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IMPROVING LEARNING OUTCOMES ON THE CONCEPT OF SUBSTANCE FORMS AND THEIR CHANGES THROUGH THE 'FRIENDLY AND HEALTHY SOAP' EXPERIMENTAL METHOD AND ROLE PLAYING METHOD: EXPERIMENTAL STUDY ON ELEMENTARY SCHOOL STUDENTS

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Abstract

This study was motivated by the low interest and involvement of students in learning Natural Science in elementary schools, which was caused by ineffective learning methods and difficulties in understanding abstract concepts. This study aims to identify the effect of the "Friendly and Healthy Soap" experimental method and the role-playing method on learning outcomes of material changes in the state of matter in grade IV students. Through an experimental design, this research divided students into two groups: the first group used an experimental approach, while the second group applied a role-playing approach. Hypothesis testing was carried out using the Wilcoxon test and the Mann-Whitney U test with the help of SPSS 27. The results of the Wilcoxon test for both approaches showed significance at the 0.05 level with Asymp.Sig (2-tailed) of 0.000, which indicates that both approaches have a significant influence on student learning outcomes. The Mann-Whitney U test produces an Asymp.Sig (2-tailed) value of 0.003 < 0.05, so that Ho is rejected and Hi is accepted, indicating that there are differences in learning outcomes between the two groups. The average post-test score for the "Friendly and Healthy Soap" experimental approach reached 83.68, higher than the role-playing approach which had an average of 71.57, indicating that the experimental approach was more effective in increasing students' understanding.

Keywords: Experimental Method, Friendly and Healthy Soap, Role Playing Method, Forms of Substances and Their Changes

1. INTRODUCTION

In the increasingly competitive 21st century, the quality of human resources is the main determinant of a nation's progress. The more advanced a nation is, the higher the demands on the quality of its human resources. Education, as the foundation of human development, has a central role in forming individuals who are productive and able to contribute to the progress of the nation. Investing in education is the best investment for the future. Entering the 21st century, science education plays a crucial role in building knowledge to determine choices that have an impact on current and future survival. Through science education, students not only gain a basic understanding of natural phenomena, but also improve critical and analytical thinking skills that are crucial in facing the complex challenges of the modern world. They are able to apply scientific knowledge to analyze natural phenomena, evaluate information, and make rational decisions.

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In recent years, student learning outcomes in the field of science have shown an alarming decline. Based on the Ministry of Education and Culture's achievement report (2022), only around 61.53% of students at the elementary level are in the medium category and have succeeded in achieving basic competency standards in science. This percentage indicates that there are still many students who have not mastered the fundamental concepts of science in depth. A similar condition is also seen in international studies, where only a small number of students achieve the Advanced International Benchmarks in science, while the majority are still at a low to moderate level(Mullis et al., 2019). This data shows that more effective and interactive learning approaches, such as hands-on experiments, are needed to improve understanding of abstract science concepts.

The factors causing low student learning outcomes in the field of science are very diverse, ranging from teaching methods that are less interesting to the lack of practical activities that students involve directly. Research by(Hasibuan et al., 2022)revealed that the use of interactive learning methods can significantly improve student learning outcomes. However, the reality is that many schools still rely on monotonous lecture methods, which tend not to attract students' attention. Even though there is awareness to switch to a more interactive approach, many educational institutions have not fully implemented participatory and innovative learning methods, causing student involvement in the learning process to be less than optimal.

Based on the results of observations at SDN Proppo 1 and SDN Proppo 2, the learning outcomes of class IV students are still in the poor category, with only 6 out of 16 students achieving complete grades according to the Minimum Completeness Criteria (KKM). This is reflected in the list of summative assessment scores, where the average student obtained a score of 70. Mapping aspects of learning outcome indicators according to Bloom's revised taxonomy shows that students are as follows:

Table 1.1 Mapping of Aspects of Learning Outcome Indicators

Cognitive level	Description of student performance
C1	Students are able to remember several basic concepts about the states of matter
C2	Students can explain basic concepts well
C3	Students have difficulty applying information to new situations
C4	Students are still limited in identifying relationships between concepts
C5	Students have difficulty formulating appropriate hypotheses
C6	Students have difficulty drawing conclusions and providing logical reasons
Affective level	Description of student performance
A1	Students are able to complete the assignments given on time
A2	Students are able to work together well in groups
A3	Students are able to answer questions or complete assignments honestly without cheating
A4	Students do not follow teacher instructions well and maintain concentration during learning activities
A5	Students are afraid or hesitant to present the results of their group work in front of the class
Psychomotor level	Description of student performance
P1	Students are able to use the five senses to identify, select, or respond to relevant stimuli from the environment

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P2	Students are able to prepare themselves or equipment before carrying out tasks, including arranging the necessary materials and tools according to instructions
P3	Students are less able to move their bodies effectively when carrying out tasks
P4	Students are less able to coordinate several skills they have mastered to complete more complex tasks smoothly
P5	Students are less able to perform actions quickly, efficiently, and automatically without difficulty, even in new situations

Thus, even though the average student score reaches 70, there is still a lot of room for development, increasing high-level cognitive abilities (applying, analyzing, evaluating and creating), as well as strengthening affective attitudes (discipline, self-confidence) and psychomotor skills (precision, articulation, and naturalization) which indicate the need for further intervention in the learning process.

Constructivism theory, developed by Jean Piaget and Lev Vygotsky, emphasizes that knowledge is formed by students through direct experience and social interaction(Nerita et al., 2023). In science education, the use of learning methods that involve interaction and experience, such as experimental methods and role playing, can improve learning achievement in learning activities. In addition, the social learning theory developed by Albert Bandura emphasizes the importance of observation and social interaction in the learning process(Lesilolo, 2019). Learning methods that involve collaboration between students can improve their learning outcomes and understanding of science concepts. Research showing that students learn more effectively in environments that support social interaction can provide a strong basis for exploring more innovative learning methods.

Based on research(Muh Ali et al., 2023)found that this experience-based approach was able to improve students' understanding and memory, so further research was needed to measure its effectiveness in improving learning outcomes. The use of the experimental method is one of the options that is in accordance with the characteristics of science learning which emphasizes the active involvement of students in conducting direct experiments(Somantri et al., 2018). The experimental method is a learning method that encourages students to carry out trials independently so that they can feel and prove for themselves what they have learned.(Khalida & Astawan, 2021). Through this method students are given the opportunity to go through real experiences. Students can follow the process from start to finish and they can observe an object being analyzed. Finally, students are able to prove for themselves a certain process in the experiments carried out. Using appropriate learning methods is useful so that students gain experience, broad understanding, and can foster a high level of curiosity. Apart from that, there is a role playing method which invites students to express their imagination according to what they have been taught to play a character or characters in a certain scenario(Nurhasanah et al., 2016). This method provides a more fun and interactive learning atmosphere. Students can visualize learning through interesting simulations.

One of the essential materials in class IV science subjects is the material on the forms of substances and their changes, one example of which is "Friendly and Healthy Soap" which has the potential to provide in-depth practical experience for students, so that they can understand the properties of substances and the changes that occur naturally. direct. Learning about the process of making soap not only introduces students to basic chemical concepts, but also teaches them about solving problems that have developed in society recently, namely about health in cleaning the body using soap made from chemicals that are harmful to the skin(Riadi et al., 2020). In addition, the role playing method allows students to collaborate and interact, creating a more enjoyable and productive learning atmosphere.

Conditions at SDN Proppo 1 and SDN Proppo 2 indicate the need for updates in teaching methods. The evaluation results show that many students still have difficulty understanding the basic concepts of the states of matter, which influence learning outcomes in the field of science. This indicates an urgent need to implement more innovative approaches in learning. By applying the "Friendly And

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Healthy Soap" experimental method and the role playing method, students are expected to play a more active role in the learning process, which in the end can increase their learning achievements.

The importance of this research lies not only in the comparison of methods, but also in how it can meet students' learning needs. In an era of increasingly competitive education, it is important for teachers to adapt methods that are in line with student characteristics. In addition, this research will provide new insights for educators in choosing the most effective methods to improve student learning outcomes, especially in the context of science learning. Through this research, it is hoped that it can be identified which method is more effective in increasing students' understanding of the material on the states of matter and their changes. Thus, the title of this research is proposed: "Differences in the Use of the "Friendly and Healthy Soap" Experimental Method and the Role Playing Method on Learning Outcomes on Forms of Substances and Their Changes."

It is hoped that this research can make a significant contribution to improving the quality of science learning in elementary schools, as well as encouraging the development of more creative and efficient teaching methods. Through this approach, it is hoped that students will not only understand science concepts well, but also develop a deeper interest and curiosity in science. Based on the explanation above, it can be assumed that the hypotheses proposed in this research include:

H1: There is an influence on the learning outcomes of fourth grade students at SDN Proppo 1 and SDN Proppo 2 after using the "Friendly and Healthy Soap" experimental method in the science and sciences subject on the forms of substances and their changes.

H2: There is an influence on the learning outcomes of fourth grade students at SDN Proppo 1 and SDN Proppo 2 after using the role-playing method in the science and sciences subject regarding the forms of substances and their changes.

2. RESEARCH METHODOLOGY

The type of research used is quantitative research. This research focuses on collecting and analyzing numerical data that can be measured, then processed with statistical data analysis(Sudaryana & Agusiady, 2022). In this research, there is hypothesis testing, looking for patterns, and generalizations based on the data collected(Hermawan, 2019). Quantitative research measures variables, such as test scores, number of events, or percentages, using standardized measurements, such as questionnaires or tests, to determine relationships and differences between variables, so that the results are more objective.

One design in quantitative research is an experimental design. Experimental design involves manipulating and controlling one or more independent variables to see their effect on the dependent variable(Dantes, 2023). There are two independent variables in this research, including the experimental method and role-playing method, as well as one dependent variable, namely learning outcomes.

Population is the entire group of individuals or objects that are the focus of research, including all elements relevant to the topic being studied(Swarjana, 2022). The target population of this research focuses on students in class IV at SD Negeri Proppo 1 and SD Negeri Proppo 2, because they have similar characteristics or traits in terms of both subjects and objects. After determining the population, the researcher took a sample. The sample is part of the population selected for research purposes(Roflin, Liberty, & Pariyana, 2021).The sample taken from the population in this study consisted of 19 students at SD Negeri Proppo 1 (6 male students and 13 female students), and 19 students at SD Negeri Proppo 2 (13 male students and 6 female students), with average age 9 to 10 years. The sampling technique uses a non-probability sampling method through saturated sampling, namely a sampling technique where the entire population is used as a sample. This was done because the number of subjects available was less than 30 people, making it possible to use all individuals as research samples.

The instrument used by observation in research is defined as the process of focusing on an object by involving all five senses to gather information.(Teguh, Wulan, Savira, & Juansah, 2023), Tests are used to measure student learning outcomes in material on the form of substances and their changes in class IV and documentation is an activity to obtain information, manage and store it. Wilcoxon Signed Rank Test and Mann-Whitney U Test were used to analyze data and hypothesis testing was processed with SPSS 27 statistics.

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3. RESULTS AND DISCUSSION

The data obtained from the research results were analyzed statistically to answer the problem formulation that had been determined. All instruments used in this research have gone through the field validation stage, so it can be ensured that the instruments meet the eligibility requirements and can be used to measure the variables studied accurately.

Table 1.2 Pre-Test and Post-Test Validity Test Results

No	Validation Results of Pre Test and Post Test Questions			
	rhitung	rtable (5%) N =19	Sig	Criteria
1	0.670	0.456	0.002	Valid
2	0.561	0.456	0.012	Valid
3	0.743	0.456	0.001	Valid
4	0.512	0.456	0.025	Valid
5	0.489	0.456	0.034	Valid
6	0.527	0.456	0.020	Valid
7	0.512	0.456	0.025	Valid
8	0.795	0.456	0.001	Valid
9	0.615	0.456	0.005	Valid
10	0.549	0.456	0.015	Valid

Based on the test results, the number of valid questions was obtained, namely all 10 questions. So that all questions can be used in research.

Test Data Analysis Results

The results of the analysis of learning outcomes data based on the results of the pre-test and post-test research on the "Friendly and Healthy Soap" experimental method carried out by 19 class IV students at SDN Proppo 1 as well as the role- playing method at SDN Proppo 2 are presented in the following table:

Table 1.3 Learning Results of Class IV Students "Friendly and Healthy Soap" Experimental Method and Role Playing Method

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test Experiment	19	30.00	80.00	43.6842	18.91811
Post-test Experiment	19	70.00	100.00	83.6842	12.56562
Pre-test Control	19	10.00	70.00	42.1053	14.74937
Post-test Control	19	60.00	90.00	71.5789	8.98342
Valid N (listwise)	19				

Based on table 1.3, it can be seen that the pretest score for the experimental group (the "Friendly and Healthy Soap" experiment) obtained an average of 43.68 with a standard deviation of 18.918. Meanwhile, the posttest results showed an average (mean) of 83.68 with a standard deviation of 12.565. The results of the pretest and posttest scores show an increase in the average (mean). In the pretest score of the control group (role playing), an average (mean) of 42.6 was obtained with a standard deviation of 14.476. Meanwhile, the posttest results showed an average (mean) of 71.57 with a standard deviation of 8.983. The results of the pretest and posttest scores show an increase in the average (mean).

Table 1.4 Details of Cognitive, Affective and Psychomotor Test Results at SDN Proppo 1

No	Cognitive		Affective		Psychomotor	
	Pre-test	Post test	Pre-test	Post test	Pre-test	Post test
Maximum score	1900	1900	228	228	380	380
Total value	1830	1590	152	207	260	345

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Percentage	43%	83%	66%	91%	68%	91%
Category	Bad	Very good	Currently	Very good	Currently	Very good

Overall student learning outcomes were measured using pre-test and post-test instruments. The pre-test results showed that in the cognitive domain, students obtained a percentage of 43% in the bad category. For the affective domain, the percentage reached 66% in the medium category, while in the psychomotor domain it was 68% which was also included in the medium category. After being given treatment, the final exam results showed significant progress, where the cognitive domain reached 83% in the very good category, while the affective and psychomotor domains increased to 91%, both in the very good category.

Table 1.5 Details of Cognitive, Affective and Psychomotor Test Results at SDN Proppo 2

No	Cognitive		Affective		Psychomotor	
	Pre-test	Post test	Pre-test	Post test	Pre-test	Post test
Maximum score	1900	1900	228	228	456	456
Total value	800	1360	152	207	298	355
Percentage	42%	71%	66%	91%	65%	78%
Category	Bad	Good	Currently	Very good	Currently	Good

Based on table 1.5 regarding students' overall learning outcomes as measured using pre-test and post-test instruments, the pre-test results show that in the cognitive domain, students obtained a percentage of 42% in the poor category. For the affective domain, the percentage reached 66% in the medium category, while in the psychomotor domain it was 65% which was also included in the medium category. After being given treatment, the post-test results showed a significant improvement, where the cognitive domain reached 71% in the good category, while the affective domain increased to 91%, in the very good category and psychomotor reached 78% in the good category .

Observation Sheet Analysis Results

The observation sheet for the students' "Friendly and Healthy Soap" experimental method in this study was carried out by being given treatment. The results of the observation calculations for the "Friendly and Healthy Soap" experimental method are presented in the following table:

Table 1.6 Observation Results of the "Friendly and Healthy Soap" Experimental Method

Aspect	Know the tools and materials	Prepare tools and materials	Experiment process	Experiment Results	Discussion	Presentation
Number of students	19	19	19	19	19	19
Percentage	97%	100%	97%	97%	84%	77%
Criteria	Very good	Very good	Very good	Very good	Very good	Good

The percentage of achievement scores in implementing the "Friendly and Healthy Soap" experimental method reached a total score of 94%, which is in the very good category. In detail, the aspect of knowing tools and materials achieved an achievement percentage of 97%, indicating very good implementation. The aspect of preparing tools and materials that received an achievement score of 100% was carried out very well. Furthermore, the experimental process aspect achieved 97% achievement, also in the very good category. However, in the discussion aspect, achievement was 84%, which was still carried out very well, while in the presentation aspect, achievement was 77%, which was in the good category.

The observation sheet for students' role playing methods in this research was carried out by being given treatment. The results of the observation calculations for the role playing method are presented in the table as follows:

Table 1.7 Observation Results of Role Playing Method

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Aspect	Participation	Understanding	Self-confident	Body Gestures	Have a dialogue	Interaction
Number of students	19	19	19	19	19	19
Percentage	90%	75%	75%	75%	76%	75%
Criteria	Very good	Good	Good	Good	Good	Good

The percentage of achievement scores for implementing the role playing method reached a total score of 77%, which is classified as good. In more detail, the participation aspect shows an achievement percentage of 90%, which was implemented very well. The appreciation aspect received an achievement score of 75%, which is in the good category. The self-confidence aspect achieved 75%, which is categorized as good. The body gesture aspect achieved 75% achievement, which is categorized as good. Meanwhile, the dialogue aspect achieved 76% achievement, which was implemented well, and the interaction aspect achieved 75% achievement, which is also included in the good category.

Hypothesis Test

The Wilcoxon test is used to determine whether there are differences in means between two paired samples. In this research, the Wilcoxon test is applied as a basis for decision making. If the value of Asymp.Sig. (2-tailed) > 0.05, then Ho is accepted and the Hi hypothesis is rejected. conversely, if the value of Asymp.Sig. (2-tailed) < 0.05, then Ho is rejected and Hi is accepted. The results of the hypothesis test are presented in the following table:

Table 1.8 Wilcoxon Test of First Hypothesis

Z Asymp. Sig. (2-tailed)		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	Df	Sig. (2-tailed)
a Wilcoxon Signed Ranks Test	Pre test - Post test	-40,00000	12.01850	2.75723	-45.79273	-34.20727	-14,507	18	.000

Based on the SPSS output, it can be seen that the Asymp.Sig (2-tailed) value of 0.000 is smaller than 0.05, so the test decision shows that Ho is rejected and Hi is accepted. Thus, it can be concluded that the "Friendly and Healthy Soap" experimental method has an influence on learning outcomes in material on the forms of substances and their changes in class IV.

Table 1.9 Wilcoxon Test of Second Hypothesis

Z Asymp. Sig. (2-tailed)	Paired Differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)

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a Wilcoxon Signed Ranks Test	Pre Test - Post Test	-29.47368	11.29094	2.59032	-34.91574	-24.03162	-11,378	18	.000

Based on the SPSS output, it can be seen that Asymp.Sig (2-tailed) has a value of 0.000 which is smaller than 0.05, so the test decision shows that Ho is rejected and Hi is accepted. Thus, it can be concluded that the role playing method influences learning outcomes in this material in class IV.

Additionally, the Mann-Whitney Test was applied to test for significant differences between two independent sample groups. As a non-parametric test method, this test functions as a substitute for the parametric t-test when the normal distribution assumption is not met. If the value of Asymp.Sig. (2-tailed) > 0.05, then Ho is accepted, which shows that there is no difference in the learning outcomes of class IV students at SDN Proppo 1 and SDN Proppo 2 through the "Friendly and Healthy Soap" experimental method and the role- playing method in science and science subjects with tangible material substances and their changes. conversely, if the value of Asymp.Sig. (2-tailed) < 0.05, Hi is accepted, which shows that there is a difference in the learning outcomes of fourth grade students at SDN Proppo 1 and SDN Proppo 2 through the "Friendly and Healthy Soap" experimental method and the role-playing method in the science and sciences subject matter of forms of substances and the change. The results of hypothesis testing are presented in the following table:

Table 1.10 Mann-Whitney U Test of the Third Hypothesis

	Student Learning Outcomes
Mann-Whitney U	84,500
Wilcoxon W	274,500
Z	-2.955
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.004b

Based on hypothesis testing using the Mann-Whitney U Test, the Asymp.Sig value was obtained. (2-tailed) of 0.003 < 0.05. Therefore, the test decision shows that Ho is rejected and Hi is accepted. Thus, it can be concluded that there are differences in the learning outcomes of fourth grade students at SDN Proppo 1 and SDN Proppo 2 through the "Friendly and Healthy Soap" experimental method as well as the role-playing method in the science subject regarding material forms of substances and their changes.

DISCUSSION

Based on the data analysis and testing that has been carried out, it can be concluded that there is a difference between the application of the "Friendly and Healthy Soap" experimental method and the role-playing method on student learning outcomes in material forms of substances and their changes in class IV at SDN Proppo 1 and SDN Proppo 2. Before data collection, research instruments have been validated by experts, so that the instruments used have met the requirements. The data collected in this research is relevant to the problem formulation and research objectives. The following is a further explanation of the data obtained in this research.

Differences in the Use of the "Friendly and Healthy Soap" Experimental Method and the Role Playing Method on Learning Outcomes on Forms of Substances and Their Changes

The effect of using the role playing method on learning outcomes was also analyzed using the Wilcoxon test. The analysis results show that the Asymp.Sig (2-tailed) value is 0.000, which is smaller than 0.05. This indicates that the role playing method has a significant impact on learning outcomes. To evaluate differences in learning outcomes between the two methods, a test was carried out using the Mann-Whitney U Test. Asymp. Sig value. (2-tailed) obtained is 0.003, which is also smaller than 0.05. Therefore, it can be concluded that there is a significant difference between the learning outcomes of

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students who use the "Friendly and Healthy Soap" experimental method and those who use the role-playing method.

The calculated results show that the experimental learning method "Friendly and Healthy Soap" and the role-playing method both have an effect on improving student learning outcomes in material on the forms of substances and their changes in class IV. This can be seen from the significant difference in the average pretest and posttest scores for the two methods. Before using the "Friendly and Healthy Soap" experimental method, the average student pretest score was 43.68. After learning with this method, the average posttest score increased to 83.68. Similarly, in the role playing method, the average pretest score was 42.10, and increased to 71.57 in the posttest. This shows an increase in learning outcomes in the material taught.

However, there are significant differences between the learning outcomes achieved through the two methods. The average posttest score for the "Friendly and Healthy Soap" experimental method (83.68) is higher than the role-playing method (71.57), indicating that this experimental method is more effective in increasing students' understanding of the material forms of substances and their changes in class IV. This research is in line with research by (Muh Ali et al., 2023) which states that an experience-based approach can improve student learning outcomes. In addition, these results support the constructivist learning theory by Jean Piaget and Lev Vygotsky that knowledge is formed by students through direct experience and social interaction. (Nerita et al., 2023).

The use of appropriate learning methods is very important in the learning process, especially to change abstract material into more concrete material so that it can be more easily understood by students. By providing direct experience and facilitating social interaction, this method not only increases student understanding but also encourages active involvement and increases learning motivation. Methods that involve hands-on experience help students understand complex concepts better, while developing their social skills and self-confidence during the learning process.

Results of Observation Analysis of the "Friendly and Healthy Soap" Experimental Method

The observation sheet for the experimental learning method "Friendly and Healthy Soap" is used during the learning process to assess student activities in carrying out the experiment. This observation sheet was filled in by Mrs. Hosna, homeroom teacher of class IV at SDN Proppo 1, who monitored the achievement of student activities based on six indicators: knowing tools and materials, preparation, experimental process, experimental results, discussion and presentation.

Based on this experimental method, it shows an achievement level of 94%, which is categorized as very good. Detailed observation results show that in the aspect of knowing tools and materials, achievement reached 97%, where students were able to name tools and materials and explain their functions very well. In the preparation aspect, achievement reached 100%, with students arranging tools and materials independently and implementing safety procedures such as wearing masks, gloves and eye protection. In the aspect of the experimental process, achievement of 97% shows that students followed the instructions well, including using measuring tools, stirring the mixture, setting time, and pouring the ingredients. In the discussion aspect, achievement of 84% shows that students actively discuss and provide solutions, although it can still be improved. In the presentation aspect, achievement of 77% shows that students are able to present experimental results and answer questions, but are in the good category.

Overall, these results show that the application of the "Friendly and Healthy Soap" experimental method in learning is effective in achieving most of the indicators very well, and is able to encourage active student involvement in learning.

Results of Observation Analysis of Role Playing Method

The role-playing learning method observation sheet is used during the learning process to assess student activities in implementing role-playing. This observation sheet was filled in by Mrs. Novi, class IV teacher at SDN Proppo 2, who monitored the achievement of student activities based on six indicators: participation, appreciation, self-confidence, body gestures, dialogue and interaction.

Based on the implementation of the role playing method, the overall achievement level was 77%, which is included in the good category. In the participation aspect, 90% of students are actively

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involved in learning activities. They show high enthusiasm, provide creative ideas, and fully collaborate in groups, so this aspect is considered very good.

Meanwhile, the appreciation aspect shows an achievement of 75%. Students are able to appreciate and express the roles they are given well, showing a deep understanding of the characters or concepts they play. This is in the good category. The self-confidence aspect also shows similar results, namely 75%. Students seemed confident in playing their roles, starting from delivering dialogue, making movements, and interacting with other characters, which indicates good progress in this regard.

Then, the achievement of the body gesture aspect was also 75%. Students were seen using appropriate gestures and body language to support the character of their role, which also supported the quality of appreciation and appearance, so they were assessed as good. The dialogue aspect achieved 76% achievement. Students are able to convey dialogue or conversation clearly and articulately, so that the audience can understand it well. This shows quite good communication skills and is included in the good category. Finally, the interaction aspect achieved 75% achievement. Students are able to interact with other characters in their roles well, showing coordination and appropriate responses in dialogue and action.

Overall, every aspect of implementing the role-playing method shows positive results, demonstrating its effectiveness in facilitating interactive and in-depth learning. High student participation and good appreciation of roles shows that the role playing method is able to support the achievement of learning objectives by fully involving students and encouraging them to play creative and expressive roles.

4. CONCLUSION

Based on previous findings and analysis, it can be concluded that the use of the "Friendly and Healthy Soap" experimental method has an impact on student learning outcomes regarding material forms of substances and their changes. The test results show an Asymp.Sig (2-tailed) value of 0.000, which is smaller than 0.05, so it can be concluded that this method has a significant influence on student learning outcomes in the material of forms of substances and their changes in class IV SDN Proppo 1. Thus, the role playing method has been proven to influence student learning outcomes regarding the material. The test results also show an Asymp.Sig (2-tailed) value of 0.000, which is smaller than 0.05. This shows that the role-playing method also has a significant influence on students' learning outcomes regarding material forms of substances and their changes in class IV SDN Proppo 2. The difference in the use of the "Friendly and Healthy Soap" experimental method and the role-playing method on learning outcomes regarding material forms of substances and their changes can be seen The average post-test score of students on the "Friendly and Healthy Soap" experimental method (83.68) was higher than the role-playing method (71.57), indicating that this experimental method was more effective in increasing understanding. students.

Observations on the "Friendly and Healthy Soap" method showed 94% achievement, with students being able to carry out the learning process according to indicators that were considered very good, especially in the preparation and implementation of experiments. Observations on the role playing method showed 77% achievement in the good category, with students actively participating, living the role, and showing good communication and interaction skills, although there is still room for improvement.

The "Friendly and Healthy Soap" experimental method in increasing students' understanding, it is recommended that teachers in elementary schools consider using this experimental-based learning method more widely, especially on abstract materials. While the role playing method shows a positive influence on learning outcomes, it is recommended to improve the quality of implementation of this method, especially in the aspects of interaction and role appreciation. Teachers can provide more time for students to practice and explore in their roles, as well as provide constructive feedback so that students can develop communication skills and self-confidence more optimally during the learning process.

Further research can be developed using the "Friendly and Healthy Soap" method and role-playing methods on different materials and variables. This development will provide a broader picture

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of the effectiveness of both methods in different learning contexts, as well as their potential in improving students' skills and understanding on various learning topics.

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