Ann PUBLISHER
Journal of Education Sciences (Edusci)
e ISSN 3074-2296
p ISSN 3032-7393

Analysis of the Interest of SMAN 10 Bandung City Students in Physics as the Basis of Modern Science

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Abstract. This study aims to find out the interest of students in grades 11 and 12 of SMAN 10 Bandung City in physics subjects. Data collection was carried out using a questionnaire based on the Likert scale with a range of 1 to 10. The results of the study show that the majority of students have a fairly high interest. As many as 60 percent of students are on a scale of 7 to 10, which indicates a good interest in physics subjects. However, there were 12.5 percent of students had low interest, with scores on a scale of 1 to 4. In addition, about 17 percent of students are on a scale of 5 and 6, which shows a neutral attitude towards the subject. This result shows that there is great potential to improve the quality of physics learning. Groups of students with low interest need to get special attention through more interesting learning methods. Some strategies that can be carried out include the use of direct experiments, the application of physics concepts in daily life, and project-based activities. This effort is expected to be able to change students' views on physics to be more positive and relevant to their needs. This study concludes that applied physics learning has been effective for most students. However, a more innovative approach is still needed so that all students have a better interest in physics as an applicable and useful science.
Keywords: student interest, physics learning, Likert scale, learning strategies, learning motivation.

INTRODUCTION

Education is an effort that is made deliberately to help develop the potential of every individual, especially students. In this process, they are guided and given support so that they can learn in the right and fun way. The main goal of education is for students not only to master knowledge, but also to be able to develop skills and attitudes that will be useful for their later lives.

One of the levels of education that is very important in producing a quality generation is high school (SMA). This is where students are prepared to face future challenges. Education in high school not only aims to improve academic ability but also to

DOI: 10.62885/edusci.v2i4.630

equip them with essential life skills in order to compete in an increasingly competitive world. Through high school, students are expected to grow into individuals who are ready to face the world of work, able to adapt to changes, and have the confidence to achieve their dreams. (Hidayatulah, 2015)

High school students are at a developmental stage where their thinking power begins to develop rapidly and their curiosity about things is also getting higher. At this age they have a great passion for learning and digging deeper knowledge. Therefore, it is important for them to study subjects that can develop their potential to the fullest. One of the lessons that strongly supports that is physics.

Physics teaches a lot about how the universe works. This lesson is not only about formulas or laws of physics but also teaches a logical and systematic way of thinking. In physics, students are invited to think critically, analyze situations and solve problems. All of this requires constant practice so that their thinking and reasoning skills are sharper. Physics provides an opportunity for students to learn how to structure thoughts clearly and solve complex problems. Thus, this lesson becomes more than just a theory; it is also a tool that trains them to think more deeply and carefully when facing challenges in daily life. (Hartuti, 2015)

Physics is often considered difficult by many students, especially because the way of learning still tends to be conventional. In this approach, students are often asked to memorize formulas that seem abstract without understanding their application in real life. This makes physics feel distant and uninteresting to them, when in fact this lesson is very relevant to the various phenomena that occur around us. (Rosdianto, 2017)

Students' attitudes towards physics lessons greatly influence whether they will be interested or even find it difficult with the material being taught. If students have a positive attitude, they will be more receptive to challenges and more open to understanding concepts that may sound difficult. This positive attitude also makes them more enthusiastic in attending lessons, more active in asking questions, and not quick to feel hopeless when facing difficulties. With such an attitude, they tend to be more motivated to study, take assignments more seriously, and prepare well for exams.

A good attitude not only affects the way they learn but also has an impact on their behavior in the classroom. Students who have a positive attitude are usually more disciplined, respect time, and have more respect for their teachers and friends. This, of

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course, affects their academic results. When they have a good and positive attitude, it is easier for them to complete academic tasks well and achieve satisfactory results. On the contrary, negative attitudes can actually hinder them from developing and completing learning optimally. (Guido, 2013)

The social implications of physics show how this science affects our daily social lives. The development of physics and technology has brought many benefits that can be felt by the community, both in aspects of personal, economic, and cultural life. In the context of learning at school, both in the classroom and in the laboratory, we can see how physics plays a role in shaping social relationships between students. For example, when students work in groups, they learn to collaborate, share information, and respect each other's opinions.

This cooperation is very important in the learning process because it not only helps them understand physics material but also develops social skills that are very useful in daily life. When students are invited to work together in a group, they learn to appreciate each member's contribution, communicate effectively, and solve problems together. In addition, physics learning also encourages students' independence because they are required to find their own solutions, discuss, and learn from experience. All of this contributes to the development of character and social skills that will benefit them in the future. (Yance, 2013)

Some students at SMAN 10 Bandung City find it difficult to understand physics material. This is often due to learning methods that are still conventional, where students are asked to memorize formulas more often without really understanding how physics concepts are applied in daily life. In addition, students' attitudes towards physics lessons also greatly affect how interested they are in learning it. Many of them feel that physics is a difficult and boring subject when, in fact, physics is very relevant to many phenomena that exist around us.

On the other hand, physics learning also has a considerable social impact. During the learning process, especially in group activities, students are taught to work together, share information, and respect each other's opinions. However, if physics learning does not actively involve students and does not provide space for them to collaborate, then the social potential that can be obtained will not be optimal. Therefore, it is important to find ways that physics learning can be engaging for students and have a positive impact not only on their academic abilities but also on their social skills.

DOI: 10.62885/edusci.v2i4.630

Based on the problems faced in learning physics, the formulation of the problem in this study is as follows:

1. What causes students to have difficulty understanding physics lessons in high school?
2. How do students' attitudes towards physics lessons affect their learning outcomes?
3. How can physics learning help students develop their social skills, especially in terms of cooperation and independence?
4. What can be done to increase students' interest and motivation to be more interested and active in learning physics?

With this research, it is hoped that it can help or contribute to physics, especially physics education for high school students so that they can learn physics effectively.

METHOD

Type of Research

This study uses quantitative and qualitative methods, using survey and interview research procedures. Survey research design is a quantitative research procedure in which the researcher administers a survey on a sample or on the entire population of people to describe the attitudes, opinions, behaviors, or special characteristics of the population Interviews are conducted to strengthen the results of the questionnaire given to students. The purpose of the application of design in this study is to find out the picture of students' interest in physics lessons at SMAN 10 Bandung City. (Creswell, 2012)

Research Subject

The subjects of this study are 72 students from SMAN 10 Bandung. The sampling technique is Total sampling. The subjects taken were grade 11 as many as 36 students and grade 12 as many as 36 students from the Department of Mathematics and Natural Sciences consisting of women and men.

Research instruments

The instrument in this study uses a questionnaire. The questionnaire consists of 4 valid question items on this instrument using a likert scale and short answers. The scale consists of 10 points with a strongly agree value of 10, neutral is 5, and strongly disagree is 1. Each statement is a representative of each attitude indicator. The focus of this research is on 2 dimensions of attitude, namely the pleasure of learning physics, and interest in

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increasing the time spent studying physics. Data collection is also done by filling out questionnaires to obtain data on whether students have an interest in physics.

Research procedure

The research begins by gradually following the procedure. In the preparation stage, a proposal is made, formulating the problem and its variables. Then, a literature review is carried out, looking for supporting theories and deepening the discussion of the problem being researched in order to obtain an overview of the research to be carried out and the instruments needed. At the data collection stage, questionnaires were given to 36 students at SMAN 10 Bandung. Data analysis is then carried out from the data, namely data coding, filtering of feasible data, and analysis of the data.

Data analysis techniques

To illustrate data in the form of student interest, the statistics used are descriptive statistics. An overview or presentation of a large amount of data that includes mean, mode, median, maximum, minimum, and standard deviation is a descriptive statistic Data is analyzed using the Microsoft Excel Program to obtain the percentage, frequency, average, and standard deviation of data. (Cohen, 2005)

DISCUSSION

Result

The results we got after conducting the research are as follows:

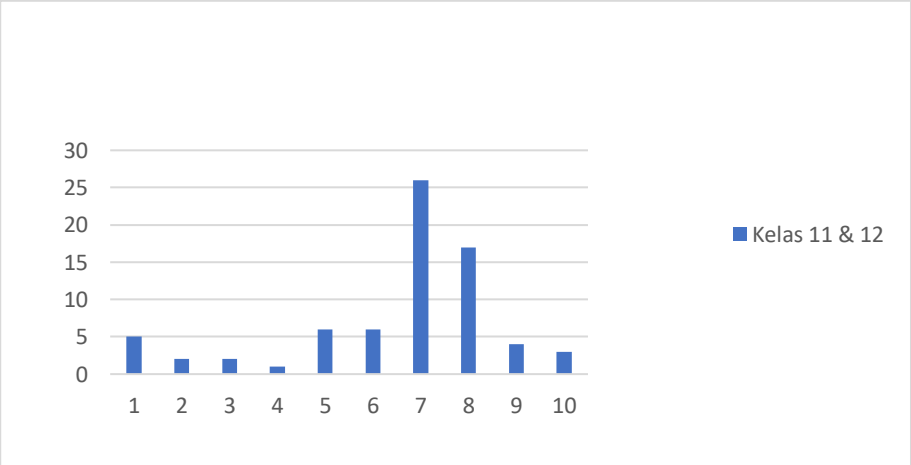

Figure 1. Students' Interest in Physics lessons

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The questionnaire given to 72 students in grades 11 and 12 at SMAN 10 Bandung City aims to measure their interest in physics subjects. The results in (Figure 1.1) show that students' interests are quite diverse. A total of 5 students were on a scale of 1, indicating they have a very low interest in physics. In addition, there are 2 students on scale 2 and 2 more students on scale 3. In total, there are 9 students, or about 12.5 percent, who have a low interest in physics. This indicates that although most students show good interest, there is a small group that needs to get more attention to increase their interest in this lesson.

Furthermore, there is one student who is on a scale of 4. These students were slightly above the group with low interest but still showed weak interest. On a scale of 5, 6 students can be categorized as having a neutral attitude towards physics. They do not show high or low interest, so their position can be a focus to be directed further to be interested in physics.

Six students chose a scale of 6 in the medium to high-interest category. Meanwhile, the majority of students are on a scale of 7, with a total of 26 people. This means that about 36 percent of students have a fairly high interest in physics. Not much different, there are 17 students on a scale of 8 who are also included in the group with high interest. On a scale of 9, there were 4 students who showed very high interest. Meanwhile, on the highest scale of 10, three students showed that they really liked physics lessons.

Overall, the data showed that 43 students, or about 60 percent, had a high interest in physics, namely those on a scale of 7 to 10. Meanwhile, around 12.5 percent of students have low interest on a scale of 1 to 4. On the other hand, neutral students with moderate interest on a scale of 5 to 6 amounted to 12 people or about 17 percent of the total.

DISCUSSION

This distribution of interest shows a fairly positive picture of students' acceptance of physics subjects. The majority of students showed high interest, especially on a scale of 7 and 8, which became the dominant number in the results of this questionnaire. This signals that most students already have an interest in physics, which means that the learning methods currently applied are effective enough to attract their attention.

However, the presence of students who are in groups with low interest also needs to be a concern. As many as nine students or 12.5 percent of the total still have a less positive view of physics. This group can be the main focus in efforts to increase interest.

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One way that can be done is to make the teaching approach more interesting. For example, physics lessons can be packaged with hands-on experimental methods that involve students or by providing examples of the application of physics concepts in everyday life. This is expected to open up their insight that physics is not just a difficult theory but also a relevant and useful science.

In addition, students who are in a neutral position on a scale of 5 and 6 also have great potential to increase their interest. This group needs more encouragement in order to be interested in physics. One way that can be done is to provide challenges such as problem-based projects or activities that involve the exploration of physics concepts in a real context. Thus, they can see the interesting side of physics and feel more motivated to learn it.

CONCLUSION

Based on the results of the questionnaire analysis, most of the 11th and 12th grade students at SMAN 10 Bandung City showed a fairly high interest in physics. As many as 60 percent of students are on a scale of 7 to 10, which shows a positive interest in the subject. This reflects that the physics learning that is currently applied is quite interesting for the majority of students.

However, there were about 12.5 percent of students on a scale of 1 to 4, who showed low interest in physics. This group needs special attention so that their interests can be increased. Students who are neutral on scales 5 and 6 are also an opportunity to be directed further, so that they can see the relevance and benefits of physics in everyday life.

Overall, these results show great potential for improving the quality of physics learning. With a more creative, contextual approach, and actively involving students, it is hoped that all students can have a better interest in physics. This effort is important to ensure that physics is not only understood as an academic subject, but also as an applicable and relevant science in everyday life.

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