

The Relationship between Teacher Creativity in Teaching and Student Activeness with IPAS Learning Outcomes of Grade IV Elementary School Students

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Abstract: Teacher creativity in teaching and student activeness affect student IPAS (Natural and Social Sciences) learning outcomes. This study aims to examine the relationship between teacher creativity in teaching and student activeness with IPAS learning outcomes of fourth grade students of Gugus Wijaya Kusuma Ngaliyan District Semarang City. With a quantitative approach and the type of correlation research used, the research sample was obtained using Proportional Random Sampling technique namely 112 students. The research data were collected using a closed questionnaire for the variables of teacher creativity in teaching and student activeness, as well as documentation of student report cards for the variable of IPAS learning outcomes. The data were analyzed using descriptive statistical analysis, prerequisite tests, and hypothesis tests consisting of simple correlation, multiple correlation, F test, and coefficient of determination. The results showed that teacher creativity in teaching and student activeness with IPAS learning outcomes had a significant relationship with r_{count} of 0.665, F_{count} of 43.125, and the contribution was 44.20%. Thus, it can be concluded that there is a positive and significant relationship between teacher creativity in teaching and student activeness with IPAS learning outcomes of fourth grade students of Gugus Wijaya Kusuma Ngaliyan District Semarang City.

Keywords: IPAS learning outcomes; Student activeness; Teacher creativity in teaching

Introduction

Every human being is entitled to a proper education because it is a fundamental human right and the main foundation in building an empowered and cultured society. Education allows humans to develop personality, intelligence, skills, and noble morals for a successful life, in line with Law No. 20 of 2003 Article 3 which states that education aims to educate the nation's life (Kemendikbudristek, 2003). In this case, the role of teachers is crucial as the main driver of education, not only providing knowledge but also guiding the development of students' potential as a whole

(Anggraini et al., 2022). For this reason, teachers need to have certain qualifications so that educational goals are achieved (Nurzannah, 2022), in accordance with Law No. 14 of 2005 Article 1 concerning Teachers and Lecturers which states that teachers are responsible for educating, teaching, guiding, and evaluating students (Kemendikbudristek, 2005). One of the important factors for meaningful learning and achieving goals is teacher creativity in teaching.

The essence of creativity is novelty, which is something that is new or modified (Scott-Barrett et al., 2023). Creativity also reflects efforts to solve problems that emphasize the ability to think and act creatively

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(Fitriyani et al., 2021). Creative thinking allows a person to generate new ideas that are original and relevant through flexible and innovative thinking (Preiss, 2022). Meanwhile, acting creatively is the ability to realize these ideas into real actions that are useful. Therefore, the development of creativity is important because it gives birth to meaningful innovations in life (Tanjung & Namora, 2022). Not only that, creativity also makes a person more adaptable in living in a global society with different ideas (Bullard & Bahar, 2023).

In education, building innovative, interactive, and efficient learning for students depends on teacher creativity in teaching (Sitepu et al., 2023). Such learning certainly makes students happier because the learning atmosphere becomes more alive and not boring (Efendy & Rini, 2021). This creativity lies when teachers choose media, learning techniques, and approaches used in teaching implementation (Wulandari & Nisrina, 2020). The selection of these teaching strategies must be based on the teacher's understanding of the students' conditions so that their use is appropriate.

Teacher creativity in teaching makes learning more interesting through innovative approaches such as the use of media or technology, which are effective in conveying information and increasing student understanding (Febrina & Setiawan, 2024). The interaction between teachers and students becomes more meaningful and attentive (Levanon, 2021). Teachers can also utilize surrounding resources to encourage students to actively solve problems (Mulyoto et al., 2023). In addition, creative teachers are able to create a supportive classroom atmosphere that is tailored to students' learning styles (Kahmann et al., 2024). This can be summarized according to Saila's opinion in Pratiwi (2023) that teacher creativity in teaching can be identified through four indicators, namely creativity in the use and development of learning media, diversity of learning methods, variety of learning resources, and variety of classroom management.

In addition to teacher creativity in teaching, the role of students in learning cannot be ignored. Moreover, learning is student-centered, so there are many activities that they do during learning. In line with the opinion from Harahap & Mutiah (2023) that student learning activeness includes all activities that have an active nature, namely in participating in all activities in the classroom. This involvement also includes cognitive and behavioral involvement (Xiong, 2025). Students' engagement in learning is an important factor that influences their learning success.

Dyah Perwita in Abrori & Sumadi (2023) suggests indicators of student activeness in learning include participation in the implementation of learning,

involvement in problem solving, questioning skills, conducting discussions, and assessing their abilities. Students' activeness in learning can also be seen from their passion for learning and enthusiasm for learning, so that students have high attention to learning (Evitasari & Aulia, 2022). This passion for learning encourages them to seek deeper understanding, thus increasing the overall effectiveness of their learning, especially in optimal learning outcomes.

Learning outcomes are interpreted as information about the competencies that students have achieved, including knowledge, skills, and attitudes (Nurrita, 2018). Student learning outcomes are said to be optimal if they meet the achievements set by the teacher marked by student academic scores that meet the criteria. These student learning outcomes are influenced by various factors which are generally classified into internal and external factors (Amanda & Darwis, 2023). Internal factors lie in the individual students themselves, while external factors come from the environment, including the role of the teacher. Both of these are very related in learning, especially in IPAS learning in elementary schools.

In the Merdeka Curriculum used in Indonesian education today, especially in elementary schools, science and social studies learning are combined into one, namely the term IPAS (Natural and Social Sciences) (Iqbal et al., 2024). This learning connects natural and social concepts in daily activities that expect students to be able to understand the interconnectedness between humans, the environment, and society (Afifa & Astuti, 2024). Basically, elementary school students are in the concrete operational stage and need experiences and direct objects (Putri et al., 2021). Thus, IPAS learning in here emphasizes providing real learning experiences (Wardani et al., 2023). With active involvement in direct experience, students can experience meaningful learning, so that understanding of the material becomes easier because they experience what they are learning themselves (Ningrum & Murti, 2023). In addition, it also has an impact on improving student learning outcomes that are more satisfying.

However, in reality there are still problems in its implementation. This problem was revealed through interviews with fourth grade teachers at Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City, namely Podorejo 01, Podorejo 02, Podorejo 03, Gondoriyo, Bringin 01, and Bringin 02 that have been conducted by researchers. Based on the results of the review of IPAS learning conducted in class IV, students' IPAS learning outcomes show significant variations. Some students are able to achieve optimal learning outcomes, while others still experience difficulties in understanding the material. This

difference can be influenced by various factors both from the students themselves and when the teacher teaches in class.

Teacher creativity in teaching IPAS learning in grade IV varies, ranging from high, medium, to low levels. This variation can be seen from the methods applied in classroom learning. There are several primary schools that have applied various methods such as discussion, question and answer, demonstration, experimentation, etc. However, there are also some primary schools that use the lecture method repeatedly because it is easier to apply. The use of the lecture method during the learning process repeatedly will certainly cause students to feel bored and less actively involved, so it does not create a fun and meaningful learning atmosphere.

The limitations of teaching aids and learning media are also a serious obstacle in the learning process of grade IV IPAS in this cluster elementary school. With minimal access to relevant learning tools and materials, teachers often find it difficult to present material in an interesting way that is easy for students to understand. As a result, students' understanding of the concepts taught is not optimally developed. Interview results show that they tend to use simple concrete objects as learning media that are easily found in everyday life, while the use of technology is still rare. This condition is caused by the limited learning support facilities at school.

The problem of student activeness in the learning process is also often faced by IPAS teachers, especially in grade IV Gugus Wijaya Kusuma Elementary School. The interview results show that some students have been active, while others have not shown activeness in learning. This is because students have their own characteristics. When students are not active in learning, they tend to lose the opportunity to interact with the material directly, making it difficult for them to understand IPAS concepts. Therefore, creating a learning environment that stimulates active participation from students to improve their understanding of IPAS materials needs to be done by teachers.

From these problems, student learning outcomes in IPAS learning in grade IV are influenced by various factors. However, this research will focus on the relationship between teacher creativity in teaching and student activeness on IPAS learning outcomes. Teacher creativity in teaching refers to the teacher's efforts in creating innovative learning, while student activeness is reflected in their involvement in the learning process. Both factors play a big role in optimizing student learning outcomes, especially in IPAS learning. The research related to the above topic and has been

researched previously comes from (Hafid et al., 2024). The study explains that the relationship between teacher creativity in teaching and student activeness with learning outcomes is classified as very strong with an r_{count} of 0.971 (Hafid et al., 2024).

Based on this, the IPAS learning outcomes of grade IV Gugus Wijaya Kusuma Elementary School are expected to have a relationship with teacher creativity in teaching and student activeness. Thus, this study is entitled "The Relationship between Teacher Creativity in Teaching and Student Activeness with IPAS Learning Outcomes of Grade IV Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City". This study aims to examine the relationship between teacher creativity in teaching and student activeness with IPAS learning outcomes of fourth grade students of Gugus Wijaya Kusuma Elementary School. This is because there has been no research related to this conducted in the cluster.

In addition, the novelty of this study also lies in analyzing the relationship between these variables simultaneously. This research is important to conduct because teacher creativity in teaching plays a role in creating fun learning, while student activeness contributes to better understanding of the material. Both have an effect on students' optimal IPAS learning outcomes. Thus, the results of this study are expected to be the basis for teachers in designing more effective teaching strategies to improve the IPAS learning outcomes of elementary school students.

Method

A quantitative approach with correlation type research was used in this study. The quantitative approach uses numerical data analyzed statistically according to scientific principles (Sugiyono, 2017). Meanwhile, correlation research examines the significance of the relationship between variables. A total of 155 fourth grade students of Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City became the research population. The research locations included elementary schools named Podorejo 01, Podorejo 02, Podorejo 03, Gondoriyo, Bringin 01, and Bringin 02. Researchers used these schools because at the time of the initial data collection the research was carried out at these schools. In addition, the condition of the students was homogeneous because they were in the same cluster, namely Gugus Wijaya Kusuma. The research sample was obtained through Proportional Random Sampling technique which resulted in 112 students as respondents. This was done because the population in each school was different, so to obtain a representative sample, the sampling of

subjects from each region was determined to be proportional to the number of subjects in each region. Multiple variables were used in this study with two independent variables, namely teacher creativity in teaching (X_1) and student activeness (X_2), and one dependent variable, namely IPAS learning outcomes of grade IV students (Y). It is important to note that IPAS is the term for the learning of Natural and Social Sciences used in primary schools.

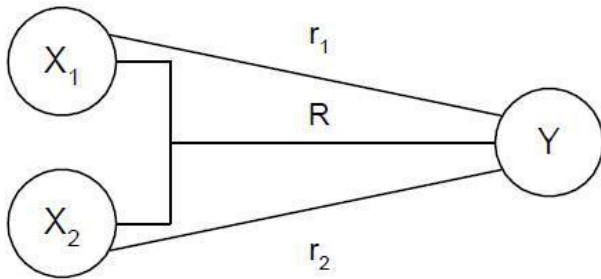


Figure 1. Research design

A closed questionnaire with a Likert scale of 1-4 was used as a data collection technique to measure the variables of teacher creativity in teaching and student activeness, while documentation was carried out to obtain data on IPAS learning outcomes in the form of student report cards for the first and second semesters of the 2023/2024 study year in IPAS lessons. Before being used, the research questionnaire instrument was first tested for validity and reliability to 31 students other than the research sample. The teacher creativity variable in teaching has 34 valid and reliable statements. While the student activeness variable has a valid and reliable statement of 35 statements. Furthermore, data analysis in this study includes descriptive statistical analysis, prerequisite tests, and hypothesis testing. Prerequisite tests are carried out before conducting the hypothesis testing to determine whether the data analysis can be continued or not which includes normality, linearity, and multicollinearity tests. While hypothesis testing includes simple correlation test, multiple correlation test, F test, and coefficient of determination.

Result and Discussion

Descriptive Analysis of Teacher Creativity in Teaching

The measurement results using the questionnaire instrument of teacher creativity in teaching showed that the highest score reached 130, while the lowest score was 84. The average obtained was 108.61. Furthermore, each respondent's score is categorized based on the predetermined interval.

Table 1. Categories of teacher creativity in teaching

Interval	Category	F	%	Average Score
82-100	Very Good	47	42	79.86
63-81	Good	61	54	
44-62	Fair	4	4	
25-43	Poor	0	0	Good
Sum		112	100	

Table 1 shows that 47 students (42%) were in the very good category, 61 students (54%) were in the good category, and the remaining 4 students (4%) were in the fair category. With an average score of 79.86, teacher creativity in teaching fourth grade students at Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City is in the good category. Furthermore, the description of the results of this study is described based on each indicator as follows.

Table 2. Categories of teacher creativity in teaching for each indicator

Indicator	Average Score
Creativity in using and developing learning media.	81.14
Creativity in varying learning methods.	80.00
Creativity in organizing a variety of learning resources.	77.14
Creativity in varying classroom management.	81.03
Average Score	79.83 (Good)

Table 2 explains that teacher creativity in teaching consists of four indicators, namely the use and development of learning media, variations in learning methods, variations in learning resources, and variations in classroom management. Of the four indicators, the use and development of learning media obtained the highest average score of 81.14, followed by variations in classroom management with a score of 81.03, variations in learning methods of 80.00, and variations in learning resources with a score of 77.14.

These results indicate that most fourth grade student teachers at Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City have implemented the use and development of learning media, classroom management variation, and learning method variation well. However, creativity in organizing a variety of learning resources still needs to be improved.

Descriptive Analysis of Student Activeness

The measurement results using the student activeness questionnaire instrument showed that the highest score reached 135, while the lowest score was 86. The average obtained was 111.82. Furthermore, each

respondent's score is classified into categorization intervals.

Table 3. Categories of student activeness

Interval	Category	F	%	Average Score
82-100	Very Good	49	44	79.87
63-81	Good	61	54	
44-62	Fair	2	2	
25-43	Poor	0	0	Good
Sum		112	100	

Table 3 shows that 49 students (44%) were classified as very good, 61 students (54%) as good, and 2 students (2%) as fair. With an average score of 79.87, the activeness of fourth grade students at Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City is in the good category. Furthermore, the description of the research results regarding the student activeness variable at the school is described for each indicator as follows.

Table 4. Categories of student activeness for each indicator

Indicator	Average Score
Student participation in learning implementation.	82.23
Student involvement in problem solving.	78.39
Questioning skills.	79.85
Implementation of discussion.	79.02
Assessing his/her ability.	76.04
Average Score	79.11 (Good)

Based on Table 4 in this study, student activeness has five indicators, namely student participation in learning implementation, student involvement in problem solving, questioning skills, implementation of discussions, and assessing their abilities. Of the five indicators, the indicator of student participation in learning implementation has the highest average score of 82.23, followed by the questioning skills indicator of 79.85, the discussion implementation indicator of 79.02, the indicator of student involvement in problem solving of 78.39, and the indicator of assessing their abilities of 76.04.

Thus, it can be seen that most of the fourth grade students of Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City have participated in the implementation of learning, have the skills to ask questions, and participate in carrying out discussions but have not been involved in problem solving and assessing their abilities well. Therefore, it is necessary to increase students' involvement in problem solving and assessing their abilities.

Descriptive Analysis of IPAS Learning Outcomes

The IPAS (Natural and Social Sciences) learning outcomes collected from the report cards of fourth grade students at Gugus Wijaya Kusuma Elementary School in the odd and even semesters of 2024 showed that the highest score was 94, while the lowest score was 74. The average of students' IPAS learning outcomes was 85.04. Furthermore, each score obtained by students is classified into certain categories as shown in Table 5.

Table 5 shows that 4 students (4%) were classified as very good, 73 students (65%) as good, 33 students (29%) as fair, and 2 students (2%) as poor. With an average score of 84.85, it can be concluded that the IPAS learning outcomes of fourth grade students at Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City are in the good category.

Table 5. Categories of IPAS learning outcomes

Interval	Category	F	%	Average Score
93-100	Very Good	4	4	84.85
84-92	Good	73	65	
75-83	Fair	33	29	
< 75	Poor	2	2	Good
Sum		112	100	

Analysis Prerequisite Test

Normality Test

The normality test's objective is to ascertain whether or not the study's data are normally distributed. Kolmogorov-Smirnov assisted by SPSS version 30 was used to perform the normalcy test in this investigation. If the significance value is more than 0.05, the data is said to be normally distributed. The significance value (Asymp. Sig. 2-tailed), according to the computation, is 0.200. Consequently, since $0.200 > 0.05$, it may be said that the data in this study are normally distributed.

Linearity Test

The linearity test is used to determine whether or not two variables have a linear connection. The linearity test in this study was performed using SPSS version 30 to calculate the Test for Linearity. The two variables are deemed linear if the value in the Sig column's Deviation from Linearity line is greater than 0.05 ($\text{Sig} > 0.05$) at the 5% significance level. Based on the results of calculations using SPSS version 30, the significance value of teacher creativity in teaching and IPAS learning outcomes is 0.086, while the significance value of student activeness and IPAS learning outcomes is 0.066. It can be concluded that teacher creativity in teaching and student activeness have a linear relationship with IPAS learning outcomes because both significance values are more than 0.05.

Multicollinearity Test

The goal of the multicollinearity test is to determine whether or not there is a linear relationship between two independent variables. The existence of this test is located in the Tolerance and VIF columns, where multicollinearity does not occur if Tolerance > 0.1 and VIF < 10. Based on the results of calculations using SPSS version 30, the Tolerance value is 0.486 and VIF is 2.056. It can be concluded that the variables of teacher creativity in teaching and student activeness do not experience multicollinearity because the Tolerance and VIF values have met the requirements.

Hypothesis Test

Simple Correlation Test

To measure how strong the relationship between the variable of teacher creativity in teaching (X1) with IPAS learning outcomes (Y), as well as the variable of student activeness (X2) with IPAS learning outcomes (Y) is done through a simple correlation test. The SPSS version 30 software was used to calculate the correlation in this investigation using the Product Moment algorithm.

Table 6. Simple correlation results

Variable	Sig.	r_{count}	r_{table}	Correlation Information
X1 to Y	< 0.001	0.615	0.1562	Strong
X2 to Y	< 0.001	0.617	0.1562	Strong

Table 6 shows the results of teacher creativity in teaching (X1) has a strong relationship with IPAS learning outcomes (Y), indicated by the calculated r_{count} of 0.615 which is greater than the r_{table} of 0.1562 which is in the interval 0.60-0.79. Meanwhile, student activeness (X2) also has a strong relationship with IPAS learning outcomes (Y), with a calculated r_{count} of 0.617 which is greater than the r_{table} of 0.1562 which is in the same interval. This indicates that both teacher creativity in teaching and student activeness have a strong effect on IPAS learning outcomes.

Multiple Correlation Test

To determine the direction and strength of the relationship between the two independent variables, namely teacher creativity in teaching (X1) and student activeness (X2), with the dependent variable, namely IPAS learning outcomes (Y), a multiple correlation test was conducted. The SPSS version 30 software was used to perform the multiple correlation analysis in this study.

Table 7. Multiple correlation results

Variable	r_{count}	R Square	Adjusted R Square	Std. Error	Correlation Information
X1 and X2 to Y	0.665	0.442	0.413	2.835	Strong

Table 7 shows that the calculated r_{value} of 0.665 is greater than the r_{table} of 0.1562. This indicates that there is a positive and significant relationship between teacher creativity in teaching and student activeness with IPAS learning outcomes of fourth grade students at Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City. In addition, the level of the relationship is considered strong because it is within the interval of 0.60-0.79.

F Test (Significance)

To determine the significance of the relationship between teacher creativity in teaching (X1) and student activeness (X2) on IPAS learning outcomes (Y) is done through the F test. This test uses the help of the SPSS version 30 program with testing criteria that refer to the ANOVA output, where if F_{count} is greater than F_{table} , then the multiple correlation coefficient is considered significant.

Table 8. F test results

Variable	F_{table}	F_{count}	Information
X1 and X2 to Y	3.08	43.125	There is a significant relationship

The F_{count} of 43.125 is higher than the F_{table} of 3.08, according to the computation results in Table 8. Thus, the multiple correlation in this study is declared significant. Therefore, it can be said that the IPAS learning outcomes of fourth grade students at Gugus Wijaya Kusuma Elementary School in Ngaliyan District, Semarang City, are significantly correlated with the teacher creativity in teaching and student activeness.

Coefficient of Determination

To show the contribution of teacher creativity variables in teaching (X1) and student activeness (X2) to IPAS learning outcomes (Y) is done through the coefficient of determination. This test uses the help of the SPSS version 30 program by looking at the value in the R Square column which is then multiplied by 100% to get the percentage contribution.

Table 9. Coefficient of determination results

Variable	R Square	Percentage (%)
X1 to Y	0.378	37.80
X2 to Y	0.381	38.10
X1 and X2 to Y	0.442	44.20

The calculation results in Table 9 show that teacher creativity in teaching contributed 37.80% to IPAS learning outcomes, student activeness contributed 38.10%, while teacher creativity in teaching and student activeness together contributed 44.20% to IPAS learning outcomes.

Hypothesis Analysis

Relationship between Teacher Creativity in Teaching and IPAS Learning Outcomes

The relationship between teacher creativity in teaching and IPAS (Natural and Social Sciences) learning outcomes of fourth grade elementary school students is expected to have a significant impact on their academic achievement. Teachers who apply innovative and creative approaches in IPAS learning can encourage student participation in learning (Ismiyah et al., 2024). Through engaging methods, students have the opportunity to explore, try, and understand IPAS concepts in a more fun way. As a result, students become more enthusiastic and grasp the subject matter easily which in turn improves their achievement in academic evaluations (Pardede et al., 2024). Thus, the role of teacher creativity becomes an important factor in improving students' understanding and attracting them to participate in learning well and full of excitement (Zayas & Rofi'ah, 2022).

Based on the results of testing the simple correlation between teacher creativity in teaching and IPAS learning outcomes, the r_{count} is 0.615. From these results it is known that there is a relationship between teacher creativity in teaching and IPAS learning outcomes because $r_{\text{count}} (0.615) > r_{\text{table}} (0.1562)$. The number 0.615 shows a positive or directional number. This means that the better the teacher's creativity in teaching, the better the IPAS learning outcomes obtained by students. The coefficient of 0.615 is a strong category because it is in the range of 0.60-0.79. In addition, at the 5% significance level, the significance value obtained is smaller than $\alpha (0.001 < 0.05)$, so the correlation that occurs is declared significant. The magnitude of the contribution of teacher creativity in teaching with IPAS learning outcomes reached 37.80%. Thus, alternative hypothesis 1 is accepted with the conclusion that there is a positive and significant relationship between teacher creativity in teaching with IPAS learning outcomes of fourth grade students of Gugus Wijaya Kusuma Elementary School Ngaliyan District Semarang City.

This research is in line with the Mahmud et al. (2022). The results of this study show that the correlation is 0.363 and exceeds $r_{\text{table}} 0.306$. This indicates that teacher creativity has a relationship with student learning outcomes even though the level of correlation interpretation is relatively low, but student learning outcomes in these schools are still influenced by teacher

creativity (Mahmud et al., 2022). In addition, other research that reinforces these findings is a study conducted by Saputri et al. (2022) which also states the great influence of teacher creativity when teaching with student learning outcomes. This can be confirmed by the calculated r_{value} which exceeds the $r_{\text{table}} (0.238 > 0.154)$ and the significance value (2-tailed) of $0.000 < 0.05$ (Saputri et al., 2022).

Both studies have similarities with the research conducted by researchers because they both found a positive and significant relationship between teacher creativity in teaching and learning outcomes. However, the difference lies in the strength of the relationship found. The research conducted by the researcher shows a higher correlation (0.615) and is categorized as strong, while the two supporting studies show a lower correlation and are classified as weak to moderate. This difference may be influenced by differences in the context of the school environment, student characteristics, and teacher teaching styles in each research location.

The impact that teacher creativity has in teaching is quite large on student development. Teachers who do not pay attention to students in the classroom will have an impact on student learning achievement which is getting lower and learning objectives are not achieved (Sihombing & Sijabat, 2023). With teacher creativity, it will encourage students to be creative (Sastrawijaya, 2023). The more innovative the teacher is in delivering the material, the easier it is for students to understand the lesson, which in turn also improves their learning outcomes (Makausi et al., 2022). Teacher creativity has an important role in shaping satisfying and effective learning experiences for students, especially in understanding IPAS at the elementary level (Salma et al., 2023). Thus, student learning outcomes in IPAS lessons show good results.

Relationship between Student Activeness and IPAS Learning Outcomes

The relationship between student activeness in learning and IPAS (Natural and Social Sciences) learning outcomes of fourth grade students is a crucial aspect in determining their academic achievement. When students are actively involved in the learning process, whether through group discussions, experiments, or project-based learning, they have a greater chance of deeper understanding of IPAS concepts. This student activeness affects students' learning performance which ultimately improves their learning (Qureshi et al., 2023). The higher students' activeness in IPAS learning, the more likely they are to achieve better learning outcomes.

Based on simple correlation testing between student activeness and IPAS learning outcomes, the r_{count} is

0.617. These results show that student activeness and IPAS learning outcomes have a relationship because $r_{\text{count}} (0.617) > r_{\text{table}} (0.1562)$. The number 0.617 shows a positive or directional number. This means that the better student activeness, the better the IPAS learning outcomes obtained by students. The magnitude of the correlation coefficient of 0.617 is classified as strong because it is in the range of 0.60–0.79. In addition, at the 5% significance level, the significance value obtained is smaller than α ($0.001 < 0.05$), so the correlation that occurs is declared significant. The magnitude of the contribution of student activeness to IPAS learning outcomes reached 38.10%. Thus, alternative hypothesis 2 is accepted with the conclusion that there is a positive and significant relationship between student activeness and IPAS learning outcomes of fourth grade students of Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City.

The results shown are consistent with a study conducted by Kamaruddin et al. (2023). The study found that student learning activeness has a positive and significant correlation with social studies learning outcomes in grade V, as indicated by a correlation value of 0.69 (Kamaruddin et al., 2023). Another relevant study conducted by Rahmayanti et al. (2022) which obtained the results there is an influence of the liveliness of asking questions on student learning outcomes in grade 4 SDN Jogorogo 1 with t_{count} greater than t_{table} and a significance value of less than 0.05. Both studies support the results of research conducted by researchers because they both show that student activeness has an important role in improving learning outcomes. However, the difference lies in the context of the subject and the form of activeness studied, although the direction and significance of the relationship remain in line.

Thus, the acquisition of good learning outcomes is determined by student activeness. The more active students participate in learning, the better the learning outcomes obtained (Tegeh & Pratiwi, 2019). Activeness includes actions that involve a person's physical, emotional, and thinking activities (Berlin et al., 2025). Students who are more active are certainly superior to those who are less active, so their learning outcomes tend to be different. Not only to improve learning outcomes, but student activeness is also able to determine their understanding. Therefore, this activeness has a very important role. Many factors affect student activeness in the classroom including the relationship or interaction between teachers and students and teaching (Li & Xue, 2023). Therefore, teachers need to create a learning atmosphere that supports student participation.

The Relationship between Teacher Creativity in Teaching and Student Activeness with IPAS Learning Outcomes

IPAS (Natural and Social Sciences) learning outcomes of grade IV primary school students are significantly influenced by their activeness in learning, which in turn depends on teacher creativity in teaching. In the learning process, student activeness can increase when teachers apply their creativity to create interesting and interactive learning experiences (Emosda & Putri, 2018). With increased learning activeness, student learning outcomes will also be optimized (Alfian, 2019). Therefore, developing creativity in teaching is an important aspect for teachers to increase student engagement and support the achievement of better learning outcomes.

Based on the results of the multiple correlation hypothesis test between teacher creativity in teaching and student activeness with IPAS learning outcomes, the r_{count} is 0.665. These results indicate that teacher creativity in teaching and student activeness with IPAS learning outcomes have a relationship because $r_{\text{count}} (0.665) > r_{\text{table}} (0.1562)$. The number 0.665 shows a positive or directional number. This means that the better the teacher's creativity in teaching and student activeness, the better the IPAS learning outcomes obtained by students. The magnitude of the correlation coefficient of 0.665 is classified as strong because it is in the range of 0.60–0.79. In addition, at the 5% significance level, the significance value obtained is smaller than α ($0.001 < 0.05$), so the correlation that occurs is declared significant. The magnitude of the contribution of teacher creativity in teaching and student activeness together on IPAS learning outcomes reached 44.20%. Thus, alternative hypothesis 3 is accepted with the conclusion that there is a positive and significant relationship between teacher creativity in teaching and student activeness with IPAS learning outcomes of fourth grade students of Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City.

Research by Hafid et al. (2024) supports the results of this study. The study found that teacher creativity has a positive and significant correlation with student learning activeness. The relationship is classified as very strong, with an r_{count} of 0.971 greater than the r_{table} of 0.212 (Hafid et al., 2024). Another study that reinforces these findings was conducted by Khairinnisa et al. (2024) in 2024. The results showed that the teacher's teaching style and student activeness had a strong relationship in learning mathematics in grade V. This finding confirms that the right teaching approach can increase student engagement, which in turn makes learning outcomes more optimal.

Both studies support the researchers' findings because they show the relationship between the role of

the teacher and student activeness on learning outcomes. However, the difference lies in the focus of the variables studied. Hafid et al. (2024) highlights the relationship between teacher creativity and student activeness only, without linking it directly to learning outcomes, while Khairinnisa et al. (2024) was conducted in a different subject (mathematics), not IPAS. Thus, although the direction and significance are in line, the context and focus of the variables in the two supporting studies are different from this study which directly examines the combined effect of teacher creativity in teaching and student activeness on IPAS learning outcomes.

Teacher creativity in teaching and student activeness are two factors that influence each other in improving IPAS learning outcomes. Creative teachers are able to design interesting and interactive learning, thus encouraging students to be more actively involved. Student activeness in responding to varied learning strengthens concept understanding and improves learning performance. The interaction between teachers and students in the learning process basically shows a significant relationship (Marlina et al., 2023). Therefore, the collaboration between teacher creativity in teaching and student activeness together significantly contributes to the achievement of optimal student IPAS learning outcomes.

How teachers build relationships with their students is important in relation to how engaged students are in learning (Thornberg et al., 2022). To achieve this, teachers can apply various innovative strategies, such as the use of interactive learning media, problem- and project-based learning methods, and approaches that adapt to students' learning styles (Fitria & Rifan, 2024). Creating a supportive learning environment, such as allowing students to express their opinions and explore, can also increase their activeness. Thus, teacher creativity not only has an impact on student activeness, but also creates a more enjoyable and meaningful learning experience, so that optimal learning outcomes can be achieved.

Conclusion

Based on the results of the study, it can be concluded that there is a significant and positive relationship between teacher creativity in teaching and student activeness with IPAS (Natural and Social Sciences) learning outcomes of fourth grade students of Gugus Wijaya Kusuma Elementary School, Ngaliyan District, Semarang City with r_{count} of 0.665 and F_{count} of 43.125. Teacher creativity in teaching has a contribution of 37.80%, student activeness has a contribution of 38.10%, and together they contribute 44.20% to student

IPAS learning outcomes. The implication of this finding shows that the higher the teacher's creativity in teaching, the higher the student's activeness in the learning process. This has a positive impact on improving students' IPAS learning outcomes, because interesting and interactive learning creates an environment conducive to student engagement and optimal understanding of the material. In connection with this, as a recommendation, teachers are advised to continue to develop creativity in teaching through various innovative approaches that can increase student activeness so that their learning outcomes become optimal. Schools also need to provide support in the form of training and the provision of adequate learning support facilities to create a learning atmosphere that encourages active collaboration between teachers and students. As for future researchers, it is recommended to expand the scope of the study by adding or varying other independent variables that also have the potential to affect learning outcomes to gain a deeper understanding of the contribution of each variable in an effective learning process.

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Conflicts of Interest

Regarding this study, the authors have no conflict of interest.

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