

## Analyzing Physics Learning to Determine the Character and Self-Efficacy of High School Students

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### Abstract

Research has been carried out to analyze learning based on the character and friendly attitude of students. The purpose of this study is how the character and self-interest of students in learning physics in a learning model. The research design used was quantitative research with survey research. The research sample was public high school and private high school in Semarang. The instrument used was a questionnaire using a google form. The results of this study were the lack of student character in learning, one of which was the student's curiosity in learning with a character proportion of 48%. Then, the proportion of students' self-confidence or self-confidence is still classified as low category. Students who lack confidence in their achievements and in doing assignments at school can affect learning models that are less precise and effective.

## INTRODUCTION

Physics is a science that studies natural phenomena (objects) both micro and macro and their interactions and tries to find relationships between these symptoms and the reality that exists. Physics is related to how to find out about nature systematically, so that the results of learning Physics are not only a collection of knowledge in the form of facts, principles but also is a process of discovery (Supardi, 2015). According to Lubis (2012), most students say that physics is a difficult and boring subject that also affects the low achievement of student learning outcomes. According to Wu Jian (2004) learning Physics in the classroom is a failure for some students because students feel irrelevant, boring, difficult and useless with the real world. Until now, the majority of the learning process that occurs in high schools on the one hand is still dominated by the role of the teacher which has a negative impact on the other side, namely the lack of active participation of students in learning activities. One of the reasons for this condition is the lack of variety of methods used by teachers in carrying out learning activity.

Fast Learning, Asriati, Nuraini (2010) stated that self-efficacy is the level of students' confidence in their ability to complete specific tasks. Thus, Self-efficacy can be understood in a specific domain; that is, people can have different self-efficacy from one specific situation to another (Schwarzer, 1998). The purpose of self-efficacy monitoring is to improve students' ability to predict their learning accurately. People behave in certain situations depending on cognitive factors related to their belief that they are capable or not able to perform satisfactory actions (Widyaninggar, 2014). The learning process is also concerned with the character of student learning.

Character education can be integrated into physics learning. Although not all elements of character can be fostered through physics education, of course physics education still has a significant contribution in an effort to maintain good character quality (Liliawati, 2019). Physics learning which includes knowledge, processes and attitudes provides opportunities to develop students' character (Saverinus, 2013). In order to get good physics learning achievement results, students must be able to understand the characters that exist in themselves. From the results of the study, it was found that there was a positive and very significant relationship

between student character and physics learning achievement (Sari, 2017). Student character is the character or nature that exists in students. Savage & Armstrong (1996:104) argue that character is a unique set of values, beliefs, and customs that are owned by a group of people. In factual conditions, students often do not understand ethics and manners, the values of honesty and discipline. Zuchdi's opinion (2011:24-25), understanding learning materials can arise in various types of actions or the formation of student behavior. The types of behavior include habits, skills, accumulated perceptions, associations and memorization, and attitudes.

Based on the description above, a person's character will grow, develop, and can be approached by a teacher. With the development of good character, researchers also apply self-efficacy to students. Therefore, the writer is interested in analyzing physics learning to determine students' character and self-efficacy.

## METHOD

The research design used in this quantitative research is a survey research type. Surveyor research is a procedure in quantitative research where researchers conduct a survey to a sample or to the entire population that is used to describe attitudes, opinions, behaviors, or special characteristics of a population (Creswell, 2012). The research sample is public high school and private high school in Semarang. The research sample was selected based on the Cluster Random Sampling technique with consideration of 1 public and private school in the city, 1 public and private school in rural areas and 1 remote public and private school. The instrument used in this study was non-test. While the data collection was done by using a Questionnaire. Questionnaire is a data collection technique that is done by asking a set of questions or written statements to respondents to answer (Sugiono, 2012:199).

## RESULT AND DISCUSSION

The results of the study analyzing physics learning to determine character and self-efficacy of high school students can be seen in Figure 1:



**Figure 1.** Student Character Results and Self-efficacy

a. Self-Afficity

The descriptive data of high school self-afficity in Semarang, can be seen in table 1:

**Table 1.** Descriptive Self-Afficity Data

	N	Min	Max	Mean	Std. Deviation
Self-Afficity	25	21.00	27.00	23.2400	1.80924
Valid N	25				

In table 1 Self-Afficity gets an average value of 23.24, with a minimum score of 21 and a maximum of 27.

b. Characters

The descriptive data of SMA characters in Semarang, can be seen in table 2:

**Table 2.** Descriptive Character Data

	N	Min	Max	Mean	Std. Deviation
Character	25	35.00	56.00	44.7200	6.16793
Valid N	25				

In table 2 Characters get an average value of 44.72, with a minimum value of 35 and a maximum of 56.

Figure 1, students' self-efficacy is still below the average as much as 23%. Students still do not believe in completing school assignments, practice questions given by the teacher and the achievements achieved. Self-efficacy is the belief that one can

master the situation and get positive results (Adicondro, 2011). Students have confidence in doing assignments will get good learning outcomes. Self-efficacy relates to the belief that one has the ability to perform the expected action. Efficacy is a self-assessment, whether you can do good or bad actions, right or wrong, can or cannot do as required (Widyaninggar, 2014). Self-efficacy is an important construct for students in unifying their performance, because one can find attention to beliefs about the effectiveness of learning methods. (Zimmerman et al., 1996). Something that makes students insecure is from individual experiences that make them distrustful of something. Studies have shown that self-efficacy, which is defined as the beliefs about ones' capabilities to accomplish a given task (Zhu, Z, 2007). Self-efficacy according to Alwisol, (2005) can be obtained, changed, increased or decreased, through one or a combination of four sources, namely the experience of mastering an achievement (performance accomplishment), vicarious experiences (vicarious experiences), social persuasion (social persuasion) and generation emotions (emotional/physiological states). Performance experience is an achievement that has been achieved in the past. The vicarious experience is gained through the social model.

Percentage of students character is 44%, the refore basically the students already have a good character in avarage. In student learning activity, it is important to be polite to the teacher during the learning process and outside of learning. Cultivating good character will have a positive impact on student learning outcomes, from how to do assignments, as well as practice questions. The character of curiosity is developed through three aspects, namely enthusiasm in asking questions,

seeking answers to questions, and paying attention to the object being observed (Bestari, 2014). Asriati (2010) stated that building student character is a process of sculpting a person's soul that is different from other individuals. Shaping the character of students takes a long time because it requires high discipline. Character education is carried out through fostering students by providing examples and teaching good character by involving parents, families, communities, schools, communities and the state (Chapman, 2011). Compassion character can reduce adolescent anxiety in related situations (Neff et al., 2007). Along with character education, Zubaedi (2011) explains that character can be a subjective assessment of a person's moral and mental qualities, so efforts to change or shape character are only related to stimulation of one's intellectual.

The learning model applied by teachers in schools is still less effective, because too often use the lecture method in class. Students understand better if learning uses a different learning model each explaining the concept. Students will feel more understand what is being learned. The models that are often found are discussions and lectures. Joyce & Weil (1980) defines the learning model as a conceptual framework that is used as a guide in conducting learning to achieve learning objectives. The selection of learning models in schools must be able to improve the student learning process, so that student learning outcomes can meet the minimum completeness criteria (KKM) set by the school (Purwandari, 2015). Based on the literature analysis suggests that in learning, students work more than listen. They must read, write, discuss, participate in problem solving (Cahyanti, 2015). One thing that is very important in this case is that students are actively involved in learning, using higher thinking skills in doing tasks such as analysis, synthesis and evaluation (Erlinda, 2017).

## CONCLUSION

Based on the research above, there is still a lack of student character in learning, one of which is the curiosity of students in learning with a character percentage of 48%. Then the self-efficacy or student confidence percentage of 28% is still in the low category. Students lack confidence in the achievements they get or in doing assignments or training at school. This is influenced by the learning model that is less precise and effective.

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