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THE RELATIONSHIP BETWEEN LEARNING MOTIVATION AND SELF-EFFICANCY THROUGH SCIENCE LEARNING IN ELEMENTARY STUDENTS

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Abstract

Motivation is needed in learning activities. Learning motivation is also needed to improve science learning outcomes which are not just memorizing a number of facts; for that, we need encouragement from ourselves and others to make a comprehensive attitude change integrated through knowledge and skills. Students who have high self-efficacy have high learning motivation. This study analyzed the relationship between learning motivation and self-efficacy and the science learning outcomes of fourth-grade elementary school students in the Pandeglang District. The study was conducted on 275 fourth-grade students in the Pandeglang District, namely SDN Pandeglang 1, 3, 4, and 6. The instrument used to measure motivation and self-efficacy was in the form of a questionnaire with four alternative answer options, while to measure motivation and self-efficacy was in the form of a questionnaire with four alternative answer options. Science learning outcomes used multiple choice test questions with four answer options. The results concluded: 1) There was a positive relationship between learning motivation and students' science learning outcomes; 2) There is a positive relationship between self-efficacy and students' science learning outcomes.; 3) There is a positive relationship between learning motivation and self-efficacy and students' science learning outcomes.

Keywords: Learning Motivation; Self-Efficacy; Science Learning

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A. Introduction

Education in elementary schools is an important and fundamental thing in life (Puspitarini & Hanif, 2019). It is because the foundation at the elementary school level for developing students' affective, cognitive, and psychomotor abilities is instilled (Borrego-Balsalobre et al., 2021).

In the 21st century, technology and other scientific fields have experienced significant developments with the demands of human life, which also increasingly require practical and fast things (Yamin, 2019). Natural Sciences is a branch of science that is the basis for creating technology. The position of natural science subjects in elementary schools is very important because science subjects are compulsory subjects (Mormina, 2019). Science is a natural learning concept with a broad relationship to human life. Science learning plays a very important role in educational and technological development. Science learning is expected to be a vehicle for students to learn about themselves and the environment and further develop its application in everyday life (Faisal & Martin, 2019).

The incompleteness of students' science learning outcomes is an urgent problem whose cause must be known so that it can be immediately addressed. Researchers concluded several internal factors that can be the cause, namely: 1) motivation to learn; 2) self-efficacy; 3) discipline; 4) parenting style; 5) interest in learning; 6) talent; and 7) Economic factors.

This research focuses on learning motivation and self-efficacy. Motivation is needed in learning activities. Students who are motivated more easily develop thinking skills so that learning outcomes are achieved better (Mauliya et al., 2020). Learning motivation is also needed to improve science learning outcomes, not just memorizing several facts. For this reason, encouragement is needed from oneself and others to change attitudes integrated through knowledge and skills (Utami, 2018).

Motivation plays a very important role for individuals in life as individuals, socially and for others. No exception for students who are studying. Psychologists define motivation as an internal process that activates, guides and maintains behavior from time to time. In simple language, motivation causes you to go,

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keeps you going, and determines where you are trying to go (Erlisnawati, 2015)

According to Kurniyawati (2012), achieving success requires strong motivation in learning and self-efficacy or self-confidence in completing school assignments. Students who have high self-efficacy have high learning motivation.

Self-efficacy is an individual's belief about his ability to achieve self-respected goals and standards related to Education (Nguyen et al., 2022). Students develop self-efficacy by evaluating and interpreting their task performance, which assesses self-competence (Bandura, 1977). Students' self-efficacy tends to increase when they believe their academic efforts are successful and decrease when they feel their efforts are inadequate (Artino Jr., 2012; Rossi et al., 2020).

Based on the explanation above, the main focus of this paper is to analyze and compare the effect of two independent variables, namely X1 (learning motivation) and X2 (self-efficacy), on Y (science learning outcomes). The research was conducted to maintain the quality of learning outcomes to maintain motivation and self-efficacy toward learning outcomes in elementary schools.

B. Research Methodology

Based on the explanation above, the main focus of this paper is to analyze and compare the effect of two independent variables, namely X1 (learning motivation) and X2 (self-efficacy), on Y (science learning outcomes). The research was conducted to maintain the quality of learning outcomes to maintain motivation and self-efficacy toward learning outcomes in elementary schools (Arayesh, 2015). Through the regression model, the researcher tries to get the effect of the independent variables X1 (learning motivation) and X2 (self-efficacy) on the dependent variable Y (science learning outcomes). The constellation of the relationship between the three variables can be shown in the following figure.

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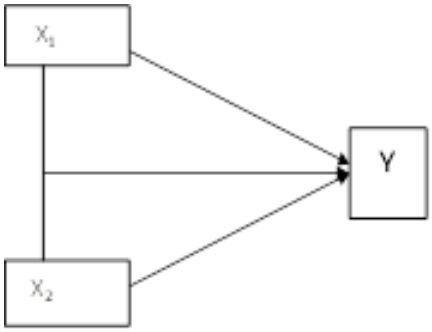

Figure 1. Effect of learning motivation and self-efficacy on science learning outcomes

Science learning outcomes are grades/scores that indicate students' abilities as a result of experience during learning Science (by looking at the level of student mastery of the material that has been taught (Stehle & Peters-Burton, 2019). The science learning outcomes that will be measured are scores obtained from student answers through describing, differentiating, explaining, classifying, and analyzing (Pedaste et al., 2021).

arning motivation is a student's attitude score as indicated by indicators such as the desire to succeed, learning needs, hopes and aspirations, appreciation of learning, interesting learning, and a conducive environment (Hulukati et al., 2019; Suryawati & Osman, 2017). At the end of learning, students are expected to get the best learning results, and it is also hoped that the motivation to learn from students will increase as well.

Self-efficacy is the belief in one's ability and power to learn and achieve (Hong & Phan, 2020). This attitude enables them to develop positive judgments towards themselves, others and the environment/situation they face (Getie, 2020). Self-efficacy is a student's perception score, including indicators such as the level of task difficulty that can be completed, resilience and tenacity in business, and mastery of assignments and subject material (Gabda et al., 2008).

C. Result and Discussion

This research was conducted on 275 students who were used to measure three variables, namely Learning Motivation (X1) and Self-Efficacy (X2) as independent variables and Science Learning Outcomes (Y) as the dependent

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variable. The data description and compilation of each variable can be seen in Table 1 as follows.

Table 1
Statistical Description of Learning Motivation Variables, Self-Efficacy and Science Learning Outcomes

Descriptive Statistics	Learning Motivation	Self-efficacy	Science Learning Outcomes
Average	73,15	51,48	58,89
Median	78,00	57,00	55
Mode	64,00	57,00	45
Std. Deviation	14,089	9,329	20,176
Minimum	48	29	20
Maximum	95	60	100

After all the analysis requirements have been fulfilled, the next step is to analyze the data on learning motivation and self-efficacy on their impact on science learning outcomes. This data analysis uses multiple regression analysis techniques, described below.

Table 2
Analysis of Variance Significance of the Effect of Independent Variables jointly on the Dependent Variable

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	81073,984	2	40536.992	361,952	000
Residual	30462,743	272	111,995		
Total	111536,727	274			

Hypothesis I:

$H_0: \beta_1 = \beta_2 = 0$

$H_1: \beta_1 \neq \beta_2 \neq 0$

Relationship between Learning Motivation (X1) and Self-Efficacy (X2) together with Science Learning Outcomes (Y). The statistical figures in Table 4.2 show that the value of Fo = 361,952 and Sig. = 0.000 < 0.05. It shows that H_0 is rejected, and H_1 is accepted. It means that the research hypothesis can be accepted: a positive relationship exists between learning motivation and self-efficacy and science learning outcomes.

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Table 3
Regression Coefficient and Partial Significance Test

Model	Understandardized Coefficients		Standardized Coefficients	T	sig
	B	Std. Error	Beta		
Constant	-38,62	3,721		-10,380	0,00
Learning Motivation	0,770	0,069	0,538	11, 104	0,00
Self-efficacy	0,800	0, 105	0,370	7,632	0,00

Relationship between learning motivation and science learning outcomes:
$H_0: \beta_1 = 0$

$H_1: \beta_1 \neq 0$

H_0 : There is no influence between learning motivation (X1) on science learning outcomes (Y).

H_1 : There is an influence between learning motivation (X1) on science learning outcomes (Y).

The statistics in Table 3 show that the value of t0 = 11.104 and Sig. = 0.000 < 0.05. It shows that Ho cannot be accepted, meaning H1 is accepted. It means that the research hypothesis can be accepted. There is a relationship between learning motivation and science learning outcomes.

The relationship between self-efficacy and science learning outcomes:
$H_0: \beta_2 = 0$

$H_1: \beta_2 \neq 0$

H_0 : There is no influence between self-efficacy (X2) on science learning outcomes (Y).

H_1 : There is an influence between self-efficacy (X2) on science learning outcomes (Y).

Based on the statistics in Table 4.6 it shows that the value of t0 = 7.632 and Sig. = 0.000 < 0.05. This shows that H_0 cannot be accepted, and H_1 is accepted. It means that the research hypothesis can be accepted. So, there is a relationship between self-efficacy and science learning outcomes.

The regression equation can be written as follows:

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$\hat{Y} = -38{,}621 + 0{,}770\ X_1 + 0{,}800\ X_2$

Based on the first equation, each increase in the total score of learning motivation will affect the increase in science learning outcomes by 0.770 units in the total score of science learning outcomes, meaning that the self-efficacy variable remains unchanged. Likewise, each increase of one unit in the total self-efficacy score will affect the science learning outcomes by 0.800 units in the total score in the total science learning outcomes, meaning that the learning motivation variable remains unchanged.

The equation above shows that the learning motivation variable has a more significant effect on science learning outcomes than the self-efficacy variable. It can be proven that the t0 value of learning motivation is greater than the t0 self-efficacy. Then the learning motivation variable also has a greater effect than the self-efficacy variable. In this case, it can be seen from the data that the beta value of learning motivation is greater than the self-efficacy beta value.

The results of the data analysis reveal that learning motivation and self-efficacy have a significant relationship with student learning outcomes, both partially and collectively.

In this research, learning motivation influences science learning outcomes. It aligns with research conducted by Tokan & Imakulata (2019) state that self-motivation is a very important factor in determining science learning outcomes. Motivation to learn, both from within the students themselves and from outside, will support science learning outcomes. Rachmatullah et al. (2018) state that self-motivation can encourage students to increase their understanding of science. Students who have high self-motivation will be successful in science learning outcomes. Safaruddin et al. (2020) state that self-motivation is fundamental to growing the will and ability to learn science. The opposite happens if there is no motivation. The process and learning outcomes could be more optimal for science learning.

The significant relationship between learning motivation and the achievement of student learning outcomes can be explained because motivation is

an influential force in the process of teaching and learning activities, encouraging the desire of students to be active. The possessed driving force can create a fun learning environment and foster student creativity in learning (Hanafia & Suhana, 2009). Motivated students will feel happy doing learning activities, and feelings of dislike for something will be defeated by a strong urge to achieve better results.

The role of motivation in learning activities is a) as an amplifier in the learning process; Motivation serves as a way to reinforce the learning process, b) clarify learning objectives; Motivation helps students increase their understanding of the material, c) strengthening student persistence; Students with strong motivation will be more diligent in learning activities.

Self-Efficacy is in the form of a person's thoughts and feelings that will influence the actions, effort, persistence, flexibility in differences, and the realization of goals of this individual so that self-efficacy related to a person's ability often determines the outcome before the action occurs. Therefore these thoughts and feelings must always be maintained so that they are always in a positive state (Damanhuri et al., 2016).

The ability to manage classes is a type of pedagogic competency skill that must be owned to the fullest extent possible by inspiring students and improving motivation and self-efficacy. Appropriate media and methods to the student's circumstances should be used to support the competence of professional and qualified teachers (Wijaya et al., 2023)

Self-efficacy improves science learning outcomes. This study is in line with Firmansyah et al. (2018), that Self-efficacy is the belief in the abilities and strengths owned in working, studying, and is a characteristic of success in achieving academic achievement, especially in science learning outcomes. Self-efficacy is important for students to have so that students can follow the learning process well and can complete assignments, especially science. Self-efficacy has a positive effect on scientific literacy or science learning outcomes (Jansen et al., 2015).

D. Conclusion

Based on the analysis and discussion in the previous chapter, the following conclusions can be drawn: There is a positive relationship between learning motivation and students' science learning outcomes. There is a positive relationship between self-efficacy and students' science learning outcomes. A positive relationship exists between learning motivation, self-efficacy, and students' science learning outcomes.

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