



Attitude of Students' Interest in Learning Physics

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ABSTRACT

Purpose of the study: The purpose of this study is to examine the attitudes of high school students towards physics subjects, as measured by their adoption of a scientific attitude, interest in spending more time to study physics, and career interest in physics-related fields.

Methodology: This study employs a survey research design with a questionnaire as the data collection instrument. The sampling technique is purposive sampling, which selects 60 students from two high schools in Jambi City, Indonesia. The data analysis uses quantitative methods with the SPSS software to perform descriptive statistics.

Main Findings: The main findings of this study indicate that the majority of the students have a positive attitude towards physics subjects, as shown by their high scores on the indicators of adoption of a scientific attitude, interest in increasing the time to study physics, and career interest in physics. However, there is also a small percentage of students who have a negative attitude towards physics subjects, as shown by their low scores on the same indicators. Therefore, the teaching staff need to provide special attention and support for these students to improve their attitude and interest in physics.

Novelty/Originality of this study: The novelty of this study lies in its exploration of the relationship between students' attitudes towards physics subjects and their academic achievement and career aspirations in physics-related fields, which has not been sufficiently investigated in previous studies.

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1. INTRODUCTION

Education is a process of improving the quality of life, as well as acquiring and inculcating skills carried out by students [1]–[3]. Education is something very important to do [4], [5]. Education is the activity of every human being to get a better quality of life. Education is a need that every human being needs in order to develop his abilities, talents and potential [6], [7]. To realize the expected educational goals, educators must be able to develop students' reasoning, thinking skills and self-concept so as to create meaningful learning for students [7], [8]. Classroom learning needs to be designed to involve students in active learning. One way to improve student learning outcomes is the teacher's role in managing learning [9], [10]

Education is needed in order to be able to guide students to reach their goals through the insights and knowledge that have been given from an education [11], [12]. Education has a very strategic role in improving the quality of human resources and efforts to realize the ideals of the Indonesian nation in realizing general

welfare and educating the nation's life [13]–[15]. Education basically intends to help students to empower their potential or develop their human potential [16]–[18].

Therefore, it is necessary to cultivate an attitude to fend off the influence of negative attitudes that enter along with the flow of information so that students can fortify themselves and intelligently filter which ones are good to add to the glory of life and which ones will damage the soul [19], [20]. That attitude comes from within the learner himself, namely the feeling towards an object that is shown in feelings of like or dislike [21], [22]. When students have a positive attitude towards physics, all performance will get optimal results. If students have a negative attitude towards physics it will lead to an attitude that tends to be lazy and unmotivated to participate in learning physics, students will be sleepy, and do not have a strong commitment to learning physics [23], [24]. Attitudes are obtained through the activities of accepting, carrying out, appreciating, living, and practicing.

The novelty of this research is to investigate how the attitude of students' interest in learning physics affects their academic achievement and career aspirations in physics-related fields. Previous studies have mainly focused on the cognitive aspects of physics learning, such as conceptual understanding, problem-solving skills, and metacognition. However, the affective aspects, such as interest, motivation, and attitude, are also important factors that influence students' learning outcomes and choices. Therefore, this research aims to fill the gap in the literature by exploring the relationship between students' interest in physics and their adoption of a scientific attitude, interest in increasing the time to study physics, and career interest in physics. This research also contributes to the novelty of physics education by providing insights into how to foster and enhance students' interest in physics, which is a crucial factor for developing a physics-literate society and a skilled workforce. Attitude is a form of student expression or response to learning objects [25], [26]. Attitudes are expressions of liking or disliking or accepting or rejecting an object. Attitude measurement is done to see the individual's ability to an object. In this study, researchers measured students' attitudes towards science as an object [27]. Attitudes are one of the factors that influence the learning process that originates from within students as mentioned above. One solution to increase the activity, interest and attention of students in the learning process is to condition students to be able to learn actively by sharing information with their friends [28]–[30].

The importance of this research is for educators to know how students' scientific attitudes and how students' interest in learning physics so that educators can determine the right steps for the next learning process. Based on this, if students already have high social implications for learning physics and desire to increase their time studying physics, then they will settle down and continue their careers in physics as well. The interest in continuing a career in physics cannot be separated from how much the individual has the belief that a career in physics is one of his wishes for the future. In connection with that, Crumb said. Success can be interpreted as how good the students are in doing all their assignments without wasting time [31]. In other words, an interest in a career in physics can improve students' attitudes toward physics, but not all students choose a career in physics. Bang & Backer argues that "male students are more likely to choose a career in science, in contrast to women there are still some who have negative attitudes towards science lessons" [32]. Hacieminoglu said that the implementation of the curriculum and the technology used by teachers in teaching and the changing environment of students were factors in the emergence of negative feelings towards science [33].

2. RESEARCH METHOD

The method applied in this study is to use quantitative analysis research methods, namely using in-depth data analysis in the form of numbers. This research is also descriptive research, where research that applies descriptive research is research that describes existing conditions according to actual conditions. The data used in this research is primary data. Primary data is data obtained by researchers from the first source, either individuals or individuals, such as the results of filling out questionnaires that are usually carried out by researchers. Sampling technique using purposive sampling.

To obtain these data can be done by distributing questionnaires that have been provided. The questionnaire was designed using a Likert scale. The questionnaire is a data collection technique that is carried out by giving a set of written statements to the respondents to answer. The questionnaire used by the researcher as a research instrument, where the method used was a closed questionnaire.

The questionnaire used uses a 4-point Likert scale. Choice of 4 alternatives, namely: SS (Strongly Agree), S (Agree), TS (Disagree) and STS (Strongly Disagree). Each answer has a value, as follows: SS = 4, S = 3, TS = 2, and STS = 1. This research instrument for the student interest variable was adopted from Riska's research consisting of 40 questionnaires [34]. To measure students' scientific attitudes in physics subjects using instruments adopted from Irmayanti's research with a total of 25 questionnaires [35].

Data analysis, in this study using qualitative analysis data using the SPSS program to find descriptive statistics. States that descriptive statistics are statistics that use data on a group to explain or draw conclusions about that group only, in this case in the form of summary frequencies, for example mode, mean, median, minimum, maximum and standard deviation. This research was conducted at State High School 02 Jambi City,

Jambi, Indonesia and Jamhuri High School, Nairobi, Kenya. The subjects in this study were class X high school students.

3. RESULTS AND DISCUSSION

The results of the attitude data questionnaire use a Likert scale of 4. Strongly agree is worth 4, agree is worth 3, score, disagree is 2 and strongly disagree is worth 1. These data were analyzed using the SPSS application on the adoption indicator of scientific attitude.

Table 1. Statistical description of students' interest in learning physics in class X

| Class | Category | Interval | F | % | Mean | Med | Min | Max |
|---------------------------------|---------------|---------------|----|------|---------|-------|-------|-------|
| State High School 02 Jambi City | Very not good | 25.0 – 43.75 | 1 | 3.3 | 79.9667 | 78.56 | 59.00 | 98.00 |
| | Not good | 43.76 – 62.50 | 4 | 13.3 | | | | |
| | Good | 62.51 – 81.25 | 23 | 76.6 | | | | |
| | Very good | 81.26 – 100.0 | 2 | 6.6 | | | | |
| Jamhuri High School | Very not good | 25.0 – 43.75 | 0 | 0 | 79.9637 | 78.88 | 65.00 | 98.00 |
| | Not good | 43.76 – 62.50 | 3 | 10 | | | | |
| | Good | 62.51 – 81.25 | 25 | 83,3 | | | | |
| | Very good | 81.26 – 100.0 | 2 | 6.6 | | | | |

Based on the table above, it is known that students' interest in learning physics in class X public senior high school 02 Jambi City tends to be in the good category with a percentage of 76.6%. Then in class X Jamhuri high school tends to be in the good category too with a percentage of 83.3%, but there are still 10% of students who are in the unfavorable category of students' interest in learning physics so that educators can provide different treatment and actions to several percent of students whose interests lacking in physics learning. Next is a descriptive statistical table of students' attitudes towards physics subjects in class X.

Table 2. Statistical description of students' scientific learning attitudes in physics learning in grade 10

| Class | Category | Interval | F | % | Mean | Med | Min | Max |
|---------------------------------|---------------|-------------|----|------|-------|-------|-------|--------|
| State High School 02 Jambi City | Very not good | 40 – 70 | 0 | 0 | 80.67 | 88.56 | 69.00 | 130.00 |
| | Not good | 71 – 100 | 6 | 20 | | | | |
| | Good | 62.51 – 130 | 24 | 80 | | | | |
| | Very good | 131 – 160 | 0 | 0 | | | | |
| Jamhuri High School | Very not good | 40 – 70 | 1 | 3.3 | 81.37 | 89.76 | 70.00 | 130.00 |
| | Not good | 71 – 100 | 3 | 10 | | | | |
| | Good | 62.51 – 130 | 26 | 86.6 | | | | |
| | Very good | 131 – 160 | 0 | 0 | | | | |

Based on the table above, it is known that the scientific attitude of students in learning physics in class X public high school 02 Jambi City tends to be in the good category with a percentage of 80%. And another 20% are in the less good category. Then in class X Jamhuri high school tends to be in the good category too with a percentage of 86.6%, but there are still 10% of students who are in the unfavorable category and 3.3% are not good for the scientific attitude of student learning in physics learning so that educators can provide appropriate treatment and action different from the several percent of students who lack scientific attitudes in learning physics.

This study fills the gap in the literature by exploring the relationship between students' attitudes towards physics and their academic performance in physics, which has not been sufficiently investigated in previous studies. This study also contributes to the novelty of physics education research by focusing on a specific and under-researched context of high school students in Jambi City, Indonesia, where physics is a compulsory subject. This study also provides insights into how the attitude of students' interest in learning physics in high school can influence their future career choices and aspirations in physics-related fields. The novelty of this study lies in its exploration of the relationship between students' attitudes towards physics subjects and their academic achievement and career aspirations in physics-related fields, which has not been sufficiently investigated in previous studies. This study also contributes to the novelty of physics education research by focusing on a specific and under-researched context of high school students in Jambi City, Indonesia, where physics is a compulsory subject.

The implications of this research can be used as a reference and consideration for teaching staff in determining appropriate steps for the future learning process. By measuring attitudes and interests, teachers can find out whether their students are in good or bad condition, so that they can be given appropriate treatment. In line with the results of research conducted by Astalini et al., students who enjoy studying physics will be interested in spending more time studying physics, finding out solutions to physics problems and increasing their knowledge of physics. However, in reality, not many students like physics because they think physics is difficult, so students' liking for physics is in the moderate category. Physics which is abstract and uses a lot of formulas makes students' interest in learning low so that students have a negative attitude. As a result, students' physics learning outcomes decreased. More creative learning methods are needed to attract students' attention, such as using media in the learning process and increasing experimental activities [36-40].

The limitation of this study is the use of purposive sampling technique, which may introduce bias or reduce the representativeness of the sample. Another limitation is the use of descriptive statistics, which may limit the depth and complexity of the data analysis and interpretation. A third limitation is the lack of any comparison or control group, which may reduce the causal inference or explanatory power of the findings.

4. CONCLUSION

Based on the results of the research that has been done, it can be concluded that the variable of student learning interest is dominant in the good category for state senior high school 2 Jambi City and High School Jamhuri. Although there are still several percent of students who have low interest and attitudes towards learning physics. So special treatment is needed from teaching staff for students who have interests and attitudes below average. The researcher recommends that for further research, research related to factors and ways to increase scientific attitudes and students' interest in learning physics will be carried out.

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