

THE EFFECTIVENESS OF USING ORIGAMI BOARD MEDIA IN UNDERSTANDING THE CONCEPT OF PERIMETER OF FLAT SHAPES AMONG ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

This research aims to assess the effectiveness of using origami boards as a medium to enhance the understanding of the concept of perimeter in flat shapes among elementary school students. The study was conducted at TPA Nurul Iman involving 25 lower-grade students. The method used is qualitative through observation and learning outcome tests to understand students' interactions with learning media. The research results show that the use of origami boards has a positive impact on students' understanding of the concept of perimeter in plane figures. This media makes the learning process more interesting and interactive, thereby increasing student motivation and engagement. Students who struggle to solve problems using conventional methods show better understanding when using origami board media, as they can visualize mathematical concepts concretely. In addition to enhancing understanding, the use of origami boards also helps in developing students' critical thinking and fine motor skills. Practical activities applied in learning allow students to be more enthusiastic and actively engaged in the learning process. Thus, the use of origami board media has proven effective in enhancing students' understanding and learning outcomes related to the topic of the perimeter of flat shapes, and can be an alternative method for teaching mathematics in elementary schools.

Keywords: *effectiveness, mathematics learning, learning media, learning outcomes*

A. BACKGROUND

Mathematics is one of the important subjects in the basic education curriculum as it provides the understanding necessary to learn concepts at a higher level. According to Zoltan Dienes, emphasized the importance of concrete and manipulative learning of mathematics. He believed that students learn math better through direct experience with physical objects.

The use of learning media will make it easier for students to get messages from the material, learning will be more interesting. According to Arsyad (2014: 15) "the use of learning media at the orientation stage of learning will help the effectiveness of the learning process and convey the message and content of the lesson at that time". Mathematics learning will also be more effective if done using learning media. Various studies have shown that innovative and interactive learning methods can improve learners' understanding. This origami activity helps in improving learners' mathematical

skills, besides that their fine motor skills, creativity, and critical thinking skills also experience development.

In facing the challenges of understanding the concept of perimeter of flat shapes in elementary school students, the use of origami boards can be an effective solution. Not only do origami boards offer a fun and interactive learning approach, but they also allow students to see and experience math concepts firsthand. The use of origami boards in math learning is expected to have a positive impact on learners' understanding. Learners are also involved in practical activities, they tend to be more motivated and involved in the learning process.

This study aims to determine the effect of origami board media on understanding the concept of perimeter of flat shapes in elementary school and to develop students' critical thinking and problem solving skills in the context of perimeter of flat shapes.

B. RESEARCH METHOD

The method used in this research is qualitative method. The qualitative method is used in this research because it allows us to dig deeper into students' understanding of the concept of the perimeter of a flat shape. Through observations or interviews, we can find out directly how students interact with origami board media, what difficulties they face, and what strategies they use to understand the concept of perimeter of a flat shape. By using qualitative methods, this research can make a significant contribution in understanding the effectiveness of using origami in improving the understanding of the concept of perimeter of a flat shape in elementary school students.

C. RESULT AND DISCUSSION

Effectiveness of Origami Board Media Use

Effectiveness is a scale in determining the success or failure of a person, program or activity in achieving its goals. A thing can be said to be effective if it can achieve its goals (Anis et al., 2021). In line with the opinions of experts on the use of learning media, the function of using learning media in the teaching and learning process is to be able to simplify the presentation of meaning, messages, messages and information so as to improve and accelerate the learning process and results (Lusiana & Maryanti, 2020; Mustaqim, 2016). Learning media can attract students' attention, thus fostering motivation and enthusiasm for learning in students (Syaparuddin & Elihami, 2020). The Lantanida Journal, Vol. 4 No. 1 on learning from the perspective of teacher creativity in utilizing learning media (Abdullah, 2016) presents a holistic view of the success of the learning process, focusing on two important aspects: teacher competence in mastering the material and school facilities. This finding emphasizes the importance of choosing appropriate learning media to overcome the limitations of mathematics learning, both in terms of space, time, and sensory power. The use of origami board media in learning the concept of perimeter of flat shapes for low grade elementary students is very effective. This media can help students understand concepts more deeply, increase learning motivation, and develop critical thinking skills. Based on the results of the study, the activities of low-grade students obtained the results of the good enough category, and for the learning outcomes obtained the results of the good enough category.

This study was conducted to determine the effectiveness of using origami board media in learning mathematics on the circumference of flat shapes in low grades (grades 3-4 SD) which is located precisely at TPA Nurul Iman on October 1, 2024. The number of subjects consists of a range of about 25 children. The data obtained in the form of observation of

learner activity and learning outcomes (Post test). At the beginning of the observation, the researcher has provided, introduced, and then explained the origami board media to the subject before the research will be carried out. There was a good response by students regarding the introduction of the learning media. After the researcher introduces the learning media, then the researcher provides examples of math problems related to the concept material of the perimeter of flat buildings.

Initially the researcher gave an example of solving the problem using the formula. However, there were obstacles when the researcher discussed the problem by solving using the formula, there were still students who were less focused on solving the problem using the formula. The researcher observed that when describing and explaining the math problem using the formula solution, some students were not conducive. For this reason, the researcher invited the low-grade students to solve the math problem of the perimeter of a flat shape using origami board media. The origami board learning media is made as interesting and creative as possible by the researcher with the aim that the subject is motivated and enthusiastic in solving math problems later. Here are some experimental results in solving math problems about the perimeter of a flat building using the formula and origami board media:

➤ ☐ Suppose the researcher gives a problem about the perimeter of a flat shape

- **Completion with the formula:**

Rectangle (8 cm long and 4 cm wide)

$$\begin{aligned}\text{Completion with the formula} &= 2 (p + l) \\ &= 2 (8 + 4 \text{ cm}) \\ &= 2 (12 \text{ cm}) \\ &= 24 \text{ cm}\end{aligned}$$

Square (with each side 4 cm long)

$$\begin{aligned}\text{Completion with the formula} &= 4 \times s \\ &= 4 \times 4 \text{ cm} \\ &= 16 \text{ cm}\end{aligned}$$

Triangle (with base 4 cm, height 4 cm, and hypotenuse 4 cm)

$$\begin{aligned}\text{Completion with the formula} &= \text{sisi 1} + \text{sisi 2} + \text{sisi 3} \\ &= 4 + 4 + 4 \text{ cm} \\ &= 12 \text{ cm}\end{aligned}$$

- **Completion with origami board media :**

- 1) The researcher tried to be together with the subject in solving the problem of the perimeter of a square.
- 2) To find the perimeter of a flat shape such as a square, simply count the number of unit squares bounded by the string (which in the media is woolen yarn).
- 3) The first step is to stick the pin nails into the styrofoam. When we want to make a rectangle, for example, we only need to wrap wool yarn around the tip of the nail according to the desired length and width so that it resembles a rectangle. For example, in a rectangle there is a length of 8 cm and a width of 4 cm, then the unit box for length is 8 unit boxes and for width is 4 unit boxes.
- 4) It is the same if we want to find the perimeter of a square or triangle. If you want to find the perimeter of a triangle, stick a pin into the styrofoam (for example with a base side of 4 cm, a height of 4 cm, and a hypotenuse of 4 cm), then the triangle has 4 unit squares on each side. Then hook the wool yarn to the pin that has been stuck to resemble a triangle shape.





D. KESIMPULAN

Based on the results of observations and research that has been carried out, it can be concluded that:

- 1) The effectiveness of using origami paper in learning the circumference of flat shapes can increase the motivation and activeness of students at TPA Nurul Iman in learning mathematics.
- 2) There are differences in the cognitive learning outcomes of students when trying to do math problems on the concept of perimeter of flat buildings using solutions with formulas and origami board media. Learners are more enthusiastic about solving problems using the origami board learning media.

The use of origami board media in learning the concept of perimeter of flat shapes for low grade elementary students is very effective. This media can help students understand the concept more deeply, increase learning motivation, and develop critical thinking skills.

DAFTAR PUSTAKA

- Hamdani, H., & Pranata, R. (2021). Efektivitas penggunaan kertas origami materi keliling dan luas bangun datar kelas iv sd. *Jurnal PGSD: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 14(2), 195-205.
- Masrukah, M., Nahrowi, M., & Anis, M. B. (2020). Efektifitas Media Permainan Ular Tangga Bermotif Bangun Datar Pada Pembelajaran Matematika. *INOPENDAS: Jurnal Ilmiah Kependidikan*, 3(1).
- Hariyono, M., & Widhi, E. N. (2021). Geoshape digital: Media pembelajaran dalam meningkatkan pemahaman konsep matematika SD. *Jurnal Ilmiah Pendidikan Dasar*, 8(1), 35-50.
- Hasanah, L. W., Silalahi, H., & Utama, N. B. P. (2023). Strategi pembelajaran berdiferensiasi pada pembelajaran matematika materi keliling bangun datar kelas iv sekolah dasar. *Jurnal Didaktika Pendidikan Dasar*, 7(1), 237-258.
- Fuada, S., Derawati, T., & Rohaeti, L. (2022). Strengthening online learning of geometry material at SDN Bojong 01 using Geoboard and GeoGebra media. *Community Empowerment*, 7(2), 196-209.

- Lingga, Y., Pa, R. A. B., Purba, Y. A., & Sitorus, A. M. (2024). PENGGUNAAN MEDIA DARI BAHAN ORIGAMI DALAM MEMAHAMI PERBEDAAN ANTARA KELILING DAN LUAS BANGUN DATAR DI SEKOLAH DASAR. *Jurnal Lingkaran Pembelajaran Inovatif*, 5(6).
- Maghfiroh, A. N., Daksana, M. F. E. H., & Salma, S. N. (2024). Efektivitas Penggunaan Media Pembelajaran Interaktif dalam Pembelajaran Matematika di Sekolah Dasar. *Griya Journal of Mathematics Education and Application*, 4(1), 55-64.
- Nurhasanah, A., Pribadi, R. A., & Suhayati, S. (2022). Efektivitas penggunaan media papan musi (Multi Fungsi) pada materi KPK dan FPB kelas IV SD. *Jurnal Ilmiah Telaah*, 7(1), 61-65.
- Rosmana, P. S., Iskandar, S., Rahma, A. R., Maria, S., Supriatna, S., & Wahyuningtyas, T. (2023). Efektivitas Penggunaan Media Pembelajaran Digital Pada Hasil Belajar Siswa Kelas 5 SDN 6 Nagrikaler. *Jurnal Sinektik*, 6(1), 10-17.