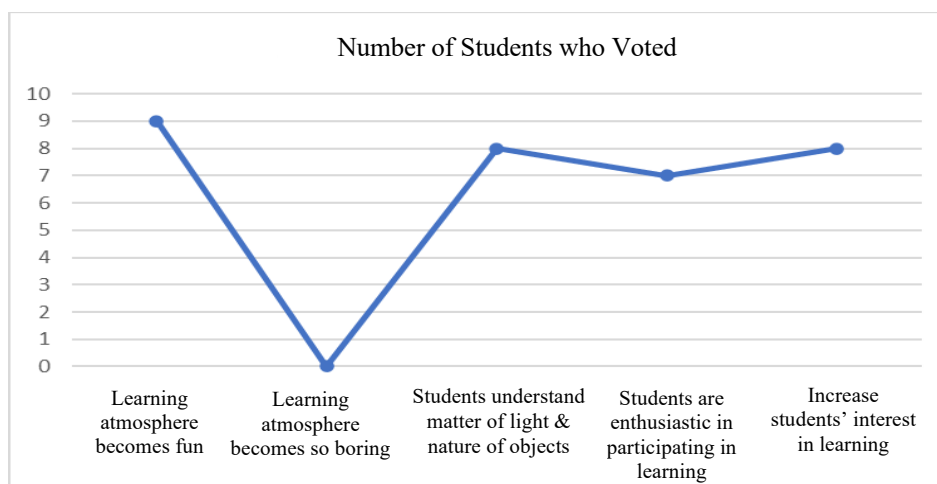


Figure 5. Questionnaire results diagram regarding the learning conducted

Based on the results of the student response questionnaire in class 2 of SD Negeri IV Lidah Wetan, it shows that 95% of the lava lamp practicum activities are very enjoyable, and students understand more about the material of light and the properties of liquid objects.

Discussion

Before the students started working on the LKPD, the researcher gave trigger questions related to the material of light and the nature of objects. A trigger question is a question given to students in order to optimize listener participation and help listeners understand the topic being

discussed. Trigger questions can be used in a variety of activities. In learning activities in class, trigger questions are needed. One of the reasons is that trigger questions are used to dig up students' memories of the material to be studied. Students answered enthusiastically and also showed examples around students. The purpose of this activity is to increase students' understanding of the matter of light and the properties of objects in science learning. In this case, science learning is considered as learning that relates to the direct involvement of students and the environment around them (Madani, 2021). One of the objectives of learning science is to convey mastery of various science concepts to students. concept is something that can be accepted by the mind or an idea that is obtained from experience or thoughts (Aliyyah et al., 2021).

The second activity of the students was doing the lava lamp practicum in groups. Researchers provided equipment and materials needed in practicum activities, while students prepared equipment and materials to be used. Before students did the practicum, they had been required to read the steps in the LKPD. According to the Ministry of National Education (2004), one of the learning media that is always used in elementary schools is Student Worksheets (LKPD), namely sheets in the form of worksheets done by students. LKPD has a function as a guide for the thinking process of the teacher to students, in order to be able to carry out learning activities such as practicum as well as solving problems in everyday life both individually and in groups. The next step was for students to start mixing the ingredients according to the steps in the LKPD. When all the ingredients had been mixed and formed bubbles, the light from the smartphone flashlight was placed under the lava so that it aimed to create light on the lava. Students paid attention and recorded how long the lava lamp lasted because if the baking soda in the solution run out, the bubbles that appeared would also stop and clot above like clouds.

The students worked on the LKPD questions after completing the practicum. The objective of this is to gauge the degree of student comprehension of the practicum that has been completed and witnessed. Each group discussed while attempting to provide an answer. Students were taught to communicate their viewpoints critically during discussions. Critical thinking is an effort that is carried out strongly to prove something that is believed to be true or knowledge based on supporting evidence so that appropriate conclusions can be drawn in a practicum (Mulyani, 2022).

The next task required students to present the outcomes of their practicum. Alternating between each group's presentation, the other group assumed the role of the audience and had the responsibility of posing questions about the findings to the group presenting them. In this instance, students were encouraged to communicate through question-and-answer sessions. Science learning objectives include communication skills as a component (Faurisiawati et al., 2022).

The student response questionnaire consisted of four statement indicators, namely 1) the learning atmosphere becomes fun, 2) the learning atmosphere becomes boring, 3) the lava lamp media as a learning material makes it more understandable about the material of light and the nature of objects, 3) I am very enthusiastic in participating in learning with lava lamp media, 4) having lab work with making lava lamps makes me more active in class, and 5) using lava lamp media can increase my interest in learning. Based on data from the results of the analysis of student responses related to the lava lamp media used in science learning on the material of light and the nature of objects, it was found that 95% of students were happy and understood participating in science learning through the lava lamp media. It can be concluded that the lava lamp media is very suitable to be applied in learning science in class 2 of SD Negeri IV Lidah Wetan.

CONCLUSION

From the results and discussion above, it can be concluded that the implementation of lava lamp media in grade II elementary schools can increase students' understanding and motivation related to the material of light and the nature of objects. This is supported by the results of the student response questionnaire analysis which shows that 95% of students are happy and understand in participating in science learning through the lava lamp media.

The other suggestions for further re-involve employing alternatives, more captivating mediums that can be employed in the study of science, thereby fostering greater enthusiasm among students in engaging with science education. Furthermore, it is possible to delve deeper into students' perspectives on science education. Suggestions for teachers include being more innovative in crafting instructional materials by harnessing pre-existing resources, particularly in the realm of science, in order to prevent students from becoming easily disinterested during classroom instruction.

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