The effect of students self-efficacy on the learning outcomes in learning physics

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Abstract. The progress of a country can be seen from the quality of its education. The quality of education also depends on various factors such as teacher quality, student achievement, quality of physical facilities and infrastructure, educational equity and the environment. This study aims to determine the effect of self-efficacy students on the learning outcomes of physics at state senior high school 1 Pintu Rime Gayo. The type of research is correlational research with quantitative approach. The population of this study were all students of state senior high school 1 Pintu Rime Gayo, as many as 84 people and the sample was students of 11th grade state senior high school Negeri 1 Pintu Rime Gayo as many as 20 people. The research instruments were documentation, questionnaires and tests of physics learning outcomes. The technique of analysing t-test data. Based on the results of data analysis, it was concluded that there was a positive correlation between the effect of self-efficacy on student’s learning outcomes in physics at state senior high school 1 Pintu Rime Gayo.

1. Introduction

The progress of a country can be seen from the quality of its education. The quality of education also depends on various factors such as teacher quality, student achievement, quality of physical facilities and infrastructure, educational quality and the environment. Each country has its pattern and strategy in carrying out its education system to produce intelligent and quality human resources (HR). Education is also one of the most important parts in aspects of life, namely as a place to form intelligent and quality human beings to improve their standard of living [1].

One of the efforts made by the government in the education system is by equitable distribution of education in remote areas are provide the widest opportunity and evenly distributed to all citizens in order to produce intelligent and quality human beings. One of the objectives of national education is to educate the life of the nation [2]. Education is the most important aspect of life as a provision in order to form intelligent and quality human beings. Efforts to realize educational goals are inseparable from the role of teachers in schools during the learning process. During the learning process many factors influence students. Learning outcomes are influenced by external factors and internal factors. External factors are factors that originate from within students, such as facilities and infrastructure, environment, teachers, and methods in teaching [2]. While internal factors are the factors that come from within students, such as motivation, emotional intelligence, self-efficacy, independence, and others.
One important factor that influences students during the learning process is self-efficacy [3]. Self-confidence is one of the conditions for a student to be able to follow the learning process well. A student who has good self-confidence, has optimism and will strive to achieve the goals that have been targeted and play an active role during the learning process takes place [4]. Self-confidence is also influenced by the level of ability and skills that a person has [5]. Someone who is confident is always able to socialize and interact with other people and their environment. Students who have good self-confidence, are likely to be able to achieve high learning outcomes, because with good self-confidence, students during the learning process will play an active role so that the class. In the learning process there are several factors that can influence learning outcomes [6]. Psychological is the factors that influence learning outcomes are divided into two, namely cognitive and affective factors. Self-confidence is one of the affective factors that can affect student learning outcomes.

Confidence is the belief that people have the ability to do something to achieve certain goals [7]. Self-confidence is a person's beliefs and attitudes toward one's own abilities by accepting what they are, both positive and negative that are formed and studied [7].

Based on the results of preliminary observations by interviewing a teacher as the only physics teacher, students of state senior high school 1Pintu Rime Gayo still have less self-confidence. This is also seen during the observation of the learning process in the classroom of grade eleven. The lack of confidence in students is shown by the attitude and interaction of students to the teacher during the learning process takes place. Students very rare ask questions, express opinions and answer teacher questions during the learning process. In addition, some students also avoid when the teacher asks them to answer the question.

Several studies have been conducted regarding the influence of self-efficacy students on learning outcomes [9] and critical thinking [10]. The results showed that mathematical critical thinking skills of high school students were positively influenced by their confidence.

Based on the description from the above literature, the researcher wants to conduct this research to find out whether or not there is an effect of Self-efficacy students on the Learning Outcomes of physics at state senior high school 1 Pintu Rime Gayo.

2. Method
The type of research used in this study is correlational research with a quantitative approach. This research site was conducted at state senior high school 1 Pintu Rime Gayo located on Takengon-Bireuen Street, Blang Ara, Timang Gajah sub-district, Bener Meriah district. The population in this study were all Mathematics and Natural Sciences classes amounted to 84 people. The sample in this study were all students of class 11th grade as many as 20 people.

Data collection techniques that the researchers used were documentation, written tests of physics learning outcomes, and self-confidence questionnaires. In this study, the data analysis technique used is to calculate simple linear regression with the condition that the data must be linear and meaningful then calculate the product-moment correlation and t-test statistics.

3. Result and discussion
This study used simple linear regression analysis to determine the effect of independent variables on the dependent variable. Before conducting a regression analysis first test the basic assumptions must be obtained.

3.1. Test for linearity and meaning
3.1.1. Linearity test. For regression linearity, the price of $F_{count} = 0.42$ and the price of $F_{table}$ (0.05) (15.3) = 8.71 for $F_{table}$ (0.01) (15.3) = 26.92. Because $F_{count} < F_{table}$ then the regression is linear or there is a linear relationship between variables X and variable Y.
3.1.2. Meaning of regression. To test the significance of regression, the price of $F_{\text{count}} = 43.58$ and the price of $F_{\text{table}} (0.05) (1.18) = 4.41$ for $F_{\text{table}} (0.01) (1.18) = 8.28$, so that $F_{\text{count}} > F_{\text{table}}$, then regression means or linear relationship between variables $X$ and $Y$ means that this indicates that there is an influence that means from students' confidence in the results of learning physics at state senior high school 1 Pintu Rime Gayo.

3.2. Simple linear regression test

After conducting a simple linear regression requirement test, the linearity test and regression significance are fulfilled, then the next step is to arrange a simple linear regression equation. The simple linear regression equation model is $\hat{Y} = a + bX$. From the analysis of simple linear regression equation the value of $a = -78.20$ and $b = 1.84$ so that the simple linear regression equation obtained is $\hat{Y} = -78.20 + 1.84 (X)$.

3.2.1. Product moment correlation coefficient and coefficient of determination. From the calculations made, the value of $r_{XY} = 0.841$ because the price of $r_{XY}$ is positive, there is a positive effect between self-efficacy students on the learning outcomes of physics with a very strong interpretation of the correlation coefficient, which is between $0.80 - 1.000$. This means that the more efficacy of students, the learning outcomes of physics will increase. Because efficacy has a very important role to actualize the potential of students, especially during the learning process. The coefficient of determination ($r^2$) = 0.7072 = 0.71. So the magnitude of the effect of variable $X$ on variable $Y$ is 71%. The magnitude of the influence of students' confidence in physics learning outcomes is 71%. While the other 29% is influenced by other factors.

3.2.2. Test the hypothesis. The test is two variables hypothesis tested using t-test statistics obtained by the price of $t_{\text{count}} = 6.59$ with the price of $t_{\text{table}}$ with a significant level of $a = 0.05$ and degrees of freedom $n-2 = 20-2 = 18$ is $2.101$ and for the level $a = 0$, $01$ is $2.878$. Because $t_{\text{count}}$ is greater than $t_{\text{table}}$ good for significant level of $0.05$ and $0.01$ ($6.59 > 2.878 > 2.101$), it can be concluded that there is a positive and significant effect of 6.59 between self-efficacy students and the learning outcomes of physics.

Based on the results of the analysis of the data obtained shows that there is a true influence of self-efficacy students on the learning outcomes of physics. If the efficacy score obtained by students is getting bigger, the learning outcomes are getting better. The influence of students' confidence in learning on student learning outcomes is the influence of self-efficacy students in their abilities in the learning process on good learning outcomes [4]. Likewise with confidence that has an important role in actualizing the potential of students in the learning process so that the learning outcomes become better. Self-efficacy is a dynamic aspect of the composition of other elements of the self–system, such as an individual’s capacity, their success, their incentives and self-regulation mechanisms [11]. The students from private schools perform well in physics, their level is high because these schools have more resources and are more equipped than public schools [12]. The self-efficacy levels of teacher candidates, who were still partaking in the physics teacher training programme, and determined that the mean of the self-efficacy score of the fifth-grade students was higher than that of the first-grade students [13].

Based on the results of preliminary observations at state senior high school 1 Pintu Rime Gayo students still lack efficacy. This is indicated by the attitude and interaction of students to the teacher during observation during the learning process in the grade eleven. Students still lack the courage to ask questions, answer questions and issue opinions when the learning process takes place in class. In addition, in the classroom, there are also some students avoiding when the teacher asks them to answer questions, express opinions and come to the front of the class to read and write the results of the tasks that have been done before.

Based on data analysis, the efficacy score based on the lowest self-efficacy questionnaire was obtained, as many as 66.25, 67.92, and 69.17. The difference in the results of the initial observations
and the results of the self-efficacy students’ scores based on the self-efficacy questionnaire can occur due to verbal factors that come from these students. that is:
1. Students have less self-efficacy but have good cognitive abilities or vice versa students have good self-efficacy but lack cognitive abilities so that when filling out student questionnaires fill in according to the circumstances they experience.
2. There are students who are silent who do not show self-efficacy when the learning process takes place but at the time of filling out the questionnaire students' self-efficacy fills not according to what they experienced.

4. Conclusion
Based on the results of the discussion and analysis of the data that has been conducted, it can be concluded that there is a positive and significant influence of self-efficacy students on the learning outcomes of physics. The suggestions in this study are researchers, who can provide information about the influence of self-efficacy students on the learning outcomes of physics at state senior high school 1 Pintu Rime Gayo and it is expected that future researchers should conduct research on ways to improve self-efficacy students and learning outcomes of physics.

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