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Development of Mathematics Teaching In Elementary School Using Travel Game Media on the Material of Fractional Equations

Siti Mulyani[1], Novita Damayanti[2], Lukman Khakim[3]
[1,2,3]Universitas PGRI Semarang
[1]sitimulyani36@guru.sd.belajar.id, [2]novitadamayanti@guru.sd.belajar.id,
[3]lukmankhakim25@guru.sd.belajar.id

ABSTRAK

Penelitian ini bertujuan untuk mengatasi kesulitan peserta didik Sekolah Dasar (SD) dalam memahami konsep abstrak persamaan nilai pecahan, di mana hanya 45% (23 dari 51 peserta didik) yang mencapai Kriteria Ketuntasan Minimal (KKM). Inovasi yang dikembangkan adalah media pembelajaran Travel Game, yaitu permainan edukatif berbasis petualangan yang melibatkan aktivitas berpindah tempat sambil menyelesaikan soal atau tantangan matematika. Metode pengembangan yang digunakan adalah adaptasi model ADDIE (Analysis, Design, Development, Implementation, Evaluation). Dalam konteks Travel Game, peserta didik dibagi menjadi kelompok, melempar dadu, dan menjalankan pion, serta menjawab soal tentang persamaan nilai pecahan pada pos-pos tertentu untuk mencapai finish. Hasil penelitian menunjukkan bahwa penggunaan media Travel Game memberikan hasil yang positif. Jumlah peserta didik yang mencapai KKM meningkat signifikan dari 23 menjadi 40 peserta didik. Peningkatan pemahaman peserta didik terhadap persamaan nilai pecahan mencapai 78%. Secara keseluruhan, penggunaan Travel Game terbukti efektif karena sesuai dengan karakteristik peserta didik SD yang senang bermain sambil belajar, menumbuhkan motivasi, serta menciptakan suasana pembelajaran yang aktif dan menyenangkan. Guru juga mengamati bahwa media ini mempermudah penjelasan konsep kesetaraan pecahan.

Kata Kunci: *Travel game; permainan edukatif; ADDIE*

ABSTRACT

This study aims to overcome the difficulties elementary school students have in understanding the abstract concept of fractional equivalence, in which only 45% (23 out of 51 students) achieved the Minimum Completion Criteria (KKM). The innovation developed is the Travel Game learning media, an adventure-based educational game that involves moving around while solving mathematical problems or challenges. The development method used is an adaptation of the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. In the Travel Game context, students are divided into groups, roll dice, and move pawns, as well as answer questions about fractional equivalence at certain stations to reach the finish line. The results showed that the use of the Travel Game media provided positive results. The number of students who achieved the KKM increased significantly from 23 to 40 students. The increase in students' understanding of fractional equivalence reached 78%. Overall, the use of the Travel Game proved effective because it suits the characteristics of elementary school students who enjoy playing while learning, fosters motivation, and creates an active and enjoyable learning atmosphere. Teachers also observed that this media facilitates the explanation of the concept of fractional equivalence.

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Keywords: *Travel game; educational game; ADDIE.*

INTRODUCTION

Mathematics instruction in elementary schools plays a crucial role in developing students' logical, analytical, and systematic thinking skills. However, in practice, many

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students still struggle to grasp abstract concepts, particularly in fractions. One subtopic that frequently causes difficulties is the fractional value equation, because it requires a deep understanding of the relationship between the numerator, denominator, and value of a fraction. Therefore, of the 51 students who were able to achieve the KKM, only 23 students (45%).

To address this, teachers need to provide learning media that is engaging, contextual, and enjoyable. One such medium is Travel Game, an adventure-based educational game that involves moving from one location to another while solving math problems or challenges. Through this medium, students not only learn the theoretical concept of fractions but also learn through active and collaborative play experiences.

The use of Travel Games is expected to foster interest in learning, increase motivation, and help students understand the concept of fractional equations more easily. Therefore, developing elementary school mathematics learning using Travel Games is an innovation relevant to the characteristics of elementary school students who enjoy playing and learning through hands-on experience.

1. Problem Formulation
   a. How is the development of Travel Game media in elementary school Mathematics learning?
   b. How is the Travel Game media applied to the material on fractional value equations?
   c. What are the benefits of Travel Game media in improving students' understanding of the concept of fractional value equations?
2. Writing purpose
   a. Explaining the steps for developing Travel Game media for elementary school Mathematics learning.
   b. Describes the application of the Travel Game to the material on fractional value equations.
   c. Knowing the benefits of using Travel Games on student learning outcomes.

THEORETICAL STUDY

1. The Nature of Elementary School Mathematics Learning

Mathematics in elementary school aims to develop arithmetic, reasoning, and problem-solving skills. Learning should be tailored to the characteristics of elementary school students, who still think concretely. Therefore, teachers need to use visual media, games, or real-life teaching aids.

2. Fractional Value Equation Material

Fractional equality is two or more fractions that have the same value even though the numerators and denominators are different.

Example:

a. $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$(has the same value, namely$\frac{1}{2}$or 0.5)
b. $\frac{12}{24} = \frac{21}{42} = \frac{36}{72}$(has the same value, namely$\frac{1}{2}$or 0.5).

So, examples a and b both have the same value.$\frac{1}{2}$or 0.5 (so that all fractions are equal in value).

Students often experience misconceptions in this topic, such as assuming that fractions with larger denominators always have smaller denominators. Therefore, an approach that facilitates understanding of the concept of value equivalence is needed.

3. Instructional Media

   Learning media is anything that can be used to convey messages from teachers to students, thereby stimulating their thoughts, feelings, attention, and interest in learning. According to Sadiman (2014), learning media can clarify the presentation of messages and increase student engagement in the learning process.

4. Meaning of Travel Games

   Travel Game is an educational game designed like a journey or adventure from one place to another by completing learning missions. In the context of learning Mathematics with a travel game, children roll dice. Each time a dice lands on the "yellow" dice, they can guess the fraction image, and their answer is corrected by their group mates. However, if the dice lands on the "white" dice, they name the fraction equivalent to the previous image. If the answer is correct, the student can move their pawn according to the result of the dice roll. If the answer is incorrect, the student's pawn remains where it is. The winner of the game is the student who reaches the finish line first.

5. Steps to Implement Travel Game

   The steps for implementing the travel game are as follows**:**

   a. **Planning:**Determine learning objectives and prepare game tools (maps, question cards, pawns, dice).
   b. **Implementation:**Students are divided into groups, then go on a journey by throwing dice and answering questions about fractional equations.
   c. **Evaluation:**The student who reaches the finish line first earns the highest points. The teacher assesses student understanding based on the game's results and reflections.

6. The Advantages of Travel Game Media

   The advantages of travel game media are as follows:

   a. Increase motivation and interest in learning.
   b. Encourage cooperation and communication between students.
   c. Make it easier to understand abstract concepts into concrete ones.
   d. Make learning more active, creative, and fun.

METHOD

The development method used can adapt the model **ADDIE (Analysis, Design, Development, Implementation, Evaluation)**:

1. **Analysis:** Analyzing students' difficulties in understanding fractional equations.
2. **Design:** Designing Travel Game media in the form of a travel map with several question posts.
3. **Development:** Make media with simple materials (cardboard, colored paper, location markers).
4. **Implementation:** Implementing games in grade V of elementary school when learning fractions.
5. **Evaluation:** Assess the effectiveness of media from learning outcomes and student responses.

RESULTS

The Travel Game media developed showed positive results. From 51 students, only

23 of whom had previously achieved the Minimum Competency (KKM), after implementing learning using the Travel Game board, the number of students achieving the KKM increased to 40. Students were also more enthusiastic about participating in the learning and actively participated in completing the challenges. Students' understanding of fractional equations increased to 78%. Furthermore, the learning environment became more enjoyable and collaborative.

Teachers also observed that using this media facilitated the explanation of the concept of fractional equivalence. Students were able to demonstrate for themselves that two different fractions can have the same value through games.

Research taken from 8 national journals including that conducted by Zulfatul Lutfiyah, Soegeng, and Qoriati Mushafah in 2024 with the title "Development of Travel Game Media for Mathematics Learning in Elementary Schools". The subjects tested were fifth grade students with the media used travel game media, obtained a percentage of 94% and 98.6% with the criteria of very suitable for use. The next research was Fajar Hadi Wibowo, Purwo Susongko, and Munadi in 2023 with the title "Development of New Travel Game Media on Fraction Arithmetic Operation Material to Increase the Independence of Grade VI Elementary School Students" with New Travel Game media. New travel game learning media was declared effective in increasing student independence on fraction arithmetic operation material for grade VI elementary school students.

Based on the evaluation results by material experts, a percentage of 96% was obtained with a very valid and suitable category for use. The next research was conducted by Putri Indriani, Aren Frima, and R. Angga Bagus Kusnanto in 2021 with the title "Development of Travel Game Media Based on Cooperative Learning Models in Mathematics Learning for Grade IV of SD Negeri 04 Lubuklinggau" the results of the validity and practicality test analysis of Travel Game media based on cooperative learning models in Mathematics learning on the material of Equivalent Fractions were valid and practical to be used in the learning process. The next research was conducted by Delia Indrawati and Siti Partini Suardiman in 2012 with the title "Development of Travel Game Media for Learning Multiplication and Division of Fraction Numbers in Mathematics for Grade V Elementary School" Travel game media was effectively used for learning mathematics for grade V elementary school on the material of multiplication and division of fractions with the result of t count = -9.764.

The next study by Sri Rahma Dani, M. Subhan, and Antik Estika Hader, entitled "Development of Travel Game Media in Learning Multiplication and Division of Fractions in Mathematics in Grade V of Elementary School," stated that travel game media is suitable for use in mathematics learning, especially in the material of multiplication and division of fractions. The next study by Tamim Muhtarom in 2021 with the title *"Travel Game as a Learning Media for Multiplication and Division"*.Subjects of fifth grade students of Krejengan State Elementary School. The 4-D development model with research results shows that the effectiveness of travel game media based on expert validation is in the good category. Further research is Astin Yuliani, Supardi Uki Sujiman, and Yogi Wiratomo in 2023 with the title "Mathematical Adventure Educational Game: Digital Mathematics Learning Media for Fifth Grade Elementary School Material. Subjects of fifth grade students of Cikahuripan 01 State Elementary School. ADDIE development model. Based on the results of the formative test, it can be concluded that the computer-based "Mathematical Adventure" educational game application on fraction arithmetic operations is a practical and effective application to be used as an independent learning medium.

The next research was by Iffatur Rofiqoh, Diana Puspitasari, and Zulinda Nursaidah

in 2020 with the title "Development of Math Space Adventure Game as a Learning Media for Fraction Material in Elementary Schools" Subjects of Grade IV Students of MIN 2 Kediri. Concluded that the educational game "Math Space Adventure" is suitable to be used as a learning media because it meets the aspects of effectiveness, validity, practicality and can improve the achievement of student learning outcomes.

The previous research taken from 2 international journals is owned by Anastasya Trisha Jasmine, Ni Luh Sakinah Nuraini, and Arda Purnama Putra in 2024 with the title "Development of Educational Game "Jagocah" using Scratch on Fraction Material in 4 Grade Primary School". The subjects were 4th grade students of SDN 3 Sumbersari, Malang. Concluded that the educational game media "JagoCah" is very feasible and appropriate to be applied in fraction learning activities. Another study is Mei Andini, Tri Nova Hasti Yunianta in 2018. With the title "The Development of Board game "The Adventure Of Algebra" in The Senior High School Mathematics Learning". The subjects were 8th grade students of SMP Negeri 1 Ambarawa. Concluded that the board game media "Petualangan Algebra" is valid, practical, and effective to be used as a learning medium for algebra material.

CONCLUSION

Media use **Travel Game** in elementary school mathematics learning on the material/fractional **value equation.** It can improve students' conceptual understanding, foster learning motivation, and create an active and enjoyable learning environment. This media is effective because it suits the characteristics of elementary school students who enjoy playing while learning.

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REFERENCES

Arsyad, A. (2017). *Media Pembelajaran*. Jakarta: Raja Grafindo Persada.

Sadiman, A. S. (2014). *Media Pendidikan: Pengertian, Pengembangan, dan Pemanfaatannya*. Jakarta: Rajawali Press.

Trianto. (2012). *Model Pembelajaran Terpadu dalam Teori dan Praktik*. Jakarta: Prestasi Pustaka.

Depdiknas. (2006). *Kurikulum Tingkat Satuan Pendidikan SD/MI*. Jakarta: Depdiknas.

Lutfiyah, Z. Dkk. (2024). *Pengembangan Media Travel Game Untuk Pembelajaran Matematika Di Sekolah Dasar*. Semarang. UPGRIS.

Hadi, W. F., dkk. (2023). *Pengembangan Media New Travel Game pada Materi Operasi Hitung Pecahan untuk Meningkatkan Kemandirian Siswa Kelas VI Sekolah Dasar*. Tegal. UPS.

Indriani, P.,dkk. (2021). *Pengembangan Media Travel Game Berbasis Model Pembelajaran Kooperatif pada Pembelajaran Matematika Kelas IV SD Negeri 04 Lubuklinggau*. Indonesia. STKIP PGRI Lubuklinggau.

Indrawati, D., dkk. (2012). *Pengembangan Media Travel Game untuk Pembelajaran Perkalian dan Pembagian Bilangan Pecahan Matematika SD Kelas V*. Yogyakarta. UNY.

Dani, S. R., dkk. *Pengembangan Media Travel Game pada Pembelajaran Perkalian Dan Pembagian Bilangan Pecahan Matematika Di Kelas V Sekolah Dasar*. Situbondo. UNARS.

Muhtarom, T. (2021). *Travel Game sebagai Media Pembelajaran Perkalian dan Pembagian*. Probolinggo.

Yuliani, A., dkk. (2023). *Game Edukasi Petualangan Matematika: Media Pembelajaran Digital Matematika pada Materi SD Kelas V*. Jakarta. Universitas Indraprasta PGRI.

Rofiqoh, I., dkk. (2020). *Pengembangan Game Math Space Adventure sebagai Media Pembelajaran pada Materi Pecahan Di Sekolah Dasar*. Kediri. IAIN.

Jasmine, A. T., dkk (2024). *Development of Educational Game "Jagocah" using Scratch on Fraction Material in 4 Grade Primary School*. Malang. Universitas Negeri Malang.

Andini, Mei, dkk. (2018). The Development of Board game *"The Adventure Of Algebra" in The Senior High School Mathematics Learning*". Ambarawa. Universitas Kristen Satya Wacana