# The Relationship Between Achievement Motivation And Learning Environment With Science Learning Outcomes Of SD Negeri 07 Pagi Rawamangun Students, Pulogadung District, East Jakarta

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**Abstract:** Research has been conducted on the effect of Multi Leaf Collimator (MLC) on the dose received by the head of brain cancer patients at Sanglah Hospital, Denpasar. This analysis aims to determine the effect of using MLC on dosing to brain cancer patients using Cobalt 60 (Co-60) teletheraphy. The dose given at TPS was 200 cGy but after using MLC the dose was received because MLC protects healthy organs around the irradiation field. If the dose given is still within the range of 5 % and +7 %, it is still acceptable. The amount of radiation dose that can be reduced by using MLC in this study was 1,35 % for brain cases and 0,12 % for Glioblastoma cases. Book Antiqua 9pt Bold, Space 1, Justify. The result of the hypothesis testing shows: (1) there is a relationship positive and significant between achievement motivation with science learning outcome, (2) there is a relationship positive and significant between learning environment with science learning outcome, and (3) there is a relationship positive and significant jointly between achievement motivation and learning environment with science learning outcome.

**Keywords:** Achievement motivation, Learning Environment, Science learning outcome.

## Introduction

Educating the nation's life and promoting national culture is constitutional legitimacy in the implementation of the national education system, which is always lived in improving the development of human resources with character. Elementary school is one of the educational institutions that functions to educate and develop abilities, as stated in the objectives of basic education in the national education system law, article 13 paragraph 1 which reads: Basic education is organized to develop attitudes and abilities and provide basic knowledge and skills to be able to live in society and prepare students who meet the requirements to follow secondary education.

The implementation of basic education must be in line with government regulations, stipulated in national education standards, such as in article 19 Chapter IV of 2005, that the learning process in educational units is held interactively, inspirationally, fun, challenging, motivates students to participate actively, and provides sufficient space for initiative, creativity, and independence in accordance with the talents, interests, and physical and psychological development of participants education (PP RI No. 19 of 2005). Therefore, the implementation of learning in students must be planned according to the needs of students, so that it can give a role to students as producers of ideas in the learning process.

From this description, the implementation of learning in elementary schools can produce students who are knowledgeable and have skills that can be excelled as the next generation of the nation. The learning outcomes obtained by students in each subject vary, as in natural science (Science) subjects, the results have not been as expected. Science learning outcomes will provide an overview of a person's abilities based on the evaluation carried out, the evaluation is related to the teaching material provided during the learning process. Gagne and Briggs (1992: 45) stated that learning outcomes are abilities obtained by a person after following the learning process. These learning outcomes include 5 abilities, namely intellectual skills, cognitive strategy, verbal information, motor skills, and atitudes.

However, it is a fact now that the learning of Natural Sciences (Science) in the majority of elementary schools so far is learning that emphasizes more on mastering a number of facts and concepts and does not facilitate students to be more motivated in learning and can respond to problems related to subjects so as to produce outstanding students. To realize this, the potential of students must be considered in supporting a quality learning process, so as to provide adequate learning outcomes.

The intended potential of students is achievement motivation which is an encouragement in individuals to achieve a goal that is successful, because in students there is a willingness to do their best to achieve an achievement. However, in elementary school, the motivation for achievement possessed by students in elementary school is still not seen thoroughly in various learning taking place, especially natural science (Science) learning, it can be seen from the response of students in learning that is less enthusiastic.

Murray in Beck (1990: 291), that need for achievement is fined as a desire or tendency to overcome obstacles, to exercise power, to strive to do something difficult as well and as quickly as possible. Furthermore, Djaali (2012: 101) suggests that achievement motivation is a motivation that encourages someone to do better than what has been made or achieved before or made or achieved by others. The concept of achievement motivation became famous after McClelland came up with the results of his thoughts on the need for achievement, often abbreviated as n-Aach. So achievement motivation is meant to encourage someone to do good that comes from within students and from outside to do better and provide better science learning outcomes.

In addition to achievement motivation which is a concern in learning, learning environment factors are also a concern, because they are closely related to the

continuity of the learning process conducively. The intended learning environment is the school environment. Edge (1999: 50) elaborates that the learning environment concerns the physical and psychological aspects in which learners interact with educators. The physical aspect is certainly related to facilities and infrastructure such as rooms and learning media. Agung (2010: 72) elaborates that the physical environment is the place and space where learning takes place. While the psychological aspect tends to be the relationship between educators and students. Psychology is a treatise on the human soul (Sudarwan, 2011: 69). Both aspects related to the learning environment need to be optimized in producing a quality learning process, so that quality education can be achieved.

Based on the problems described above, it is suspected that achievement motivation factors and the learning environment are factors that have their own characteristics to improve student learning outcomes. If students lack achievement motivation, then learning outcomes will decrease. Similarly, the learning environment, if the learning environment is not conducive, then learning outcomes will also decrease. Therefore, factors related to learning outcomes must be a concern for education educators and policy makers. Operationally, this study aims to find out:

1. The relationship between performance motivation and IPA study outcomes of State SD students 07 Morning Rawamangun
2. The relationship between the learning environment and the science learning outcomes of SD Negeri 07 Pagi Rawamangun students
3. The relationship between achievement motivation and the learning environment together with the science learning outcomes of SD Negeri 07 Pagi Rawamangun students.

## Method

The method used in this study is a survey method with
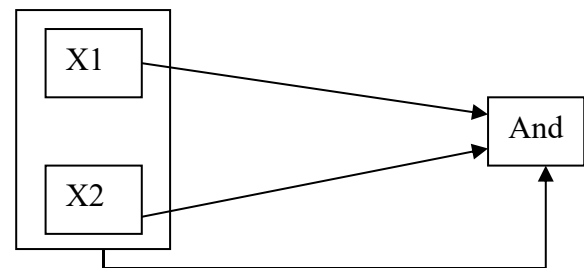


correlational data analysis. The hypothesis model to be tested in this study can be seen in figure 1 below.

Figure 1.  Research Constellation

Information:
X1    =    Performance motivation
X2    =    Learning environment
And   =    Science learning outcomes. Variable

The study consists of the first variable is the dependent variable, namely the results of learning science (Y), the next variable is the independent variable, namely: achievement motivation (X1), and learning environment (X2).

The affordable population is all grade V students of SD Negeri 07 Pagi Rawamangun, totaling 64 people. Determination of the sample using a simple random sampling technique, so that the sample obtained was 32 respondents. The data analysis techniques used in this study are as follows: 1) Descriptive statistics, namely statistics that aim to provide an overview of the data of each research variable; 2) Test requirements analysis by using the normality test of estimation error, 3) Statistical correlation analysis to see the relationship that occurs between the independent variable and the dependent variable.

## Result and Discussion

A summary of the results of statistical calculations of the description is stated as follows:

Table 1. Summary of research results

| Statistics | Variable | | |
|---|---|---|---|
| | X1 | X2 | And |
| Number of Samples (n) | 32 | 32 | 32 |
| Maximum Value | 143 | 195 | 95 |
| Minimum Value | 85 | 134 | 60 |
| Range | 58 | 61 | 35 |
| Average | 101.94 | 164.21 | 83.81 |
| Median | 99 | 164 | 80 |
| Default junction (s) | 11.845 | 15.541 | 9.868 |
| Varians ($S^2$) | 140.32 | 241.53 | 97.38 |
| Modus | 99 | 164 | 80 |

The requirements test in question is the estimated error normality test, as summarized in table 2.

Table 2. Summary of Gala Normality Test Results Estimation On both structural equations

| No. | Variable | n | Lh | Lt | Information |
|---|---|---|---|---|---|
| 1. | IPA Learning Outcomes on Performance Motivation (Y-$X_1$) | 32 | 0.1529 | 0.1664 | Normal |
| 2. | Science Learning Outcomes on the Learning Environment (Y-$X_2$) | 32 | 0.1535 | 0.1664 | Normal |

Based on Table 2 it can be seen that the price of Liliefors calculated (Lo) on all variables studied, it turned out to be smaller than the price of Liliefors table (Lt). Thus it can be concluded that the sample of this study came from a normally distributed population.

The results of statistical calculations on the research hypothesis are described as follows.

**1. Relationship of Performance Motivation with IPA Learning Outcomes**

The relationship between achievement motivation and science learning outcomes obtained regression equation $\hat{Y}$ = 15.358 + 0.672X1. The results of the significance and linearity test calculations of the regression equation are presented in the ANAVA table as shown in table 3 below.

Table 3.    ANAVA Table Test of Significance and Linearity Regression Y over X1 $\hat{Y}$ = 15.358 + 0.672X1

| Source of Variance | Dk | JK | RJK | F-hit | F-tab | |
|---|---|---|---|---|---|---|
| | | | | | $\alpha = 0.05$ | $\alpha = 0.01$ |
| Total | 32 | 228188 | | | | |
| Regresi (a) | 1 | 225120.5 | | | | |
| Regression (b/a) | 1 | 1965.186 | 1965.186 | 53.48* | 4.12 | 7.56 |
| (S) | 30 | 1102.3 | 36.743 | | | |
| Tuna Match (TC) | 21 | 311.15 | 14.82 | 0.16ns | 2.93 | 4.80 |
| Error (G) | 9 | 791.17 | 87.90 | | | |

Information:
*    =    Regression is very significant (Fhit= 53.48 > Ftab= 4.12 at α = 0.05
ns   =    Regression is linear (Fhit Table 4. ANAVA Test of Significance and Linearity of Y Regression over X2
$\hat{Y}$ = 11,1214 + 0,442X2 = 0.16 < Ftab= 2.93) at α = 0.05
JK   =    Sum of Squares
Dk   =    Degrees of Freedom
RJK  =    Average sum of squares

The regression significance test obtained a Fcalculate value of 53.48, while the Ftable value at α = 0.05 was 4.12. From the results of these calculations, it is known that the value of Fcalculate > from Ftable, thus showing that the form of the regression equation $\hat{Y}$ = 15.358 + 0.672X1 is significant. While the regression linearity test of science learning outcomes (Y) on the achievement motivation variable (X1), obtained Fcalculate (Tc) 0.16 with Ftable (0.05: 21; 9) 2.93. So Fcalculate (Tc) ≤ Ftabel, this means Ho is accepted. Thus it can be concluded that the form of the regression equation $\hat{Y}$ = 15.358 + 0.672X1 is linear.

The correlation coefficient obtained for the relationship between achievement motivation and science learning outcomes is 0.800. This value is in the interval between 0.70 < 0.90, so that by referring to Guilford's (1979) criteria, the correlation coefficient shows a close relationship between achievement motivation and science learning outcomes is close. In addition to the correlation coefficient, a coefficient of determination is also obtained, namely ry12 = (0.800)2 = 0.6406. These results mean that 64.06% of the variation in science learning outcomes can be explained by achievement motivation.

## 2. The Relationship between the Learning Environment and Science Learning Outcomes

The relationship between the learning environment and science learning outcomes obtained regression equation $\hat{Y}$ = 11.1214 + 0.442X2. The results of the calculation of the significance and linearity test of the regression equation are presented in the ANAVA table as shown in table 4 below.

Table 4. ANAVA Test of Significance and Linearity Regression Y over X2 $\hat{Y}$ = 11.1214 + 0.442X2

| Source of Variance | Dk | JK | RJK |
|---|---|---|---|
| Total | 32 | 228188.0 | |
| Regresi (a) | 1 | 224785.1 | 1909.722 |
| Regression (b/a) | 1 | 1909.722 | |
| (S) | 30 | 1109.2 | 36.97 |
| Tuna Match (TC) | 19 | 508.99 | 26.79 |
| Error (G) | 11 | 600.17 | 54.56 |

Information:
* = Regression is very significant (Fhit= 51.65 > Ftab= 4.12 at α = 0.05
ns = Linear-shaped regression (Fhit = 0.49 < Ftab= 2.85) at α = 0.05
JK = Sum of Squares
Dk = Degrees of Freedom
RJK = Average sum of squares

The regression significance test obtained a Fcalculate value of 51.65, while the Ftable value at α = 0.05 was 4.12. From the results of these calculations, it is known that the value of Fcalculate > from Ftable, thus showing that the form of the regression equation $\hat{Y}$ = 11.1214 + 0.442X2 is significant. While the regression linearity test of science learning outcomes (Y) on the learning environment variable (X2), obtained Fcalculate (Tc) 0.49 with Ftable (0.05: 19; 11) 2.85. So Fcalculate (Tc) ≤ Ftabel, this means Ho is accepted. Thus it can be concluded that the form of the regression equation $\hat{Y}$ = 11.1214 + 0.442X2 is linear.

From the calculation of the significance test, the correlation coefficient is known to be tcalculate = 4.028 greater than ttable = 1.70 at α = 0.05. This result means that the correlation coefficient between the learning environment and science learning outcomes (ry2) of 0.697 is significant. This means that the hypothesis that there is a positive relationship between the learning environment and science learning outcomes is accepted. Or in other words, the higher the learning environment, the better the results of learning science.

The correlation coefficient obtained for the relationship between the learning environment and science learning outcomes is 0.697. This value is in the interval between 0.70 - < 0.90, so with reference to Guilford's criterion, the correlation coefficient shows a fairly close relationship. Thus, the category of the relationship between the learning environment and science learning outcomes is close. The result of the coefficient of determination ry12 = (0.697)2 = 0.4859 variation in the coefficient of determination is 48.59%. This means that 48.59% of the variation in science learning outcomes can be explained by the learning environment.

## 3. The Relationship between Achievement Motivation and Learning Environment Together with Science Learning Outcomes

The relationship between achievement motivation and learning environment together with science learning outcomes obtained regression equation $\hat{Y}$ = 5.661 + 0.683X1, + 0.018X2. The results of the calculation of the significance test of the regression equation are presented in the ANAVA table as shown in table 5 below.

Table 5. ANAVA Test of Significance and Linearity of Multiple Regression $\hat{Y}$ = 5.661 + 0.683X1 + 0.018X2

| Source of Variance | Dk | JK | RJK | F-hit | F-tab α = 0.05 | α = 0.01 |
|---|---|---|---|---|---|---|
| Total | 31 | 2759.875 | | | | |
| Regresi b | 2 | 2131.839 | 1065.92 | 49.22* | 3.33 | 5.52 |
| (S) | 29 | 628.035 | 21.656 | | | |

Information:

| * | = | Regression is very significant (Fhit= 49.22 > Ftab= 3.33 at α = 0.05) |
|---|---|---|
| JK | = | Sum of Squares |
| Dk | = | Degrees of Freedom |
| RJK | = | Average sum of squares |

Testing the significance of the multiple regression equation $\hat{Y} = 5.661 + 0.683X_1, + 0.018X_2$ is significant. The conclusion is based on the value of Fcalculate = 49.22 ≥ Ftable = 3.33. The results of the calculation of the correlation coefficient that shows the strength of the relationship between achievement motivation and the learning environment together with science learning outcomes are shown by Ry.12 = 0.878. The significance test of the double correlation coefficient can be seen in table 6.

Table 6. Test the Significance of the Correlation Coefficient between Achievement Motivation and Learning Environment Together with Science Learning Outcomes

| Number of Observations (n) | Correlation Coefficient ($r_{y2}$) | Fhit | Ftab | |
|---|---|---|---|---|
| | | | α=0,05 | α=0,01 |
| 32 | 0.878 | 49,22** | 3.33 | 5.52 |

Information:

** = Significant correlation coefficient (Fh=49.22 > Ft=3.33 at α=0.05)

The Fcalculate value obtained is 49.22 and the Ftable value at α = 0.05 is 3.33. The value of Fcalculate > Ftable so that it can be concluded that the correlation coefficient between achievement motivation and the learning environment together with science learning outcomes that have a correlation coefficient (ry.12) = 0878 is significant. Then from the correlation coefficient, the coefficient of determination can be known (Ry.12² = 0.878)² of 0.7722. This means that 77.22% of the variation in science learning outcomes can be explained by achievement motivation and learning environment.

The close relationship between achievement motivation and science learning outcomes by controlling the influence of learning environment variables obtained a partial correlation coefficient (ry.12) = 0.495. The meaningfulness test of the partial correlation coefficient was carried out with a t test obtained a calculated value of 2.78. Meanwhile, it is known that t table with dk = 29 (n-1) at α = 0.05 is 1.699. Because the calculated value > table, achievement motivation still has a significant relationship with science learning outcomes even though control is made on the learning environment.

The relationship between the learning environment and science learning outcomes by controlling the influence of achievement motivation variables obtained a partial correlation coefficient (ry2.1) = 0.382. The significance test of the partial correlation coefficient was carried out with a t test obtained a calculated value of 4.10. Meanwhile, it is known that the table with dk = 31 (n-1) at α = 0.05 is 1.699. Because the calculated value > ttable, the learning environment still has a significant relationship with science learning outcomes even though control is made on achievement motivation.

The ranking of the relationship between each independent variable and the dependent variable can be seen based on the order of magnitude of the highest partial correlation coefficient is the achievement motivation variable with ry1.2 = 0.495, followed by the learning environment (ry2.1 = 0.382).

1. **Relationship of Performance Motivation with IPA Learning Outcomes**

From the results of the first hypothesis testing, it was found that achievement motivation has a positive and significant relationship with science learning outcomes. Based on the calculation results, a correlation coefficient value of 0.800 was obtained with a contribution of 64.06% which was explained through the regression equation $\hat{Y} = 15.358 + 0.672X_1$. This finding means that the better the achievement motivation, the better the science learning outcomes, conversely, the lower the achievement motivation, the slower the science learning outcomes.

Achievement motivation is the ability internally and externally in a person to provide reinforcement, so that it can activate behavior in learning, so that the need for success can be obtained, through science learning outcomes, such as the willingness to succeed and confidence, as well as the need for appreciation. If achievement motivation is owned in learning science, it will certainly improve learning outcomes.

If achievement motivation is observed in every science learning, then psychologically it will encourage a person to be more than before or more than the people around him. Achievement motivation is an internal and external drive in achieving a goal, including in achieving science learning outcomes. These results show that to increase achievement motivation in science learning outcomes, it must have motivation indicators that support science learning. What has been produced in this study, which shows the relationship between achievement motivation and science learning outcomes, is a reference in improving science learning outcomes in elementary schools.

## 2. The Relationship of Learning Environment with Science Learning Outcomes

From the results of testing the second hypothesis, it was found that the learning environment has a positive and significant relationship with science learning outcomes. Based on the calculation results, a correlation coefficient value of 0.697 was obtained with a contribution of 48.59% which was explained through the regression equation $\hat{Y} = 11.1214 + 0.442X2$. This finding means that the better the learning environment, the better the science learning outcomes, on the contrary, the lower the learning environment, the lower the results of science learning decrease.

In principle, the learning environment is an inseparable part of the curriculum that contributes to the teaching and learning process. The learning environment is closely related to physical aspects and psychological aspects, because physical aspects include building conditions, learning facilities, and classroom arrangements. While the psychological aspect is related to the interaction of teachers with students. Both aspects are interrelated with the cognitive, affective and psychomotor domains.

Environment means a place that affects a person's growth and development related to the presence of events and interactions in it. Positive use of the environment will provide good growth and development, thus supporting one's learning situation. So the learning environment means a place where the teaching and learning process occurs, such as involving curriculum and other learning facilities. So the learning environment is very important in determining learning outcomes.

Therefore, the contribution of the learning environment to science learning outcomes is very important to provide comfort in learning and quality learning. Because the learning environment is the surrounding situation where the learning process takes place at school which causes learning interactions, involving physical aspects and psychological aspects. So to improve science learning outcomes, the learning environment as a supporting component in learning continuity must be considered, because if the learning environment is not conducive, it certainly does not help much to improve learning outcomes. Therefore, with the importance of the learning environment, it can be understood that the learning environment has a relationship with science learning outcomes.

## 3. The Relationship between Achievement Motivation and Learning Environment with Science Learning Outcomes

From the results of testing the third hypothesis which shows a simultaneous positive relationship between achievement motivation and learning environment with science learning outcomes. Based on the calculation results, a correlation coefficient value of 0.878 was obtained with a contribution of 77.22% which was explained through the regression equation $\hat{Y} = 5.661 + 0.683X1, + 0.018X2$. These results further strengthen the results of testing the first, second and third hypotheses. Thus, achievement motivation and learning environment can be a good predictor of science learning outcomes. That is, if the motivation for achievement and the learning environment are categorized as good, it can be ascertained that the results of learning science will be better.

In addition to achievement motivation factors and learning environments that have a positive relationship with science learning outcomes, there are still other factors that influence it. This is proven by the value of the coefficient of determination of the relationship between achievement motivation and the learning environment together with science learning outcomes only reaching 77.22%.

## Conclusion.

1. The higher the motivation performs, the better the IPA learning results, the lower the motivation performs, so the better the IPA learning results.
2. The better the learning environment, the better the science learning outcomes, on the contrary, the less good the learning environment, the less good the science learning outcomes.
3. Together, it shows that the better or higher the achievement motivation and the good learning environment, the better the science learning outcomes. Conversely, the lower the achievement motivation and learning environment, the less good the science learning outcomes.

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