

## **Analysis of The Relevance of Fractional Material to The Creativity of Grade 3 Student in Elementary School**

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**Abstract:** This research is motivated by the use of fractional materials in everyday life, as evidenced by the frequent application of fractional, materials in various fields, including architecture and science. The purpose of this study was to analyze the relevance of fractions material to the creativity of grade elementary school students and to identify the creativity that can be generated by learning simple fractions material in grade 3 elementary school. The type of research used is a descriptive qualitative approach. This study uses data collection techniques used are data collection, data reduction, data presentation (display), verification and conclusions (conclusions drawing/verify). The validity test of the data used in this research is the data credibility test, dependability test, and confirmability test. The result showed (1) that there was a relevance of fractions material to the creativity of 3rd grade student, it could be seen from the material on problem solving related to fractional material in everyday life. (2) the skill obtained by learning fractions material are that students can generate solutions, can generate ideas from solutions that are triggered, and can determine whether the action or solution that is triggered is a wise action or not and not only proposes a solution but can also realize it the solution.

**Keywords:** Relevance, Fractional Material, Creativity.

**Abstrak:** Penelitian ini dilatarbelakangi oleh kegunaan materi pecahan dalam kehidupan sehari-hari ini terbukti dengan sering diterapkannya materi pecahan dalam berbagai bidang termasuk dalam hal arsitektur dan sains. Tujuan penelitian ini adalah untuk menganalisis relevansi materi pecahan dengan kreativitas siswa kelas 3 di sekolah dasar dan untuk mengidentifikasi kreativitas yang dapat dihasilkan dengan belajar materi pecahan sederhana di kelas 3 sekolah dasar. Jenis penelitian yang digunakan adalah pendekatan kualitatif yang bersifat deskriptif. Penelitian ini menggunakan teknik pengumpulan data berupa wawancara, dan analisis perangkat pembelajaran materi pecahan kelas 3. Teknik analisis data yang digunakan adalah pengumpulan data (data collection), reduksi data (data reduction), penyajian data (display), verifikasi dan kesimpulan (conclusions drawing/verifying). Uji keabsahan data yang digunakan pada penelitian ini, adalah uji kredibilitas data, dependabilitas, dan uji confirmabilitas. Hasil penelitian menunjukkan (1) terdapat relevansi materi pecahan dengan kreativitas siswa kelas 3 dapat dilihat dari materi mengenai pemecahan masalah yang berkaitan dengan materi pecahan dalam kehidupan sehari-hari. (2) Keterampilan yang didapatkan dengan belajar materi pecahan adalah siswa dapat menghasilkan solusi, dapat mencetuskan gagasan dari solusi yang dicetuskan, dan dapat memastikan apakah tindakan atau solusi yang di cetuskan merupakan suatu tindakan bijaksana atau bukan serta tidak hanya mengusulkan solusi akan tetapi juga dapat mewujudkan solusi tersebut.

**Kata kunci:** Relevansi, Materi Pecahan, Kreativitas.

### **INTRODUCTION**

Mathematics lessons are one of the disciplines that are considered important and can improve the creative thinking ability of students in solving a problem. In the copy of Permendiknas No. 20 of 2016 that through a scientific approach to learning, including in mathematics subjects, students are expected to have the ability to think and act creatively, productively, critically, independently, collaboratively, and communicatively (Menteri Pendidikan Nasional, 2006). In mathematics learning, creativity is emphasized in the creative thinking process of students.

Creative thinking is a habitual thing that is trained and comes from the mind by paying attention to intuition, expressing new possibilities, bringing up unexpected ideas, bringing up

various imaginations, and opening up amazing points of view (Indriani et al., 2018). Creative thinking needs to be developed in the teaching and learning process, because it can be a provision for students to solve the problems they face in everyday life. The main aspect of creative thinking not only contains the original answer but also the suitability. This means that the process of finding answers does not mean that they must be precise and in accordance with what is exemplified, but the process can be different and the answers can also be different but can be the right or useful solution.

Kane et al (2016) state that the highest level of thinking after remembering, basic thinking and critical thinking is creative thinking. This is supported by the mandate from the Government of Indonesia given to guruguru to develop the creative thinking ability of students in the teaching and learning process so that students can have the ability to think creatively. By having the ability to think creatively, a person will have the desire to have a better and prosperous life even though they are in very limited environmental conditions. This can happen because when someone applies creative thinking, divergent thinking will produce many ideas that are certainly useful in solving problems.

A creative person according to Indriani et al (2018) has the following characteristics: (1) has initiative power, (2) is free in thinking (not rigid or inhibited), (3) always gains new experiences, (4) is full of enthusiasm, (5) is courageous in opinions and beliefs, (6) has strong imagination, (7) has broad interests, (8) has a curious nature, (9) believes in oneself, (10) dare to take risks. In creative thinking requires a balance of both brains, right brain and left brain as well as a balance between logic and creative. So to bring out creative thinking requires freedom of thought that is not under pressure or under control.

The importance of creative thinking skills today also determines the excellence of a nation which encourages various parties to develop creative thinking skills, one of which is educational institutions. Teachers as facilitators have a very important role in developing the creative thinking ability of students, so that in the teaching and learning process students can be active and teachers can also create great opportunities for the future of students. It is hoped that later students will not only focus on the teacher's explanation, but students are expected to be able to easily understand the concepts that have been taught and be able to construct their own knowledge and be able to communicate it in written form.

The ability to think creatively in mathematics according to Purwoko (2010) is a process in thinking about various ideas to face problems, as a process of "playing" with ideas or elements in thinking which are preoccupations and full of challenges in students towards mathematics. Creativity is a person's ability to solve problems that allow the person to find the original idea or produce an adapted (function of usefulness) that is fully developed (Shaleh, 2004). Creativity is also needed when solving problems, that is, with divergent thinking patterns that will produce more than one problem solving (idea).

In the 2013 curriculum which is currently used in education in Indonesia, there is fractional material in mathematics lessons. A fraction is part of something whole. Fractional material taught from the elementary school level has several uses in everyday life. Fractions are often applied in various fields including in terms of architecture and science. Therefore, students are expected to be able to understand the concept of fractional material correctly at the elementary school level. However, according to Amir & Wardana (2017) fractional material in mathematics is a challenging and relatively difficult concept for learners. The concept of abstract fractional material makes this material a material that is considered difficult by learners. The problem arises because generally students do not understand the concept of fractions. It takes a relatively long time to instill the fractional concept in students, especially at the elementary school level.

Therefore, based on the explanation above, the efforts of educators are needed so that students can easily understand the concept of fractional material by developing the creativity that exists within the students. This can be applied in learning tools in the form of indicators that can develop student creativity in fractional material. There are 4 components of creativity indicators in mathematics lessons that can be applied in fractional material learning tools, namely: (1)

Fluency (thinking fluently) in the form of triggering several answers, ideas, and problem solving, (2) Flexibility (flexible thinking) in the form of producing ideas or varied answers, (3) Originality (original thinking) in the form of being able to modify or make new combinations of parts or elements, (4) Elaboration (detailed thinking) in the form of adding or detailing the details of an object, idea or situation so that it becomes better (Munandar, 2017). These indicators in mathematics learning, especially in fractional material, must be pursued so that students can understand the concept of fractional material correctly.

Based on the explanation above, researchers carry out research at SD X which is a school that is committed to always improving quality in a sustainable manner "Commitment to Quality Education" and has a value, one of which is innovative: 3K (Creative, Critical, and Constructive). So that this supports researchers to find out the relevance of fractional material to the creativity of grade 3 students, especially at SD X.

## METHODS

This research is a qualitative descriptive study because it aims to describe the relevance of fraction material to the creativity of 3rd grade elementary school students. A fraction is part of a whole thing. Fractions material taught from the elementary school level has several uses in everyday life. Fractions are often applied in various fields including architecture and science. Learning fractions requires students' creativity because creativity is needed when solving problems, namely with divergent thinking patterns that will produce more than one problem solving (idea). This is in accordance with the notion of creativity from Shaleh (2004) that creativity is a person's ability to solve problems that allows the person to find original ideas or produce an adaptive (usability function) that is fully developed. The resource persons involved in this study were 3rd grade teachers of SD X. In data collection techniques, this study used interviews and fractional learning tools documents. The interviews applied were semi-organized because researchers needed to be more transparent in finding problems. Before conducting interviews, the researcher first designed the interview rules so that the interview was right on target for research purposes. This interview was used to collect data on what creativity the teacher saw from students when studying fractions material and whether the teacher had ever measured or assessed students' creativity when studying fractions material. This interview involved grade 3 teachers, who were interviewed in April-May 2022. The analysis used documents in the form of fractional material learning tools consisting of RPP (Learning Implementation Plan), learning media, and learning evaluation. This learning tool is used to collect data whether the fraction material is related to the creativity of grade 3 students in the fraction material. Data collection was carried out by examining learning tools consisting of lesson plans, learning media, and learning evaluation using creativity indicators in mathematics learning, namely Fluent Thinking Skills, Flexible Thinking Skills, Original Thinking Skills, Detailed Thinking Skills, and Judging Skills.

The data analysis technique used in this research is the data analysis technique in the field using the Miles and Huberman method. Data analysis in qualitative research is carried out before going to the field, in the field and after finishing in the field. Analysis before going to the field is used during the preliminary study which is used to determine the core of the research. Analysis in the field is carried out so that information retrieval can take place and analysis after completion in the field is carried out when all information has been collected (Sugiyono, 2010). Sugiyono (2016) says that activities in quality data analysis are carried out by linking and running continuously until complete, until the data is solid. Activities in the data analysis method according to Miles and the Huberman model include data collection, data reduction, data display, and drawing conclusions. Data reduction is a stage in concluding, mastering the main content, focusing on clearer content, and making it easier for researchers to collect data. When reducing data, the researcher focuses on the research objective in order to reduce data that is considered

foreign and not in accordance with the objectives in order to produce data that is more in line with the findings he wants. In this study, what is reduced is the relevance of fractions to the creativity of 3rd grade elementary school students. Through data presentation, data can be organized and organized in a relational mode for easy understanding. The presentation of data shows a collection of information that allows us to draw conclusions and take action to achieve research objectives (Sugiyono, 2012). In qualitative research, data presentation can be in the form of brief descriptions, graphs, and relationships between categories. Data representation in this study is presented through a collection of information that will draw conclusions and take steps to achieve research objectives. Drawing conclusions, this qualitative research wants to reveal a definition based on the data taken. Therefore, the conclusions of this study qualitatively answer the questions that have been asked. Findings can be in the form of descriptions, or pictures of objects that are dim or dark so that they become clearly visible after being studied, can be in the form of victims or interactions, hypotheses or theories (Sugiyono, 2012). In this study, the data on the relevance of fractions to the creativity of grade 3 SD X students in presenting data will be analyzed to draw conclusions.

## RESULT AND DISCUSSION

The results of the study conducted at SD X in January-June 2022, with the research target being a learning tool for grade 3 fractional material. In accordance with the title, namely the analysis of the relevance of fractional material to the creativity of grade 3 students in elementary school. After the researcher conducted interviews and analysis of learning tools, the results of the study were obtained on the relevance of fractional material to the creativity of grade 3 students, and various creativity that grade 3 students can develop through fractional material.

### 1. Data from the Result of analysis of learning tools for fractional material i grade 3

Based on the results of the analysis carried out on the learning tools of grade 3 fractional material at SD X, the following are the results of data from learning tools including THERPP (Learning Implementation Plan), learning media, and learning evaluation.

#### a. The results of the RPP analysis (learning implementation plan)

In the lesson plan (RPP), there is a relevance of fraction material to the creativity of 3rd grade elementary school students. This can be seen from the teacher's RPP which has included indicators of creativity in mathematics lessons that have been included in the Learning Device Plan for grade 3 elementary school fractions.

#### b. The results of the analysis of learning media for fractional material in grade 3

The learning media used in the fractional material is relevant to students' creativity. With this media, in addition to understanding the concept of fractions, students can also distinguish values in the form of fractions or can compare fractions, which are larger and which are smaller. After students understand about fractional comparisons, students can solve problems or problems related to fractions and require equal or fair distribution. This learning is very relevant or has conformity with life, it is also in accordance with the demands of life which requires humans to act fairly.

#### c. The results of the analysis of the evaluation sheet

In this analysis sheet the teacher makes an evaluation sheet by relating problems in everyday life. This is done so that students can generate solutions, generate ideas from solutions that are triggered, and can ascertain whether the action or solution that is triggered is a wise action or not and not only proposes a solution but can also realize the solution. Generating this solution can be seen from the students' answers when faced with problem-based story questions, whether students can find solutions to these problems or not.

### 2. Data from the Result of analysis of learning tools for fractional material i grade 3

Based on the results of interviews with Class 3 teachers of SD X regarding the analysis of the relevance of fraction material to the creativity of 3rd grade students, the teacher said that by studying fractions material can develop students' creativity, because by studying fractions, students can solve problems related to everyday life. This can be seen when teaching and learning activities, students can present different answers when learning fractions. Regarding the basics of fractional material in Grade 3, to help increase students' creativity, in the activity to start the fraction material, namely, I gave a Kit Project or it could be called a learning media for students. In this school, every student and every learning material has been provided with a Project Kit for each student which has been provided in the student locker. The Kit Project for this fractional material I provided media in the form of plasticine, a small toy knife and a cake plate. The plasticine will be shaped by students, either cake or fruit. In this case, students are given the challenge to form plasticine into fruit or cake shapes so that they can develop students' creativity. With that form, I invite students to cut the plasticine that has been formed earlier so that students can know the concept of fractional material.

The steps that are usually taken by the teacher when carrying out the learning process of fractional material to develop students' creativity are by using concrete media, and the learning method is by doing, so not only with lectures. In this fractional material, the teacher asks students to bring some white bread or donuts as a concrete learning medium and is often encountered by students. The teacher gives questions and asks students to apply them with white bread or donuts that have been brought and shared with their classmates. These activities indirectly make students active, practice their creativity and understand the concept of fractional material easily.

The reasons that support teachers choose this method include the media used by students in everyday life. The age of grade 3 students requires learning with concrete media, and grade 3 students are still at a stage where if only the lecture method would feel bored, so students are invited to explore by learning to do.

The success rate of the relevance of fractional material to students' creativity when the teacher carries out fractional material learning is increasing, because at the beginning of the introduction of the concept of fractional material the teacher has used concrete learning media and is known to students in everyday life. This is supported by the assignments given by the teacher to students in the form of story questions and picture questions, so that the relevance of fractional material to students' creativity can be achieved.

Creativity that can be increased by learning fractions material can be seen from students being able to share something with friends, brothers, or sisters in equal proportions. Students can also learn to generate ideas why if divided by 2 people and divided by several people the parts obtained are different. Students can also assess whether the choices made are wise regarding the distribution that must be given equally.

Factors that can increase the relevance of fractional material to students' creativity are fun learning processes, use of learning media, students being included in the learning process, teachers who can design lesson plans, and open-minded teachers. The learning process is fun and the use of learning media can make students excited because their presence is recognized and feels valued by being included in learning activities. Teachers must also be able to develop learning plans or designs, not only based on the books they already have but must develop them so that they don't seem monotonous. Teachers can use other learning media references or other assignment references that can develop students' creativity.

When studying fractions material, creativity that is useful for future life for students is that students can generate solutions, can generate ideas from solutions that are triggered, and can determine whether the action or solution that is triggered is a wise action or not and not only propose a solution but also be able to realize the solution. This can be seen from the application of students' daily lives who will share food with their friends. By studying fractions material, students can be fair to others and can be a provision for future life and be useful for the long term.

The things that the teacher hopes for grade 3 students will increase their creative abilities, namely that students are expected to better understand what they read. In improving students' reading comprehension regarding fractional material, of course, it cannot be separated from the motivation of the teacher, so it is hoped that the teacher will always accompany and motivate students to improve understanding through reading and increase student creativity.

Therefore, the teacher's role is very important in motivating student learning. Based on the results of the analysis of interviews and learning tools for grade 3 fractions, it was obtained data that teachers in the implementation of learning provide opportunities for students to develop their creativity. Based on these results, it can be seen that there is a relevance of fractional material to the creativity of grade 3 students, because there is an improvement in students' understanding of the concept of fractional material and can work on problems related to fractional material in students' daily lives. Data obtained from the results of the analysis as follows: Students can divide everything equally and fairly.

The results obtained through the analysis of learning tools (RPP, learning media and evaluation sheets), students can easily understand the concept of fractional material. This can happen because the teacher develops student creativity with concrete forms of media. With this media, in addition to understanding the concept of fractions, students can also distinguish values in the form of fractions or can compare fractions, which are larger and which are smaller. After students understand about fractional comparisons, students can solve problems or problems related to fractions and require equal or fair distribution. This learning is very relevant or has conformity with life, it is also in accordance with the demands of life which requires humans to act fairly.

Based on the explanation above, it can be concluded that the relevance of fractions material to the creativity of grade 3 students is to be able to solve problems that require justice for everyone. In this case, the concept of fractions must be instilled correctly since elementary school, so that students from an early age can act fairly with anyone, both with friends and family. The relevance of fractional material with creativity is in accordance with the results of research from Anggreni (2019) where the results of his research show that in learning mathematics, especially fractional material, the relevance aspect is having a high sense of responsibility, being fair and having social care.

## CONCLUSION AND SUGGESTIONS

The conclusion obtained is that there is a relevance of fractional material to the creativity of grade 3 students, because there is an improvement in students' understanding of the concept of fractional material and can work on problems related to fractional material in students' daily lives. It is proven that students can share everything equally and fairly. The next conclusion is that students can have fluent thinking skills marked by students being able to give suggestions or be able to solve problems, having flexible thinking skills marked by students being able to produce varied solutions or ideas, students having original thinking skills marked by students being able to give birth to new and unique expressions. , students have detailed thinking skills marked by students being able to detail the details of an object, students having judging skills marked by students being able to ascertain whether an action taken in solving problems has been wise and can also realize the solutions that have been triggered. This study only examines mathematics learning, especially fractions. The level of education studied was only carried out at the elementary school level in Surabaya, namely in grade 3 students. In this study, the creativity studied was creativity that could be developed in the cognitive aspects of students.

## REFERENCE

Amir, M. F., & Wardana, M. D. K. (2017). Pengembangan Domino Pecahan Berbasis Open Ended Untuk Meningkatkan Kemampuan Berpikir Kreatif Siswa SD; Domino Development

- of Open Based Fractions Ends To Improve Elementary Students' Creative Thinking Abilities. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 6(2), 178.
- Anggreni, F. (2019). Relevansi Pembelajaran Matematika Dengan Nilai-Nilai Al-Qur'an Dalam Membentuk Karakter Siswa Pada Materi Pecahan. *Jurnal Ilmiah Pendidikan Matematika Al Qalasaki*, 3(1), 10–18. <https://doi.org/10.32505/qalasaki.v3i1.896>
- Indriani, D. S., Widyasari, W., Amril, L. o., Iii, B. A. B., Penelitian, O., Metode, D. A. N., Gide, A., & Nurjanna, S. S. (2018). Pengaruh model pembelajaran berbasis masalah terhadap kemampuan berpikir kreatif matematis siswa pada materi bilangan pecahan kelas IV SDIT At-Thoriq. *Angewandte Chemie International Edition*, 6(11), 951–952., 2(3), 50–78.
- Kane, S. N., Mishra, A., & Dutta, A. K. (2016). Preface: International Conference on Recent Trends in Physics (ICRTP 2016). *Journal of Physics: Conference Series*, 755(1). <https://doi.org/10.1088/1742-6596/755/1/011001>
- Menteri Pendidikan Nasional. (2006). Peraturan Menteri Nomor 35 Tahun 2006 1. *Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 23 Tahun 2006 Tentang Standar Kompetensi Lulusan Untuk Satuan Pendidikan Dasar Dan Menengah*, 1–35.
- Munandar, U. (2017). *Mengembangkan Bakat dan Kreativitas Anak Sekolah*. PT. Gramedia.
- Purwoko, R. Y. (2010). [library.uns.ac.id](http://library.uns.ac.id) [digilib.uns.ac.id](http://digilib.uns.ac.id) 1 1. *Tesis*, 1–124.
- Shaleh, A. R. (2004). *Madrasah dan Perkembangan Anak Bangsa*. PT. Raja Grafindo Persada.
- Sugiyono. (2010). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Sugiyono. (2012). *Memahami Penelitian Kualitatif*. PT. Alfabet.
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. PT. Alfabet.