

Research Article

The Effect of Teaching Percentages with Creative Drama Method on the Academic Achievement of Fifth Grade Students and Permanence of Knowledge

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The aim of this study is to examine the effect of teaching percentages with the creative drama method on the academic achievement and permanence of fifth grade students. For this purpose, an experimental design with pre -test post-test control group, which is one of the quantitative research methods, was adopted. The sample of the research consists of 58 fifth grade students, 30 of whom are experimental and 28 of whom are controls, who are studying in a public school in Osmaniye city center. When the data got within the scope of the research were analyzed at the 95% confidence level in the SPSS 23 program, it was revealed that there was a moderate effect size in favor of the experimental group between the test scores of the knowledge retention of the experimental and control groups. Thus, we agreed that the creative drama method is more effective than traditional teaching methods in terms of academic success and permanence of knowledge on percentages.



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Introduction

Mathematics is “the abstracted form of life” (Altun, 2015). For this reason, it is considered essential to reflect on the mathematics we frequently encounter daily and use it consciously or unconsciously in the education and training environments. With the constructivist approach adopted in curricula in Turkey since 2005, effective teaching of mathematical concepts important for life has been brought to the fore. In this context, it aims to raise students as individuals who can understand mathematical concepts and use them in daily life (Ministry of National Education [MoNE], 2018). The abstract nature of concepts in mathematics causes students to have learning difficulties and to develop misconceptions about these concepts. On the other hand, this situation affects the student's academic success

in the mathematics course by bringing them face to face with the thought that mathematics consists of complex and challenging concepts to learn.

Raising successful individuals is the aim of the education system in general and mathematics teaching in particular. Success is more than just a high grade in a course; it means students' ability to solve problems they encounter in their daily lives. Mathematics is used consciously or unconsciously in solving issues that occupy the human mind and reduce the quality of life when they cannot be solved. For these reasons, academic success is a significant achievement both in our education system and in terms of mathematics teaching. It is necessary to determine the factors that students fail and include teaching methods and techniques that reduce and eliminate their failures. Although there are many factors in front the failure, the main reason for the educational difficulties experienced by the students is seen as the traditional teacher-oriented education approach (Aykaç & Köğce, 2014; Kızıltoprak, & Pesen, 2022; Legodi-Rakgalakane, & Mokhampanyane, 2022). For this reason, teachers need to reflect on contemporary teaching methods and techniques in their teaching processes, which remove the misconceptions that negatively affect the effective mathematics teaching process. The creative drama method is one of today's contemporary teaching methods by creating an effective learning environment that provides students with active participation away from rote learning (Yiğit, 2010). Creative drama is a discipline and method with techniques such as role playing, improvisation, and still imagery (Metinnam, 2019). On the other hand, creative drama studies, which find application to individuals of all ages at all levels of education (Üstündağ, 1998), are considered one of the most effective methods in which students can be involved in the learning process by doing and experiencing, in the teaching of subjects belonging to different disciplines such as history, language, and mathematics (Aykaç, 2011). The use of creative drama as a method in the classroom environment and various courses aims to make the subject to be taught permanent by providing a student-centered teaching environment (Adıgüzel, 2019). In their study, Aykaç and Köğce (2020) stated that using the creative drama method in mathematics teaching plays an important role in concretizing abstract formulas and concepts, as it provides teaching environments where students can experience mathematics and associate it with their own lives. For this reason, it is estimated that teaching mathematics, which is difficult and difficult to learn due to its abstract nature, with the creative drama method can

make learning more meaningful and permanent by embodying the abstractness of the concepts and have an impact on academic achievement.

The creative drama method has three stages: Warm-up-preparation, animation, and evaluation. In the warm-up-preparation phase, which constitutes the beginning of the creative drama process, children's games and derived games (Adıgüzel, 2019) are used and the students' work involves stepping into the teaching process. The world constructed in line with the learning outcome is included. Using music and rhythm instruments can make warming up at this stage more enjoyable for cognitive, affective and psychomotor (Akoğuz & Akoğuz, 2016). After this stage, the animation stage is started. Animations at this stage can be done individually or in groups (Adıgüzel, 2006). In short, it can be said that for the animation stage, it is a stage that includes problem solving studies based on the students' learning, experiences and creativity in the preparation-warm-up stage by taking on the roles given in dramatic situations. Within the scope of this study, the problems that students may encounter in their daily lives, which are related to the problem solving process on which mathematics teaching is based (Aykaç & Köğce, 2014) in the animation phase, are given with dramatic elements. After the animation phase, the evaluation-discussion phase is started. At this stage, evaluations are made in the context of the learning outcome for the creative drama process. In this way, based on the creative drama process, measurement and evaluation studies are carried out for the level of achieving the targeted educational goals of the students. Since creative drama is similar to the understanding that the constructivist approach gives importance to the process rather than the result in learning, alternative measurement and evaluation tools can be preferred in the context of achievement at this stage. In the literature, there are various studies (Aykaç & Ulubey 2008; Aykaç & Çetinkaya, 2019; Köğce, 2019) in which the associations between the creative drama method and the 5E learning model steps based on the constructivist approach are made.

Köğce (2019) related the 5E learning model based on the constructivist learning approach and the stages of creative drama as given in Table 1.

Table 1. Constructivist approach with creative drama a relationship between 5E based learning model

Stages of Creative Drama	5E Model Steps of Constructivist Approach
Warm-up-Preparation	Entering
	exploring
	Explanation
Animation	Deepening
Evaluation	Evaluation

(Köğce, 2019)

One of the mathematical concepts that we frequently encounter in daily life is the concept of percentage. The concept of percentage is used in determining the discount, profit and loss ratio in shopping environments, specifying the content and nutrient ratios of food and beverages, expressing tax rates, explaining bank interest rates and in many other environments. Despite the wide area of use, students encounter various learning difficulties and may have misconceptions about the percentage in the secondary school mathematics curriculum (Akpınar, 2018; Yıldız 2017).

The difficulties and misconceptions of students about percentages in mathematics lessons can negatively affect their academic success and permanence of their knowledge.

When the literature is examined, mathematics experimental studies have been conducted on the effectiveness of the creative drama method used in teaching (Borlat, 2018; Ceylan, 2014; Debreli , 2011; Gedik, 2014; Gümüş-Gül, 2017; Makas-Soylu, 2017; Karapınarlı, 2007; Özyiğit-Şenol, 2011). When the findings and results of the studies are examined, it is seen that the creative drama method is a more effective teaching method than the traditional teacher-centered teaching methods on the success of mathematics and the permanence of the learned information, as it allows students to learn by doing and experiencing abstract mathematical concepts. At the same time, Ulubey and Toraman (2015) stated in their meta-analysis study that the creative drama method increased academic success. In addition, Karapınarlı (2007) stated in his study that teaching the 7th grade ratio-proportion and percentages unit with the creative drama method is more effective than traditional teaching methods such as narration, question-answer, demonstration, and problem solving on students' success and retention levels. This situation created the idea that teaching with creative drama activities at the 5th grade level, where students encounter the subject of first percent in the secondary school mathematics program, can increase the academic success of the students and have permanent learning. Based on this idea, in this study, it is aimed to examine the effect of teaching percentages with creative drama activities on the academic achievement and permanence of 5th grade students. For this purpose, it is thought that the creative drama lesson plans prepared within the scope of the research can help mathematics educators, teachers and students who take creative drama lessons, who want to benefit from this method in learning and teaching environments, in terms of presenting exemplary applications.

For the purpose of the study, the following problem and sub-problems related to this problem were determined:

1. Is there a significant difference between the academic success and permanence of the students in teaching the fifth grade math lesson percentages with creative drama activities?

1.1. Is there a significant difference between the academic achievement pre-test, post-test and retention test scores of the control group students?

1.2. Is there a significant difference between the academic achievement pre-test, post-test and retention test scores of the experimental group students?

1.3. Is there a significant difference between the academic achievement permanence test scores of the students in the experimental and control groups?

Method

Research Model

In this study, the experimental model with pre-test post-test control group, which is one of the quantitative research methods, was used. Pre -test, experiment, post-test, which includes both pre-experiment and post-experiment measurements, was effective in the preference of this research model. Thus, while the teaching of percentages was carried out with the creative drama method in the experimental group, the traditional teaching method was used in the control group.

Table 2. Model of the research

Group	Pre-Test	Experimental Phase	Final Test	Post Experiment (3 Months)
Experiment group	Achievement test	Teaching Percentages with Creative Drama Method	Achievement test	Achievement test
Control group		Teaching the Subject of Percentages with the Traditional Teaching Method		

Universe and Sample

The universe of the research consists of secondary school fifth grade students studying in the city center of Osmaniye in the 2021-2022 academic years, and the sample of

the research consists of 58 fifth grade students in secondary school determined by simple random sampling method from this city universe. As a result of the analysis of the students' academic achievement pre-test scores in the determination with the simple random method, 28 students who were academically equivalent to each other formed the control group and 30 students formed the experimental group. Academic achievement pre-test results are given in Table 3 below.

Table 3. Pre-test success independent group's t - test results

Working group	n	\bar{X}	Ss	Sd	t	p
Control Group	28	48.21	6,414	56	0.385 *	0.702
Experimental group	30	46.67	20,982			

* $p < 0.05$

t test results in Table 3 are examined ($t_{(56)} = 0.385, p > 0.05$), there is no significant difference between the pre-test academic achievement scores of the experimental and control groups. Can be said to have been chosen.

Data Collection Tools

In order to measure the academic success of 5th grade students on percentages, the researcher developed a 20-question multiple-choice "Percentages Achievement Test" in the research. The validity and reliability studies of the developed test were carried out by following the test development steps. The validity and reliability studies of the developed test were carried out by following the test development steps. These steps are as follows:

Step 1: Removing the fifth grade achievements of percentages from the mathematics curriculum

Step 2: Literature review for question styles

Step 3: Developing the draft achievement test

Step 4: Preparing the specification table of the draft test

Step 5: Submitting the draft test to time review

Step 6: Piloting the test

Step 7: Performing validity and reliability analyzes after the pilot application

Step 9: Developing the 20-item Percentile Achievement Test.

The Cronbach Alpha coefficient result of the percentages achievement test developed in Table 4 is given below.

Table 4. Cronbach alpha coefficient of percentage achievement test

Cronbach's Alpha Coefficient	N
0.89	20

Table 4, the Cronbach Alpha coefficient was calculated as 0.89. Calculation of the Cronbach Alpha coefficient greater than 0.70 indicates that the achievement test is reliable.

Data Collection

Was applied to the experimental and control group students as a pre-test, post-test after the application, and a retention test 3 months after the application, before the teaching practice with the creative drama method, whose effect on academic achievement and permanence was investigated in the research. The data in these tests were transferred to the SPSS environment by coding the correct answers as "1" and the blank answers as "0".

Data Analysis

Normality analyzes were performed in the SPSS package program to answer the research questions. When Shapiro - Wilks, Histogram, Q-Q graph, skewness and kurtosis values of pre-test, post-test and retention test scores are considered together; Since the pre-test achievement, post-test achievement and retention scores provide normal distribution, it was decided to use the Parametric Tests, Repeated Measurements ANOVA test and Independent groups t test. Thus;

1. Whether there is a significant difference between the academic achievement pre-test, post-test and retention test scores of the control group students. Repeated measures ANOVA test,
2. Whether there is a significant difference between the academic achievement pre-test, post-test and retention test scores of the experimental group students Repeated measures ANOVA test,
3. Whether there is a significant difference between the retention test scores of the students in the experimental and control groups Independent groups t-test,
4. Analyzed in SPSS 23 program at 95% confidence interval ($p < 0.05$)

Finding

1. "Is there a significant difference between the Academic Achievement Pre-Test, Post-Test, and Retention Test scores of the Control Group students?"

Retention test scores of the control group students?" Since the pre-test, post-test and retention test scores of the control group students provided the assumption of normality,

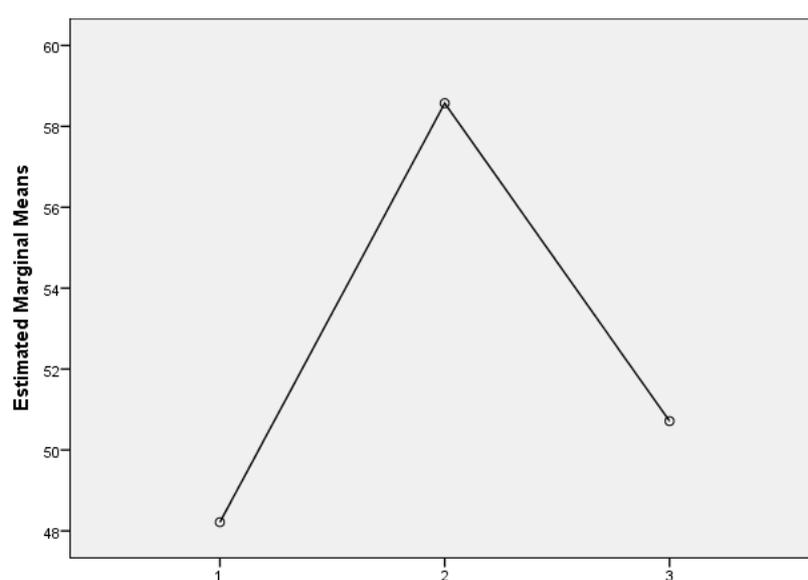
repeated measurements from parametric tests were analyzed using the ANOVA test. Analysis results are presented in Table 5:

Table 5. Control group repeated measurements ANOVA test results

Tests	\bar{X}	Ss	Sum of Squares	df	Mean Squares	F	p	Eta square
Pre-test	48.21	6.414						
post-test	58.57	14.773	1635.71	1.76	928.93	6.92	0.003	0.20
Permanence	50.71	18.545						

*p<0.05

When Table 5 is examined, there is a significant difference between the academic achievement pre-test, post-test and retention test scores of the control group students ($p < 0.05$). Since the academic achievement effect size between the tests (Eta square = 0.20), it has an average effect power. The arithmetic mean ($\bar{X} = 48.21$), standard deviation ($Ss = 6.414$) of the academic achievement pre-test scores of the control group students; arithmetic mean ($\bar{X} = 58.57$), standard deviation ($Ss = 14.773$) of academic achievement post-test scores; The arithmetic mean ($\bar{X} = 50.71$) and standard deviation ($Ss = 18.545$) of achievement test scores were found. In this context, it can be said that the significant difference between the Percentage Achievement Test pre-test, post-test and retention test scores of the control group taught with the traditional teaching method is due to the increase in academic achievement due to the traditional teaching method of the subject and the decrease in the retention scores in the achievement test performed 3 months after the application. In Figure 1 below, the changes between tests are given by a line graph:



*1=Pre-test, 2=Post-test, 3=Permanence test

Figure 1. Graph of change between pre-test, post-test and retention test scores

The line graph given in Figure 1 is examined, it is seen that the academic achievement test scores of the control group students are close to the pre-test scores, and therefore teaching with the traditional teaching method is not possible. It was found that it did not provide permanence.

2. "Is There a Significant Difference between the Academic Achievement Pre-Test, post-test and retention test scores of the experimental group students?"

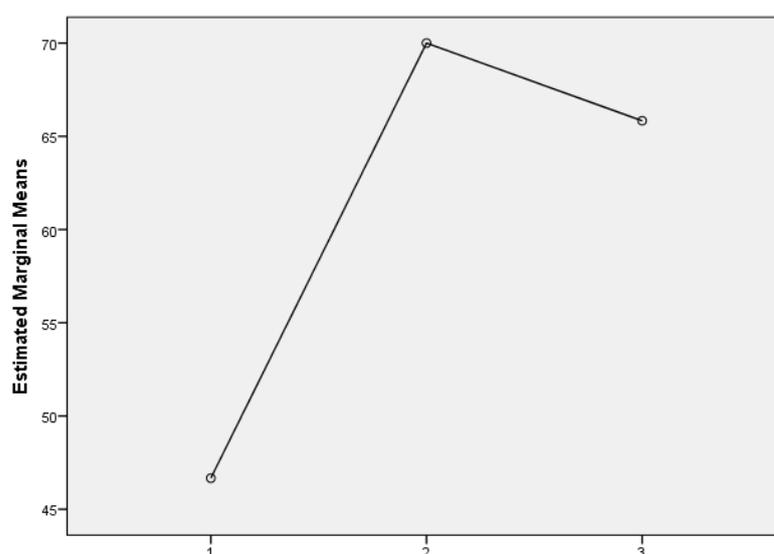
Retention test scores of the experimental group students?" Since the pre-test, post-test and retention test scores of the experimental group students provided the assumption of normality, repeated measurements from parametric tests were analyzed using the ANOVA test. Analysis results are presented in Table 6:

Table 6. Experimental group repeated measurements ANOVA test results

Tests	\bar{X}	Ss	Sum of Squares	df	Mean Squares	F	p	η^2
Pre-test	46.21	20.98						
post-test	70.00	25,931	9291.66	2	4645.83	26.65	0,000	0.479
Permanence	65.83	25.86						

*p<0.05

When Table 6 is examined, there is a significant difference between the academic achievement pre-test, post-test and retention test scores of the control group students ($p<0.05$). Since the effect size of the academic achievement between the tests is ($\eta^2 = 0.479$), 47% of the variance of the permanence scores emerged due to the creative drama activities. The arithmetic mean ($\bar{X} = 48.21$), standard deviation ($Ss = 6.414$) of the academic achievement pre-test scores of the control group students; arithmetic mean ($\bar{X} = 58.57$), standard deviation ($Ss = 14.773$) of academic achievement post-test scores; the arithmetic mean ($\bar{X} = 50.71$) and standard deviation ($Ss = 18.545$) of the retention test scores were found. In this context, it was seen that there was a significant difference between the pre-test, post-test and retention test scores of the experimental group taught with the creative drama method. It can be said that this difference is due to the increase in academic success due to the teaching of the subject with the creative drama method and the fact that the academic success of the students in the permanence test remained at a certain average three months after the application. In Figure 2 below, the changes between tests are given by a line graph:



*1=Pre-test, 2=Post-test, 3=Permanence test

Figure 2. Graph of change between pre-test, post-test and retention test scores

When the line graph given in Figure 2 was examined, it was found that the retention test scores of the experimental group students did not deviate much from the post-test average score; therefore, teaching with the creative drama method provided permanence.

3. "Is There a Significant difference between the Academic Achievement permanence Test Scores of the experimental and Control group students?"

Of the experimental and control group students?" After answering the question, since the retention test scores of the students in the experimental and control groups provided the assumption of normality, groups independent of parametric tests were analyzed using the t-test. Analysis results are presented in Table 7:

Table 7. Experimental and control group retention test independent groups t-test results

Working group	n	\bar{X}	Ss	Sd	t	p	Cohen'd
Experimental group	30	65.83	25,867				
Control Group	28	50.51	14,545	56	2,546*	0.014	0.067

*p<0.05

When Table 7 is examined, there is a significant difference between the retention test scores of the experimental and control group students in favor of the experimental group ($t=2.546$, $p<0.05$). The arithmetic means ($\bar{X} = 65.83$), standard deviation ($Ss = 25.867$) of the post-test academic achievement scores of the experimental group students; the arithmetic mean ($\bar{X}= 50.51$), and standard deviation ($Ss = 14.545$) of the post-test academic achievement

scores of the control group students were found. It has a medium effect size since it has retention test success scores (Cohen'd = 0.067). In this context, it can be said that the difference between the retention test scores of the experimental and control group students is in favor of the experimental group and has a medium-sized effect size. The histogram chart for the comparison of the retention test mean scores of the experimental and control groups are given in Figure 3 below:

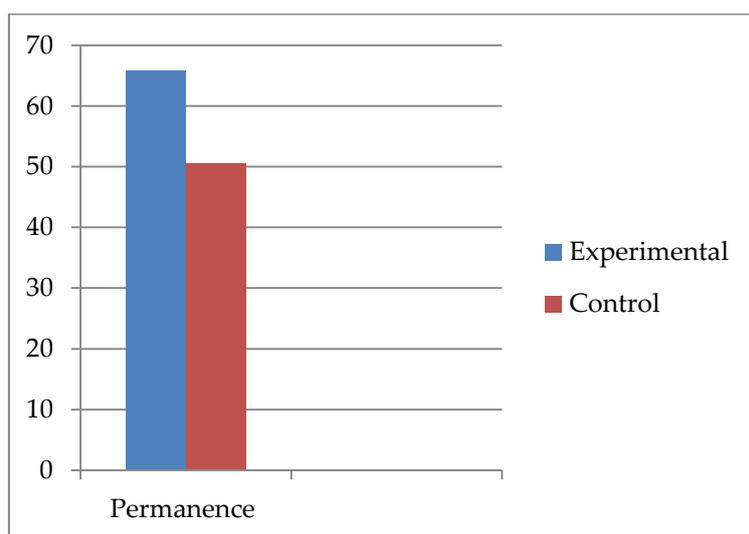


Figure 3. Comparison of experimental and control group students by permanence scores

When Figure 3 is examined, it is seen that the permanence test mean score of the experimental group students is higher than the mean score of the control group students, therefore, teaching with the creative drama method provides more permanence than the traditional teaching method.

Discussion and Conclusion

The results obtained in line with the findings related to the main problem of the research and the sub-problems of this problem are discussed in the literature in this section. The question “*Is there a significant difference between the academic achievement pre-test, post-test and retention test scores of the control group students?*” to the sub problem *In line with the findings related to the study*, it was concluded that there were a statistically significant difference between the academic achievement pre-test, post-test and retention test scores of the control group students. Academic achievement pre-test scores of the control group students were found as $\bar{X} = 48.21$, post-test scores $\bar{X} = 58.57$, and permanence test scores $\bar{X} = 50.71$. It can be said that the change in the average score between the tests occurred because the students had difficulty remembering the information in the achievement test, which was

applied three months after the post-test and post-test after the pre-test was done with the traditional teaching method before teaching the Percentage topic. Similar to this result, Kayhan (2004) stated in his study that the traditional method applied to the control group in the teaching of the 3rd grade "Length Measures" subject did not have a positive effect on the achievement scores of the students and the permanence of the learned information.

Based on the findings related to the sub-problem, a significant difference emerged between the academic achievements pre-test and post-test scores of the experimental group students. When the percentage achievement test pre-test, post-test and retention test scores of the experimental group students are examined, the arithmetic mean of the pre-test scores $\bar{X} = 46.67$, the arithmetic mean of the post-test scores $\bar{X} = 70.00$, the average of the retention test scores $\bar{x} = 65.83$ conclusions has been reached. In reaching this result, it is thought that teaching the subject of Percentages with the creative drama method is effective in increasing the academic success of the students and ensuring the permanence of the learned information. When the literature is examined, Keklik (2019) observed that 8th grade students produced solutions to modelling questions in the post-test and permanence test of the creative drama method in the solution process of "Mathematical Modeling" types. Masoum is similar and supports the result of Rostamy - Malkhalifeh's study that is teaching mathematical concepts with creative drama has more positive effects than traditional teaching methods. Unlike these results, Kılınçaslan and Özdemir Şimşek (2015) stated that both the creative drama method and layered teaching are equivalent to each other in increasing success and ensuring permanence.

"Is there a significant difference between the academic achievement permanence test scores of the students in the experimental and control groups? Based on the findings related to the sub-problem" a significant difference was determined between the academic achievement permanence test scores of the experimental group and control group students. When the Percentage Achievement Test permanence test mean scores of the practical and control group students were examined, it was seen that the mean of the permanence test scores of the experimental group students was $\bar{X} = 65.83$. The mean of the permanence test scores of the control group students was $\bar{X} = 50.71$. For this reason, it was concluded that the permanence test means a score of the experimental group students was higher than the mean score of the control group students. The use of creative drama activities in the experimental group and the current mathematics curriculum in the control group may have been effective in reaching this result. When the

Cohen'd effect size value of the significant difference found in the experimental and control retention test scores of teaching with the creative drama method was examined, it was seen that Cohen'd = 0.067. In this context, it was concluded that the difference in the retention test scores of the experimental and control groups had a moderate effect size in favor of the experimental group. When the literature is examined, the studies of Aykaç (2005), Altındal (2019), Çelik-Gürel (2004), Gül-Gümüş (2017), Kayhan (2004), Koçlar (2019), Soylu-Makas (2017) have focused on the effectiveness of the knowledge learned about mathematics achievements in ensuring the permanence. Supports the results of this study. The result of Kılınçaslan and Özdemir-Şimşek (2015) that the creative drama method and the layered teaching method, which they reached as a result of their studies, are equivalent to each other in increasing student success and providing permanence, does not support the result of this research.

Recommendations

In line with the results obtained in the research, the following suggestions can be made: This research is limited to the effect of fifth grade percentages on academic achievement and retention. Studies can be conducted to investigate the effects of creative drama activities on the affective and psychomotor dimensions of learning in different mathematics subjects and teaching levels.

Ethical Committee Permission Information

Name of the board that carries out ethical assessment: Niğde Ömer Halisdemir

University Institute of Educational Sciences Scientific Research and Publication and Publication Ethics Committee

The date and number of the assessment decision: 05/07/2021

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Author contribution Statement

Hatice Nur KONAKLI: *Conceptualization, literature review, methodology, implementation, data analysis, translation and writing.*

Davut KÖĞÇE: *Conceptualization, literature review, methodology, data analysis, translation and writing.*

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Appendices

Appendix 1: Sample Creative Drama Activities

History: 15/10/2021

Subject: Percentages

Group: 5th Grade Students

Duration: 60 min (Two Lesson Hours)

Method: Creative Drama

Techniques: Improvisation, Role Playing

Tools: Music player, Percentage symbol table, Colored % cards, % Pictures

Earnings: M.5.1.6.1. It displays fractions with a denominator of 100 with the percent symbol (%).

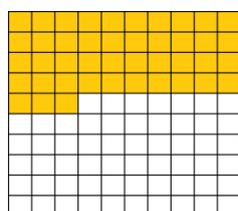
Period

Teacher: The teacher enters the classroom and tells his students, " I participated in the TUBITAK math project last week. In the project, I had the opportunity to meet with the mathematics teacher Henry Maths, who introduced the Show Painted Part in the One-hundred-Table with the Percent Symbol project with its unique methods and was appreciated and decided to be supported by TÜBİTAK. I invited Henry Maths to our class. And it came. He's waiting in the hallway now. Let's all invite Henry Maths to our class." (The teacher goes out and enters the class as Henry Maths, putting on the card with Maths written on it.)

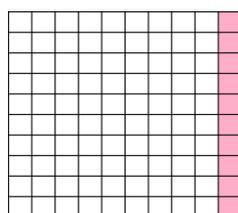
Preparation-Warm-up

1. Event:

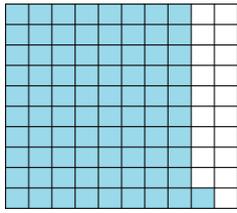
Henry Maths: After entering the classroom and meeting the students, he starts talking about the Show Painted Part with Percent Symbol on the Face Chart project. And the project shows examples of one hundred paintings with some painted squares they used. (The teacher shows examples from the smart board.)



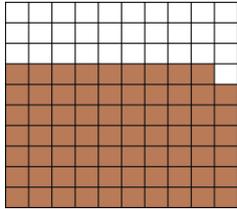
From the one hundred tables, 43 square units are painted.



Ten unit squares are painted from the one-hundred table.



81 unit squares are painted from the one-hundred table.



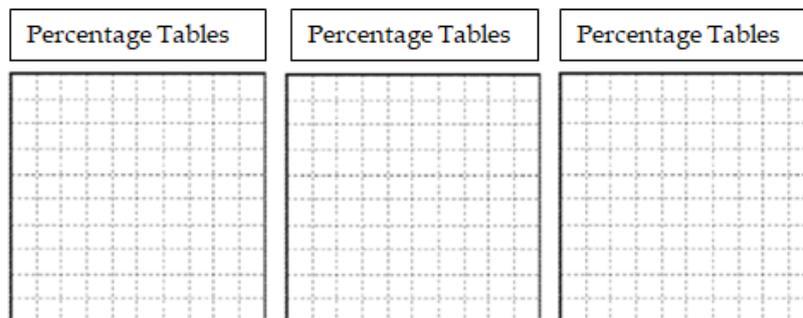
69 unit squares are painted from the one-hundred table.

Later, Henry Maths wants students to have an activity to better understand the representation of the painted squares on the percentile table with the per cent symbol.

2. Event:

Maths, the presenter of the project, asks the students to form groups of 5 or 6 and distribute the worksheets containing three percentage tables distributed to each group and ask the students to paint the percentage table in the amount they determine by following the instructions step by step.

Step 1: Color each of the three percentage tables below in the amounts you determine.



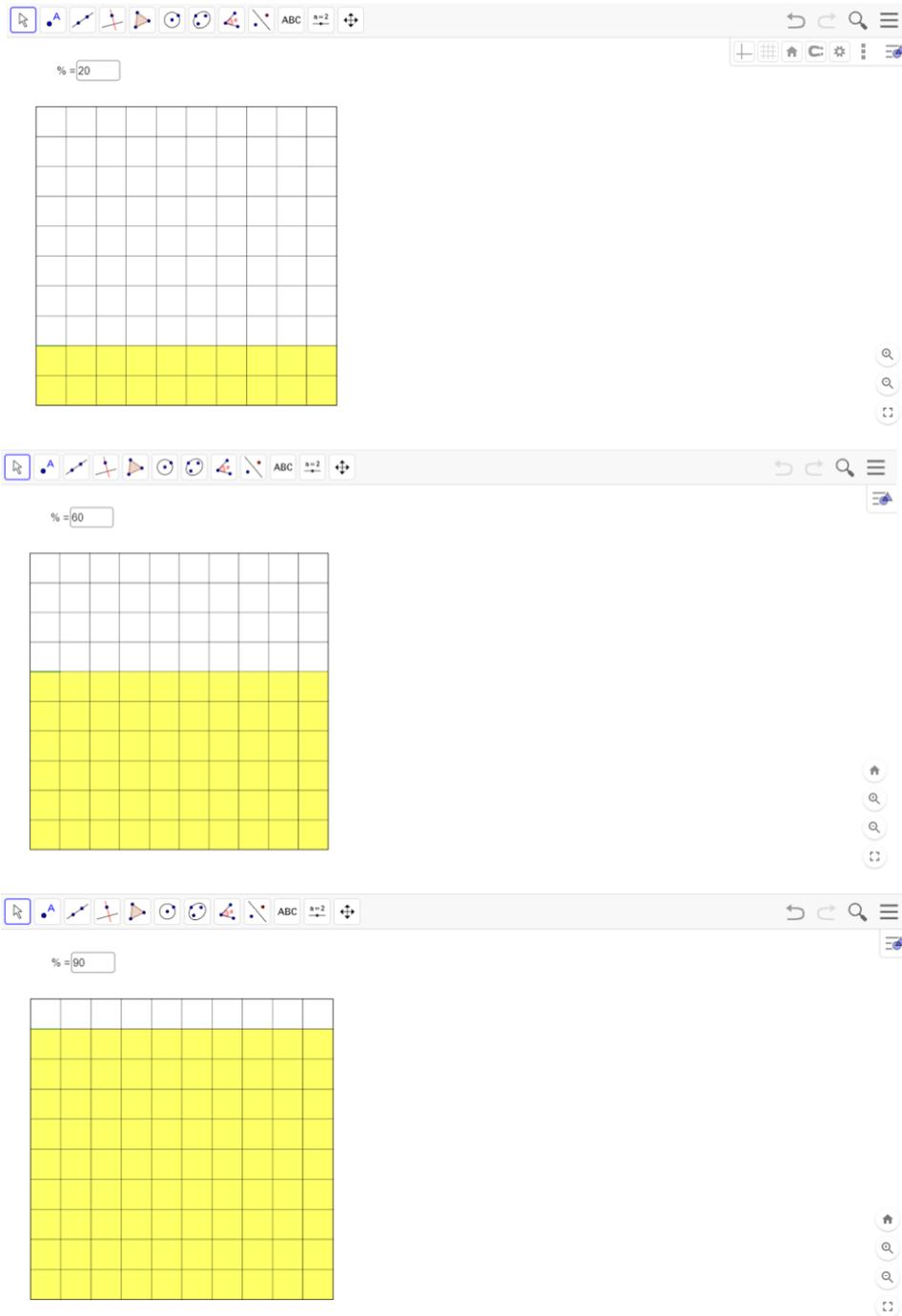
Step 2: Express the fraction of the whole shape of the painted squares as a fraction.

Step 3: Based on your obtained information, fill in the table below.

Percentile Tables	Representation of painted squares with fractions	Representation of painted squares in percent (%)	Relationship between number of painted frames and percentage representation
1. Percentile Table			
2. Percentile Table			
3. Percentile Table			

Step 4: Based on the information you have obtained above, what can you say about the number of painted squares and percentage representation in the one-hundred table, some squares of which are painted?

Step 5: GEOGEBRA dynamic mathematics application is used to represent the hundredth table with the percentage symbol, some squares of which are painted, and the GEOGEBRA material is opened on the smart board and presented to the students. Samples are made interactively over GEOGEBRA.

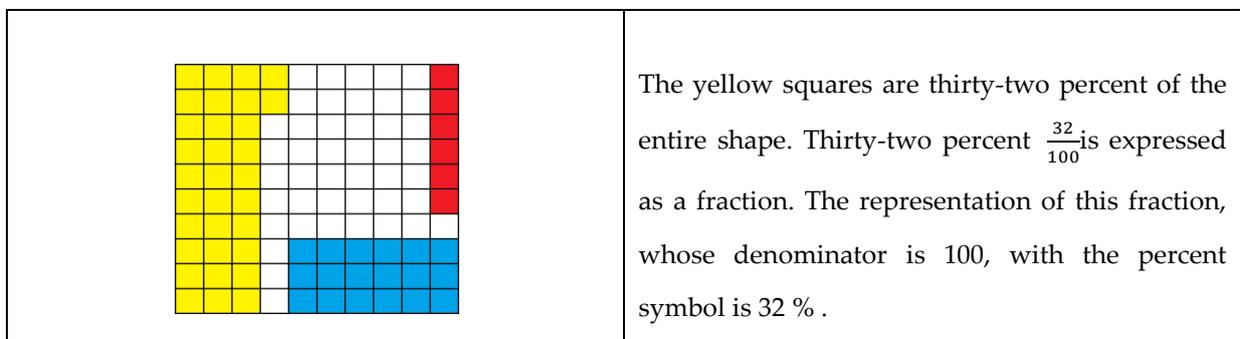


Step 6: Based on all the information you have obtained above, what would you say if you were to generalize the representation of the hundredth table with some colored squares with the per cent symbol?

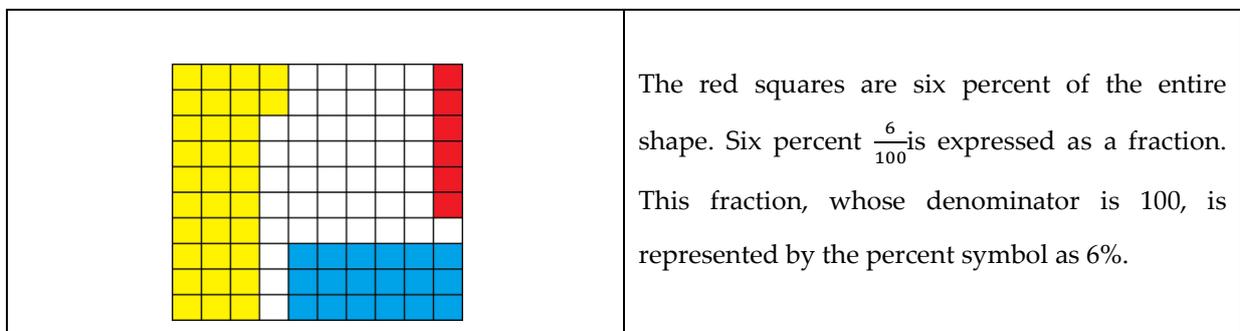
3. Event:

The teacher determines three color zones in the space. These; 1. Yellow, 2. Red and 3. Blue. Then, all students are asked to form different groups with the names yellow, red, and blue. In the game, which is started with music, the teacher says that the students can freely move around the place, but when the music is stopped, they must move to the zone of their own color. When the music stops, if there is a student who cannot pass to the zone of his/her own color or if he/she is mistaken, he/she goes to the zone and loudly speaks the cards with some squares painted in yellow, red and blue on the front side and information on the representation of the painted hundred tables with the percentage symbol on the backside. Below are the flashcards located in the Yellow, Red and Blue zones.

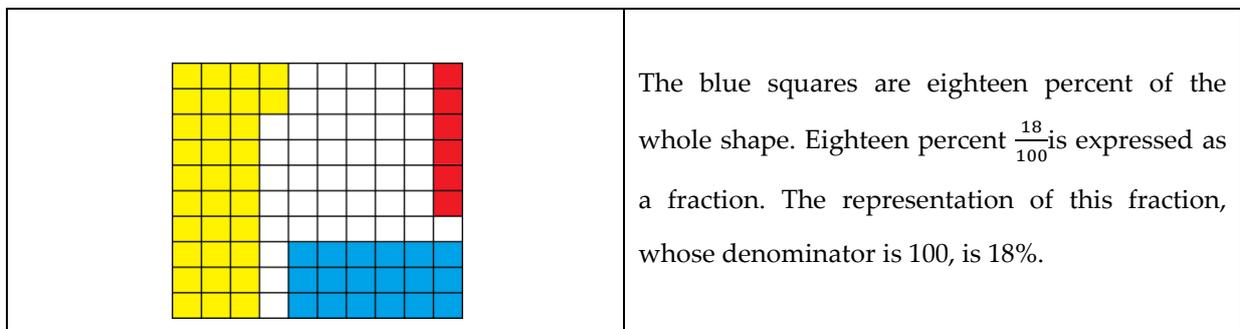
Yellow Zone



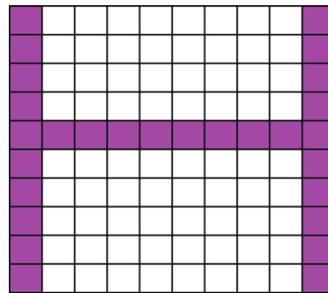
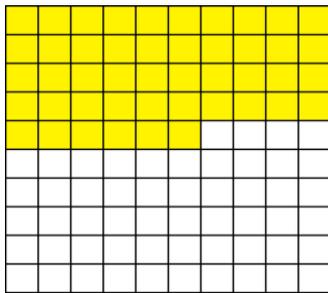
Red Zone



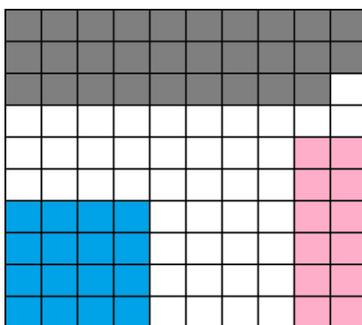
Blue Zone



1. Let's show how many of the painted squares in the hundred tables given below are in the whole figure with the per cent symbol %.



2. Examine the table below, some squares painted in different colors. And express how many painted squares for each color are in the whole shape as fractions and percentages.



Fraction Percent (%)

Black =

Pink =

Blue =

Herny After showing the students that some parts of a painted hundred can be expressed with the per cent symbol, Maths asks the students to write down what they learned in today's lesson and send them an e-mail. Leaves the classroom.

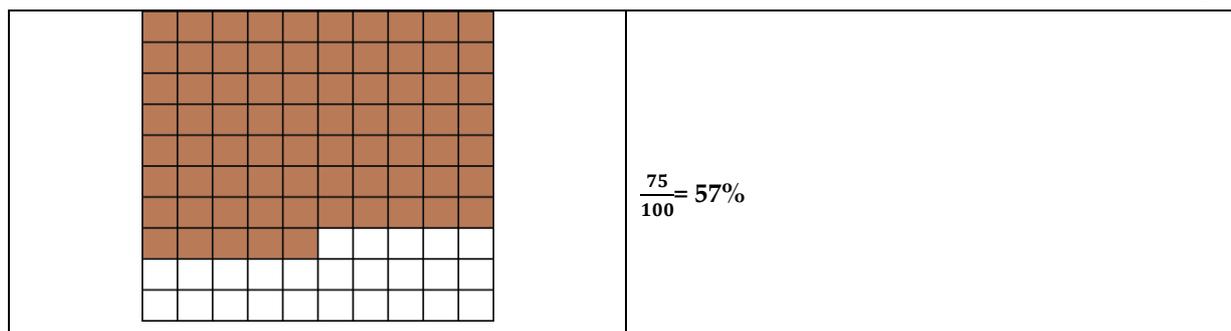
Animation

4. Event

1. Dramatic Situation

Mr. Can wants to have 75% of a wall divided into one hundred equal squares painted. For this, they make an agreement with a paint master. The painter works all day long, painting the wall divided into one hundred equal squares as much as Mr Can wishes. But when the painting process is finished, Mr Can objects to the painter. He claims that the painter paints 57%, not 75%, of a hundred identical squares. And said to the painter.

Can Bey's expression of the painted part of the wall divided into one hundred equal squares with a percentage is as follows.



Instructions: The paint master, who cannot convince Mr Can that the brown-painted times are seventy-five per cent of the whole shape, asks for help from his 5th grade daughter, Fatma. Fatma, on the other hand, says that Henry Maths can help in this matter in the math lesson, and they start improvising by interviewing her father, Can Bey, and Henry Maths on Zoom. (You can use the GEOGEBRA activities and worksheets we did at the warm-up event.)

2. Dramatic Situation

A baklava master from Gaziantep slices each baklava tray into 100 equal pieces. Ahmet Bey, on the other hand, buys a tray of baklava from the baklava seller from Gaziantep, as he knows that his children Sinem and Kerem love to eat baklava. But after a while, Kerem claims that Sinem ate 100% of the sweets, not 1%. 1 It says = 100%.

Instructions: When Sinem fails to convince her about the slice of baklava she ate, she wants to seek the opinion of Henry Maths, who is an expert on this subject. And with Henry Maths ' phone pickup, the impromptu moment begins.

Evaluation:

As an evaluation, the teacher makes the students count 1-2-3-4 in order and the students who say the exact number come together and divide into four groups. Then, each group is asked to prepare a Poster in which they can reflect on what they have learned to express the painted squares of the shape divided into one hundred equal squares with the symbol (%).

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