Proceeding International Conference on Islamic Education
"Exploring Contemporary Challenges and Innovations in Education"
Faculty of Tarbiyah and Teaching Training
Universitas Islam Negeri (UIN) Maulana Malik Ibrahim Malang
October 17th, 2024
P-ISSN 2477-3638 / E-ISSN 2613-9804
Volume: 9 Year 2024

Revitalizing Traditional Game as Learning Media: Harnessing KOBI (Kartu Operasi Bilangan Integrasi) to Foster Creative Thinking Learning

Taufiq Satria Mukti*[1], Muhammad Iqbal Rifqy[2], Ilham Imtiyazil Ilmi[3], Putri Dwi Arianti[4], Kartika Satya Novia Fitri[5]
[1,2,3,4)]Universitas Islam Negeri Maulana Malik Ibrahim Malang; Jl. Gajayana No.50 Kota Malang, Indonesia
[5)]Universitas Muhammadiyah Surakarta; Jl. A. Yani, Mendungan, Pabelan, Kec. Kartasura, Kabupaten Sukoharjo, Indonesia
e-mail: *[1]tsatriam@uin-malang.ac.id, [2]muhammadiqbalrifqy@gmail.com,
[3]ilhamilmi0809@gmail.com, [4]putridwi2358@gmail.com

Abstract Students must develop their creative thinking abilities in order to tackle challenging issues with original answers. However, a lot of students find it difficult to evaluate data and choose practical approaches to solving problems, which frequently leads to a lack of inventiveness. This study presents Kartu Operasi Bilangan Integrasi (KOBI), a learning tool based on cards that uses educational games to foster students' creative thinking. This quantitative study, which employed a pre-test and post-test experimental design, was carried out with seventh-grade students at MTsN Kota Batu to assess improvements in their capacity for creative thought. Tests and questionnaires were used to gather data, and SPSS was used for both descriptive and inferential statistical analysis. With an average improvement of 52.34 points, the results showed that KOBI media greatly improved students' creative thinking.
Keywords: Creative Thinking Ability; Integers; Kartu Operasi Bilangan Integrasi (KOBI)

A. INTRODUCTION

The most basic need of students in the educational process is to develop thinking skills. Well-developed thinking skills will support the process of human maturity as a whole (Kurniawan, 2018). The thinking process in the learning process needs to be developed by considering learning activities as a service provided by the school institution. In this case, teachers are the most important part in providing learning services with activities that support the development of students' thinking optimally (Husein, 2022). Thinking skills will be very important in solving various problems (Haryani, 2011), not only problems in questions but more than that (Syamsudin, 2020) states that thinking skills as a tool to overcome life's problems.

Creative thinking is a process of thinking at a fairly high stage. According to (Widiyanto & Nova Hasti Yunianta, 2021) creative thinking skills include the ability to construct thoughts in a structure and put forward general concepts to unite important things in mathematics. Creative thinking can also be interpreted as proficiency in analyzing and responding to information or problems (Qomariyah & Subekti, 2021). With several definitions of creative thinking, it can be seen that there are many benefits of creative thinking both in everyday life and in the scope of school learning. Research (Trianggono, 2017) revealed that the creative thinking process that has been carried out by students with all its components can be ascertained in a lesson that the student has mastered the concept very well.

Another opinion related to creative thinking is that it contains several components, namely Fluency, Flexibility, Originality, and Elaboration (Qomariyah & Subekti, 2021). Research conducted

by (Cintia et al., 2018) with similar creative thinking components found evidence that discovery learning can improve creative thinking skills. The next research was conducted by (Abdurrozak et al., 2016) with the final conclusion that the problem-based learning model can improve students' creative thinking skills. From several previous research studies presented, none of the researchers designed a research design with a games-based learning approach. The researcher concluded that the KOBI media that had been designed in previous studies was a differentiator for presenting learning and measuring students' creative thinking skills.

Based on the problems encountered at MTsN Kota Malang in teaching assistance, students have difficulty in analyzing information and lack of selection of appropriate strategies in solving problems. This is evident from the learning results of students who are still confused in solving the problems given by the teacher, which shows the lack of creativity of students in choosing problem solving strategies. Therefore, it is important to implement a learning approach that focuses on developing students' creative thinking skills. One approach that can strengthen students' thinking skills is an educational game-based learning approach. This approach has been proven to stimulate thinking and increase student concentration (Itqan, 2018).

KOBI (Kartu Operasi Bilangan Integrasi) comes as a card-shaped learning tool designed to facilitate educational game-based learning, especially in number operations. This media covers integers {٠،١،٢،٣،٤،٥،٦،٧،٨،٩،١٠} as well as math operations such as +, −,×,÷ and √. KOBI is designed as a learning media that helps in understanding the concept of number operations and conveys students' creative ideas. KOBI can also be used in more complex problem-solving situations where students have to select the right operations and design strategies to reach a solution. Based on the background that has been presented in this study, the question is whether the creative abilities of MTsN Kota Batu students were different before and after using KOBI media. Thus, KOBI is expected to be an effective solution to overcome the challenges in developing students' creative's thinking skills.

B. METHODS

This research was conducted with a quantitative approach in one of the 7th grade classes at MTsN Kota Batu. The determination of one of these classes was carried out using a random sampling technique with a population of all 7th grade classes, with a large sample size, it is impossible for researchers to observe the entire population, therefore researchers can utilize samples taken from the population. The sampling technique used in this study was simple random sampling which is included in the probability sampling technique. This sampling technique is the simplest. Taking sample members from the population is done randomly without regard to the strata that exist in that population. This study aims to prove that the KOBI (Kartu Operasi Bilangan Integrasi) learning media that was developed in the previous study can function and provide a positive impact in accommodating the improvement of students' creative's thinking skills.

The learning research procedure with KOBI media lasted for 2×2 lesson hours for 32 students in one class. This research was conducted with a one group pre-test and post-test experimental design. This study consists of several stages. 1) students receive a booklet containing learning material on integer operations. After students understand the material, 2) students recognize the KOBI media and understand how to play it. 3) students form 8 groups with each group consisting of 4 students. In this first meeting, students try and follow the instructions for the KOBI game until they get a group that successfully becomes the champion.

At the second meeting is the process of implementing the research in accordance with the objectives of the research, namely to prove that the KOBI media functions well to accommodate the development of students' creative thinking skills. At this stage, 4) before the core learning process begins, the researcher conducts a pre-test to measure the initial abilities of students. The pre-test consists of 4 problem items related to number operations that must be completed by students. The pre-test instrument grid in table 1 will also be used as a post-test instrument that will be carried out after all learning procedures have been completed. The pre-post test that is carried out functions to measure and obtain data related to students' creative thinking skills. The next stage ensures that 5)

students have received the Student Worksheet which functions to document all learning activities. 6) carry out a post-test of creative thinking skills.

Table 1. Pre-Test and Post-Test Grids a) Creative Thinking Components b) Grid Matrix

a) Creative Thinking Components

Creative Thinking Components	Indicators
Fluency	Students are able to solve problems with the right answers easily
Flexibility	Students are able to solve problems using several different ideas/methods, but have a single correct answer
Originality	Students are able to find solutions using unusual, new, and unique ideas
Elaboration	Students are able to solve problems with detailed explanations

b) grid matrix

Learning Outcomes	Learning Objectives	Components of creative thinking skills	Question Number
At the end of phase D, students are able to solve contextual problems using the mathematical concepts and skills learned in this phase. They are able to efficiently operate integers, rational and irrational numbers, decimal numbers, whole numbers and roots.	B10. Perform arithmetic operations on integers	Fluency	1
		Flexibility	2
	B12. Using arithmetic operations on integers and providing estimates in solving problems.	Originality	3
		Elaboration	4

The instrument used in the study has met the requirements of validity and is suitable for use after going through an expert test process consisting of the suitability of the content, material and language. The experts involved in this process were 4 people, 2 of whom were expert lecturers in mathematics learning, 1 expert lecturer in assessment and measurement in the field of Education, and practitioners or teachers. The data that had been collected through tests and questionnaires were then analyzed using SPSS. Data processing was carried out using descriptive techniques and inferential statistics to test the hypothesis, namely whether there was a significant difference between the pre-test and post-test results in both creative thinking skills and students' social skills. This test was carried out using a paired sample t test with a significance level of 95%.

C. RESULT & DISCUSSION

As evidence that learning with KOBI media can have a positive impact on improving students' creative thinking skills, researchers have collected evidence through pre-post test activities in table 2 as follows:

Table 2. Creative Thinking Assessment Results

Subject	Score	
	Pre-test	Post-test
siswa1	25	100
siswa2	50	50
siswa3	25	25
siswa4	25	100
siswa5	50	100
siswa6	0	75
siswa7	25	100
siswa8	25	100
siswa9	25	75
siswa10	25	75
siswa11	25	100
siswa12	50	100
siswa13	25	100
siswa14	ABSEN	50
siswa15	50	25
siswa16	0	100
siswa17	25	100
siswa18	25	100
siswa19	25	50
siswa20	50	75
siswa21	25	50
siswa22	25	100
siswa23	25	100
siswa24	25	75
siswa25	0	75
siswa26	25	25
siswa27	25	25
siswa28	0	50
siswa29	50	75
siswa30	0	100
siswa31	0	50
Siswa32	0	100

Descriptively, the average assessment of creative thinking skills conducted in the pre-test was 23.43 while in the post-test it was 75.78. The difference in the average increase was relatively significant, namely 52.34. Of the 32 students, it can be concluded that 27 students (84.27%) experienced an increase in their scores, 1 student (3.12%) experienced a decrease in their scores, and 4 students (12.5%) did not experience any changes. This data can be concluded that learning conducted with KOBI has a positive impact on improving students' creative thinking skills. However, this data needs to be re-tested through inferential statistics with hypothesis testing.

The research hypothesis that has been formulated is H_0: there is no difference in students' creative thinking ability scores in the pre-test and post-test; H_a: there is a difference in students' creative thinking ability scores in the pre-test and post-test. Statistically, the formulation of this hypothesis test is as follows: H_0: $\mu_1 = \mu_2$; H_a: $\mu_1 \neq \mu_2$. Statistical testing with paired sample t test aims to obtain stronger evidence as evidence that the treatment implemented really has a significant difference. This will estimate in more detail the significance of the difference between the 2 groups. Hypothesis decision making with a significance level of 95% is a) if the probability > 0.05 then H0 is accepted; meaning that there is no difference between creative thinking skills in the pre-test and post-test. b) if the probability < 0.05 then H_0 is rejected; meaning that there is a difference between creative thinking skills in the pre-test and post-test.

The results of the analysis using the paired sample t test are as follows:

Table 3. Analysis result

	t	df	Sig. (2-tailed)
Pretest - postest	-9.082	31	.000

In Table 3 it can be concluded that the results of the analysis with the paired sample t test for a significance level of 95% are the test results for Significance 0.000, this value is <0.05. So the conclusion of the hypothesis test is H0 is rejected; meaning that there is a difference between creative thinking skills in the pre-test and post-test. This is strong evidence that the treatment with the one group pre-test and post-test design in learning with KOBI media can improve students' creative thinking skills.

The results of this study are in line with research (Saryanti, 2022)which states that the media used as an intermediary for learning can improve students' creative thinking skills. Not only that, learning with media can also increase students' active participation in learning in the classroom (Sumarni & Amin, 2021) students in the classroom will collaborate with each other that have high motivation to be the best in this Edufun games competition. This increase in motivation is also in line with the provision of stimulus to the rewards given by the teacher as an appreciation of student work. The rewards given are for groups that work well together to be the fastest in solving the problems presented in the games. In this group activity, it appears that students also practice dividing roles. Group members need to share roles with other colleagues. There are group members who record game activities, some act as operators to count, and there are also students who act to write in front of the board.

Learning research conducted with KOBI media as an alternative solution to the problems of 7th grade students in understanding number operation material. Learning with KOBI media is a learning innovation with the Edufun Games approach. This student-centered learning is part of trying to involve students in learning. (Abdiyah, 2021)states that learning with direct involvement of students will provide valuable experiences for students, so that the material learned will be processed and understood well. In line with(Handayani, 2022) that states that in certain conditions teachers must strive for innovation to change the silence of learning in the classroom. This innovation can be done in several ways, namely by learning using teaching aids or manipulative media (Farhana et al., 2022) learning using technology-based media (Primrose et al., 2023) or using other relevant media.

In previous research studies, all learning innovations that have been attempted have always had a positive impact (Subagio & Limbong, 2023). The most basic reason according to (Nurfadhillah et al., 2021) is that unusual conditions for students will spur increased interest and motivation to learn. One of them is with this KOBI media. KOBI media is a manipulative media integrated with an Islamic context in the form of content with Arabic numbering text and other Islamic contexts. In KOBI media, students not only play, but students will try to apply the concept of number operations. With the Edufun Games approach, other Islamic contexts will emerge in group discussion situations. Students will collaborate in groups as in Figure 1. Students in the group will communicate, interact with each other, and work together to solve problems. Not only that, in this collaboration there will be discussions that sometimes require students to accept suggestions even though sometimes they do not agree. According to (Hortigüela Alcalá et al., 2019) this will be very good at helping the growth of students' social attitudes to respect each other.

Figure 1. Student activities in learning with KOBI

D. CONCLUSION

Based on the data analysis that has been done, it can be concluded that learning with KOBI media (Kartu Operasi Bilangan Integrasi) provides a positive contribution in improving students' creative thinking skills. The research concludes that the KOBI (Kartu Operasi Bilangan Integrasi) media positively impacts students' creative thinking skills in mathematics, specifically in integer operations. The findings show a significant increase in students' creative thinking abilities, with pre-test and post-test results indicating improvement across fluency, flexibility, originality, and elaboration components. The paired sample t-test statistical test showed a significance value of 0.000 ($p < 0.05$), which confirmed that this improvement was significant and supports the conclusion that KOBI media is effective in improving students' creative thinking skills.

REFERENCES

Abdiyah, L. (2021). Penerapan Teori Konstruktivistik Dalam Pembelajaran Tematik Di Sekolah Dasar. *ELSE (Elementary School Education Journal)*, *5*(2), 127–136.

Abdurrozak, R., Kurnia Jayadinata, A., & Isrok'atun. (2016). Pengaruh Model Problem Based Learning Terhadap Kemampuan Berpikir Kreatif Siswa. *Jurnal Pena Ilmiah*, *1*(1), 871–880.

Cintia, N. I., Kristin, F., & Anugraheni, I. (2018). penerapan model pembelajaran discovery learning untuk meningkatkan kemampuan berpikir kreatif dan hasil belajar siswa. *perspektif Ilmu Pendidikan*, *32*(1), 67–75. https://doi.org/10.21009/pip.321.8

Farhana, S., Amaliyah, A., Safitri, A., & Anggraeni, R. (2022). Analisis persiapan guru dalam pembelajaran media manipulatif matematika di sekolah dasar. *Educenter: Jurnal Ilmiah Pendidikan*, *1*(12), 892–896.

Handayani, N. N. L. (2022). *Buku Ajar Ilmu Pendidikan dan Inovasi Pembelajaran*. CV Pena Persada.

Haryani, D. (2011). *Pembelajaran Matematika Dengan Pemecahan Masalah Untuk Menumbuhkembangkan Kemampuan Berpikir Kritis Siswa*. 121–126.

Hortigüela Alcalá, D., Hernando Garijo, A., Pérez-Pueyo, Á., & Fernández-Río, J. (2019). Cooperative learning and students' motivation, social interactions and attitudes: Perspectives from two different educational stages. *Sustainability*, *11*(24), 7005.

Husein, W. M. (2022). Upaya Guru Dalam Meningkatkan Pembelajaran Melalui Penerapan Teknologi Informasi di MI Miftahul Ulum Bago Pasirian. *Jurnal PETISI*, *3*(1), 20–28.

Itqan, M. S. (2018). Pendekatan game android untuk meningkatkan minat belajar matematika siswa Sekolah Dasar. *EduMatSains: Jurnal Pendidikan, Matematika Dan Sains*, *2*(2), 161–170.

Kurniawan, G. E. (2018). Pengembangan Modul Pembelajaran Berbasis Model Problem Solving Untuk Meningkatkan High Order Thinking Skill Pada Pelajaran Ipa Pokok Bahasan Fluida Statis Siswa Kelas Viii Smp N 7 Cirebon. *Jurnal Mangifera Edu*, *3*(1), 62–71. http://jurnal.biounwir.ac.id/index.php/mangiferaedu

Nurfadhillah, S., Ningsih, D. A., Ramadhania, P. R., & Sifa, U. N. (2021). Peranan media pembelajaran dalam meningkatkan minat belajar siswa sd negeri kohod iii. In *pensa : Jurnal Pendidikan dan Ilmu Sosial* (Vol. 3, Issue 2). https://ejournal.stitpn.ac.id/index.php/pensa

Primrose, A. T., Falah, M. F. N., Rifqi, M. I., Mauliya, D. F., & Mukti, T. (2023). Engklek Etno-Game dengan BRUSLE Android Apps Sebagai Media Pembelajaran Matematika untuk Mereduksi Miskonsepsi Siswa. *GAUSS: Jurnal Pendidikan Matematika*, *6*(1), 1–11.

Qomariyah, D. N., & Subekti, H. (2021). Analisis kemampuan berpikir kreatif: studi eksplorasi siswa di SMPN 62 Surabaya. *Pensa e-jurnal : pendidikan sains*, *9*(2), 242–246. https://ejournal.unesa.ac.id/index.php/pensa/index

Saryanti, E. (2022). Penggunaan media puzzle pecahan biasa pada pembelajaran matematika untuk meningkatkan pemahaman siswa pada materi pecahan. *Jurnal Pendidikan Dasar*, *10*(2).

Subagio, I. K. A., & Limbong, A. M. N. (2023). Dampak Teknologi Informasi Dan Komunikasi Terhadap Aktivitas Pendidikan. *Journal of Learning and Technology*, *2*(1), 43–52.

Sumarni, S., & Amin, M. (2021). Puzzle dan problem solving: Media dan pendekatan untuk meningkatkan partisipasi dan hasil belajar siswa. *Journal of Education and Teaching (JET)*, *2*(1), 36–43.

Syamsudin, S. (2020). Problem Based Learning dalam Mengembangkan Kemampuan Berpikir Kritis dan Keterampilan Sosial. *ELSE (Elementary School Education Journal) : Jurnal Pendidikan Dan Pembelajaran Sekolah Dasar*, *4*(2), 81. https://doi.org/10.30651/else.v4i2.4610

Trianggono, M. M. (2017). Analisis Kausalitas Pemahaman Konsep Dengan Kemampuan Berpikir Kreatif Siswa Pada Pemecahan Masalah Fisika. *Jurnal Pendidikan Fisika Dan Keilmuan (JPFK)*, *3*(1), 1–2. http://e-journal.unipma.ac.id/index.php/JPFK

Widiyanto, J., & Nova Hasti Yunianta, T. (2021). Pengembangan Board Game TITUNGAN untuk Melatih Kemampuan Berpikir Kreatif Matematis Siswa. *Mosharafa: Jurnal Pendidikan Matematika*, *10*(3), 425–436. http://journal.institutpendidikan.ac.id/index.php/mosharafa