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Analysis of Concept Understanding and Students' Attitudes towards Learning Physics in Material of Straight Motion

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Abstract: Understanding the concept and having a positive attitude towards studying physics is a requirement to succeed in studying physics. Studies have shown that students have low conceptual understanding and do not yet have positive attitudes toward learning physics. This research aims to analyze students' conceptual understanding of Straight Motion for class X, analyze students' attitudes towards learning physics, and analyze the correlation between conceptual understanding and students' attitudes towards teaching physics. This type of research is descriptive research with a quantitative approach and the population of all students of class X SMAN in Payakumbuh City and a sample of 205 students. The sampling technique used the purposive sampling technique using the *Four-Tier Multiple Choice* and *Likert Scale*. The research results revealed: Students understood the concept of 33.93% in the medium category. Students' attitudes towards studying physics are good, but the indicators of interest in increasing the time to study physics tend to be in the reasonably good category. The correlation between conceptual understanding and student attitudes with a significance value of 0.000 and a correlation value of 0.490 means that the correlation between the concept understanding variable and the student attitude variable is moderate.

Keywords: Concept understanding; Students attitudes; Learning Physics; Motion Straight

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Introduction

Education according to Law number 20 of 2003 is a conscious and planned effort to create an atmosphere of teaching and learning and the learning process in such a way that self-potential, intelligence, personality, noble character, and skills of students develop for the benefit of themselves, society, nation and state. Based on the functions and ojectives of the national education, education is expected to shape character and develop students' potential to build intelligence or knowledge, shape attitudes, and build student skills (Mufit et al., 2020). Educational goals will be achieved if the learning process and the quality of education implemented can develop students' skills attitudes and knowledge generate creative thought patterns and understand concepts (Kemendikbud 2013). The quality of education is poured into the curriculum used to implement education in Indonesia. The curriculum used in Indonesia has been refined so that Indonesia currently uses the 2013 curriculum. The 2013 curriculum requires students to be more active, be autonomous and competent in learning, including learning physics (Mufit et al., 2020). However, learning physics that still tends to explain physics concepts and formulas to students and doesnt actively build knowledge to figure out the concept can lead to concept misunderstanding and confusion. receive. (Mufit et al., 2020). Misconception uses concepts that do not follow the scientifically accepted concepts of experts or scientists. In physics learning, students cannot avoid the misconception phenomenon because, generally, Misunderstandings occur when interacting with the environment and uilding concepts ased on intuition (Mufit & Fauzan, 2019).

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Physics is a subdivision of natural science that has concepts, principles, theories, and laws that are related to nature and its phenomena (Helmi et al., 2017). Students must be active according to the curriculum, especially in learning physics as part of science (Mufit et al., 2020). Physics subjects have the aim that students are able to master concepts, principles and skills to develop knowledge and self-confidence to continue their education to a higher level and can develop science and technology and form a positive attitude towards physics (Subagya and Wilujeng, 2013). For physics learning to become meaningful learning for students, the ability to understand concepts is needed by students in studying physics subjects. Understanding concepts is a requirement for success in learning physics because physics is not a material to be memorized but requires more reasoning and understanding of concepts (Linawati, 2018). Understanding the concept is one form of learning outcome. Understanding the concepts that students have can achieve student success in learning physics (Puspitasari et al., 2021). Understanding the concept is also one of the keys to studying science, especially Physics, so students do not have to memorize formulas but understand the concepts (Heru. 2019). Concept understanding is an ability students possess in receiving material in the learning process with three aspects to be considered: translation, interpretation, and extrapolation (Abriani and Nursalam, 2016). For learning to be achieved, students' attitudes must be positive. Students' happy attitude towards science can be seen when students have an open and enthusiastic attitude when learning science subjects both inside and outside the classroom (Astalini et al., 2019). So that the objectives of learning physics can be achieved by their essence, it is expected that students will be able to give the best results in the learning process to be able to achieve success, students must be able to understand concepts well and have a good attitude towards learning physics.

However, in reality, students still have a fairly low conceptual understanding. Students are only used to remembering and memorizing formulas compared to understanding the concepts of the material. After observing the results of the Final Semester Assessment in one of the schools in Payakumbuh City. One of the materials whose understanding of the concept is still low is Straight Motion. Students are only able to correctly answer the calculation questions but for concept questions students are overwhelmed in answering questions and are unable to answer correctly. Some research results also show that the level of understanding of students' concepts on the material of straight motion is still low.

The attitude of students in the studying process is also not optimal. The attitude of students towards learning physics can be seen from several indicators. The results of several researchers' research show that on average students have good attitudes on indicators of social implications and adoption of scientific attitudes. However, in general, not all students feel the implications of physics in their social life, as a result they do not like the lifestyle of a scientist who always conducts investigations on Physics, and is not interested in extending time. to study physics. Therefore, teachers need to recognize how the behavior of students during the learning process and improve the design of learning in the classroom to suit students' abilities.

Based on the problems that occur in the field, researchers want to know how students understand concepts and how students' attitudes in learning physics with the title "Analysis of Concept Understanding and Students' Attitudes towards Learning Physics in Straight Motion Materials Class X SMA N Payakumbuh".

Method

The type of research used is descriptive research using a quantitative approach. The total population is all students of class X SMAN in Payakumbuh. The sampling technique used in this research is purposive sampling. In this study, the determination of the sample with consideration of schools categorized as high, medium, and low. The total population of the three schools is 515 students. For the selection of the number of class samples used tables from Isaac & Michael with a significance level of 5% with a total sample of 205 students consisting of 114 SMA A students, 70 SMA B students and 21 students from SMA N C. The research was carried out with the steps as in Figure 1.

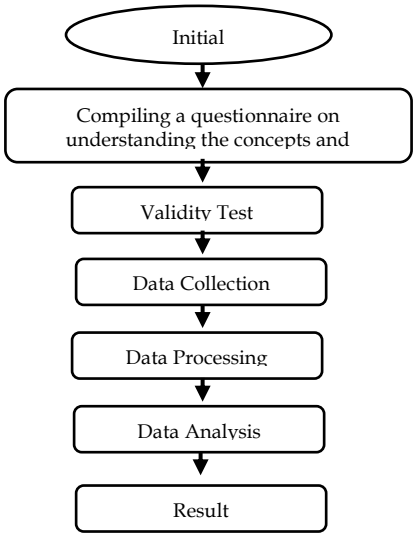

Figure 1. The flow of research that has been carried out

The research instrument used to analyze conceptual understanding was a four-tiered diagnostic test (*Four-Tier Multiple Choice Diagnostic Test*). According

to Hendra et al. (2022), Assessment using multiple choice four high provides information about the level of student understanding that is clearer for educators to a concept of subject matter. The research instrument used to analyze students' attitudes towards learning physics is a questionnaire or questionnaire. The questionnaire in this study used *a Likert scale*. In this study, the researcher uses indicators adopted from the Colorado Learning Attitudes about Science Survey (CLASS) and has been modified by several other researchers so that they are used to compile instrument items to be used in the form of questions or statements.

Data analysis to analyze students' conceptual understanding and data analysis to analyze student attitudes.

Concept Understanding Data Analysis

Data obtained from the research results were identified using a *four tier multiple choice diagnostic test*.diagnostic test instrument *four-tiered* can identify concept understanding with 5 categories listed in Table 1.

Table 1. Concept understanding category with four-level diagnostic test

Category	Option	Level Confidence Answer	Reason	Level Reason
Understand Concept	True	Confident	True	Confident
	True	Uncertain	True	Confidence
	True	Not Confident	True	Confident
	True	Not Confident	True	Not Confident
Understand Partly	True	Confident	False	Confident
	True	Confident	False	Not Confident
	True	Not Confident	False	Confident
	True	Not Confident	False	Not Confident
	False	Confident	True	Confident
	False	Confident	True	Not Confident
	False	Not Confident	True	Confident
	False	Not Confident	True	Not Sure
Don't Understand Concept	Wrong	Confident	Wrong	Not
	Wrong	Confident	Wrong	Confident
	Wrong	Not Confident	Wrong	Not Confident
Misconception	False	Confident	False	Confident
Cannot be coded	If one, two, three, or all of them are not filled			

(Doni. 2020)

Number of students by category can be processed using equation 1:

$$P = \frac{f}{N} \times 100\% \quad (1)$$

Description:
P = the percentage value of respondents' answers
F = frequency of respondents' answers
N = number of respondents

After knowing the percentage of students' understanding of concepts, identifying which items students experience knowledge of concepts is shown in Table 2.

Table 2. Percentage of concept understanding categories

Percentage	Category
0 < P > 30	Low
30 < P > 70	Medium
70 < P > 100	High

(Artiawati, et al., 2016)

Student Attitudes

Analysis techniques used in analyzing students' attitudes in learning physics with *a Likert scale* form of calculating the graded questionnaire tabulation and then given an interpretive framework. In this study, the Likert scale gradations are in Table 3.

Table 3. Calculation of Likert Scale Values

Answer Scale	Score Scale
SD	1
D	2
FA	3
A	4
SA	5

Description:
SA = Strongly Agree
A = Agree
FA = Fairly Agree
D = Disagree
SD = Strongly Disagree

To obtain an interpretation or interpretation by using the *Weight Means Score*, with the following formula:

$$M = \frac{\Sigma fx}{n} \quad (2)$$

Description:
M = Gained interpretation number

f = frequency
x = weighting of the value scale (score)
n = Number of respondents

Interpretation criteria are presented in Table 4.

Table 4. Criteria for Interpretation of Respondents Attitudes of Students

Scale	Criteria
1.00 – 1.80	Not Good
1.81 – 2.61	Not Good
2.61 – 3.41	Fairly Good
3.41 – 4.21	Good
4.20 – 5.00	Very Good

(Sugiyono. 2013)

Correlation Analysis of Student Concept Knowledge and Attitudes The

The data analysis technique used to analyze the correlation between conceptual knowledge and student attitudes in learning physics uses the *Pearson Product Moment Correlation (r)* because the research data is numerical data that can be analyzed quantitatively. In this study, there are two variables used. Namely, the variable (X) is the understanding of the concept of straight motion, and the variable (Y) is students' attitude in learning physics. The equation used to see the correlation between variables (X) and (Y) is as equation 3.

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (Y)^2\}}} \quad (3)$$

Description:
r_{xy} = Correlation Coefficient *Pearson*
N = Number of respondents/sample
$\sum X$ = Total score variable X
$\sum Y$ = Total score variabel Y
$\sum XY$ = Total product of scores of variables X and Y
$\sum X^2$ = Total squared score variable X
$\sum Y^2$ = Total squared score variable Y

(Yusuf et al. 2017)

Correlation Coefficient *Pearson* will show the level of relationship with the coefficient intervals shown in Table 5.

Table 5. Correlation Coefficient Interpretation

Interval	of Relationship Level
0.800 – 1,000	Very High
0.600 – 0.800	Strong
0.400 – 0.600	Enough
0.200 – 0.400	Low
0.000 – 0.100	Very Low

(Cindy. 2016)

Result and Discussion

Concept Understanding

Data that has been obtained from the research results have been analyzed using a four tier multiple choice diagnostic test. Analysis of concept understanding was carried out using the diagnostic test equation, after analyzing 17 items that had been tested in 3 schools, the results were obtained which can be seen in Table 6.

Table 6. Research Results on Understanding the Concept

School Name	Category (%)				
	Understand the concept	Understand Some	not understand the concept	misconception	cannot be coded
SMA A	55.73	24.97	9.49	8.93	0.88
SMA B	29.24	41.26	12.18	17.23	0.08
SMA C	16.81	26.05	4.20	52.94	0.00
Average	33.93	30.76	8.62	26.37	0.32

Based on the results of data processing that has been carried out, the number of students belonging to the category of understanding the concept is identified based on the number of questions. From the table, it can be seen that the understanding of the concept of straight motion material in SMA A already understands the concept with a percentage of 55.73%. Students already understand concepts in the high category on items number 1,3,5,6,8,10, and 11 with an average of 76.81%. partially understand by 24.97%. Do not understand the concept by 9.49%, misconceptions by 8.93%, and cannot be coded by 0.88%.

Understanding the concept of straight motion material in SMA B partially understands with a percentage of 41.26. Students partially understand the high category on item number 16 with an average of 82.86%. Understanding the concept is 29.24%, Do not understand the concept is 12.18%, misconception is 17.23%, and can't be coded is 0.08%.

Understanding the concept of straight motion material in SMA C has a misconception with a percentage of 52.94%. Students experienced misconceptions in the high category on items number 8,9,11,12,13, and 15 with an average of 81.75%. Understanding the concept is 16.81%, Partial understanding is 26.05%, not understanding the concept is 4.20%, and cannot be coded at 0.00%.

Overall, the results of the research for understanding students' concepts can be seen in Figure 2.

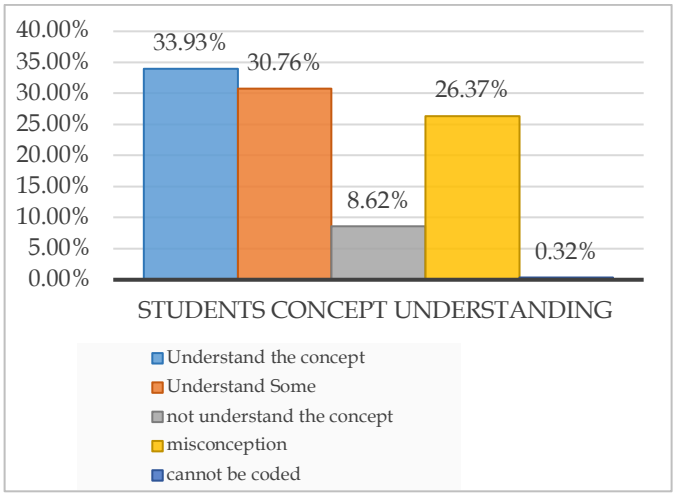

Figure 2. Understanding the Concepts of students at SMA N Payakumbuh

Based on the graphic data, the overall results of research for understanding students' concepts have understood the concepts of 33.93%, but are still in the moderate category, partially understand 30.76% in the moderate category, 8.62% do not understand the concept in the low category, misconceptions by 26.37% in the low category, and cannot be coded by 0.32% in the low category.

Based on research data carried out, it can be seen that the understanding of concepts in schools with high category experiences moderate concept understanding with 55.73% results and low misconceptions with 8.93% results, schools in the medium category experienced moderate concept understanding with 29.24% results and experienced low misconceptions with 17.23% results, low category schools experienced conceptual understanding low with a result of 16.81% and moderate misconceptions with a result of 52.94%. From the description above, it can be seen that schools with high categories have higher conceptual understanding than schools with medium and low categories, while schools with low categories experience higher misconceptions than schools with medium and high categories so that students' understanding of physics concepts is still lowly and still experiencing misconceptions, as shown it was found in the research of Fauziah el al. (2021) that understanding of physics concepts in SMA in Kota Pariaman was still in the lowly criteria while students' misconceptions were in the medium criteria.. The results of research conducted by Divine, (2021) also shows that students' understanding of concepts is still low and misconceptions still occur. One form of student answers which includes the highest misconceptions is shown in Figure 3.

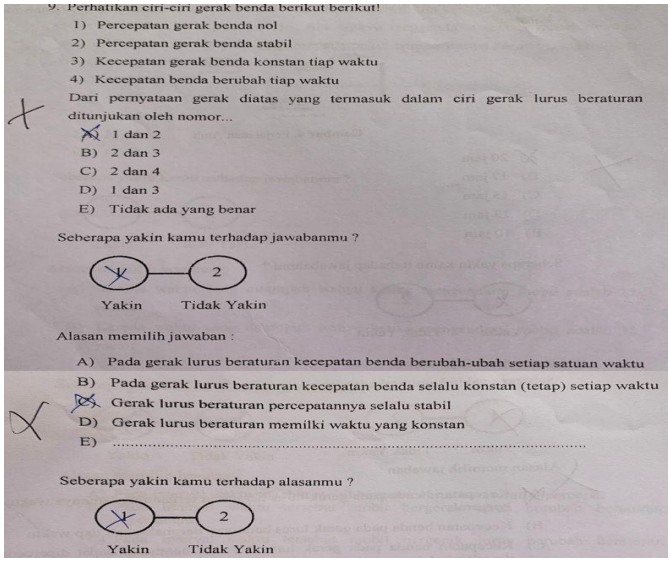
9. Perhatikan ciri-ciri gerak benda berikut berikut!
1) Percepatan gerak benda nol
2) Percepatan gerak benda stabil
3) Kecepatan gerak benda konstan tiap waktu
4) Kecepatan benda berubah tiap waktu
Dari pernyataan gerak diatas yang termasuk dalam ciri gerak lurus beraturan ditunjukan oleh nomor...
A) 1 dan 2
B) 2 dan 3
C) 2 dan 4
D) 1 dan 3
E) Tidak ada yang benar
Seberapa yakin kamu terhadap jawabanmu ?
1 2
Yakin Tidak Yakin
Alasan memilih jawaban :
A) Pada gerak lurus beraturan kecepatan benda berubah-ubah setiap satuan waktu
B) Pada gerak lurus beraturan kecepatan benda selalu konstan (tetap) setiap waktu
C) Gerak lurus beraturan percepatannya selalu stabil
D) Gerak lurus beraturan memilki waktu yang konstan
E) .....
Seberapa yakin kamu terhadap alasanmu ?
1 2
Yakin Tidak Yakin

Figure 3. Students' answers in the category of misconceptions

Based on the picture above with item number 9 presented the characteristics of uniform straight motion, students are asked to choose the characteristics of uniform straight motion correctly, the student's answer is not correct by choosing option A because the correct characteristics are zero acceleration of the object's motion, the object's velocity is constant and the student is sure of the chosen answer. The reason for choosing the answer is also not correct by choosing option C because an object is said to be moving in a straight line and changes uniformly, if the object's trajectory is a straight line and the speed is constant and the student is also confident with the chosen answer.

In physics learning, misconceptions are difficult to avoid because misconceptions occur when students interact with the environment and develop concepts that are in accordance with their intuition and common sense but not in accordance with scientific concepts (Siti et al., 2021). So that misconceptions can be avoided, remediation is needed. Remediation for misconceptions is an action or healing process for misconceptions experienced by students (Mufit & Fauzan, 2019).

The low understanding of students' concepts is because the learning carried out is still not able to develop students' conceptual understanding. Generally, teachers still carry out teacher-centered learning by providing more material exposure, very few discussion and presentation activities, and experimental activities are rarely carried out (Siti et al., 2021). Learning that is more teacher-centered causes students' analytical skills to be less trained so that students have difficulty solving physics problems, so that some students do not understand concepts and tend to have misconceptions.

Other factors that cause misunderstandings and students' low understanding of concepts are the textbooks used, the learning context, teaching methods

by the teacher, and factors from the students themselves (Audina et al., 2017). Physics learning will be more optimal when applying appropriate strategies, learning models, and teaching materials to help students improve students' understanding of concepts in the learning process (Reni et al., 2021). One of the learning models that can improve students' conceptual understanding and remediate misconceptions is a cognitive conflict-based learning model (Mufit, 2018). Mental conflict-based learning models will be positive for increasing knowledge of concepts and, at the same time, being able to remediate students' misconceptions (Pratama et al., 2021). In addition to learning models, teaching materials are important learning resources for teachers and students. The teaching materials used must challenge, stimulate, and connect the material being taught with real situations in the environment to help students better understand the subject matter. Teaching materials serve to save time in the learning process, students can also learn on their own from teaching materials, so that learning becomes more practical and interactive as a tool to evaluate learning outcomes (Luthfi et al., 2021).

In the 21st century, students are required to have an understanding of concepts and skills better known as 4C skills (Critical Thinking, Creative, Communications, Collaboration), so that teaching materials should be presented in the form of interactive multimedia that has been compiled according to the four syntax-based learning models. Cognitive conflict is the activation of preconceptions and misconceptions, presentation of cognitive conflicts, discovery of concepts and similarities, and reflection, which have the aim of increasing students' understanding of concepts and remediation to correct students' misconceptions (Dhanil, et al., 2021). Cognitive conflict-based interactive multimedia is easy to use because interactive multimedia contains instructions for use, and can be used at any time, and has feedback on its use (Arifin, et al., 2021). Experimental activities will also encourage students to find learning concepts that are correct and based on scientific facts so that they can improve students' understanding of concepts and avoid misconceptions. concepts (Delvia, et al., 2021).

Another factor that causes students' low understanding of concepts is the learning atmosphere. Since 2020, Indonesia has been affected by the Covid 19 virus, which impacts the world of education because the government decided to carry out the home learning process online by learning from home. However, learning activities and assignments are not considered optimal due to access/learning facilities at home. After the Covid-19 decline, the government has given permission to face-to-face but within a short learning process time limit. This causes learning is not optimal.

Student Attitude

Data that has been obtained from the results of the study were analyzed using a Likert scale in the form of calculating the graded questionnaire tabulation and then given an interpretive framework. The results of the study on student attitudes were analyzed by the diagnostic test equation to calculate the percentage of student answer choices, after analyzing 30 statement items with 4 indicators and 5 gradations of positive scores that had been tested on those that had been tested in 3 schools, the following results were obtained.

The results of the research for students' attitudes towards learning physics are shown in Table 7 and Table 8.

Table 7. The results of the research on student attitudes

Name of School	Social Implications of Physics			Interest in Increasing Study Time Physics		
	Score	Desc.	%	Score	Desc	%
SMA A	3.96	Good	80.00	3.62	Good	70.00
SMA B	3.74	Good	100	3.38	Fairly Good	60.00
SMA C	3.36	Fairly Good	60.00	3.25	Good Enough	80.00
Average	3.68	Good	73.33	3.41	Good Enough	53.33

Table 8. The results of the research on student attitudes

Name of School	Adoption of Scientific Attitude			Enjoyment in Learning Physics		
	Score	Desc		Score	Desc	%
SMA A	3.77	Good	90.00	3.54	Good	80.00
SMA B	3.50	Good	60.00	3.39	Fairly Good	60.00
SMA C	3.29	Enough Good	80.00	3.31	Fairly Good	60.00
Average	3.52	Good	63.33	3.42	Good	53.33

Based on the results of data processing that has been carried out, students' attitudes towards studying physics in SMA A on the indicators of the social implications of physics include good criteria with a percentage of 80%, indicators interest in increasing the time to study physics includes good criteria with a

percentage of 70%, indicators of adoption of scientific attitudes including good criteria with a percentage of 90%, indicators of pleasure in studying physics are included in good criteria with a percentage of 80%.

Students' attitudes towards studying physics at SMA B on indicators of the social implications of physics include good criteria with a percentage of 100%, indicators of interest in increasing learning time are included as quite good criteria with a percentage of 60%, indicators of adoption of scientific attitudes including good criteria with a percentage of 60%, the indicator of pleasure in studying physics is included in the criteria quite well with a percentage of 60%.

Students' attitudes towards studying physics at SMA C on the indicators of the social implications of physics include quite good criteria with a percentage of 60%, indicators of interest in increasing the time to study physics, including criteria that are quite good with a percentage of 80%, indicators of adoption of scientific attitudes including criteria quite well with a percentage of 80% , the indicator of pleasure in studying physics is included in the criteria quite well with a percentage of 60%. Overall, the research results for students' attitudes towards studying physics on the indicators of the social implications of physics including good criteria with a percentage of 73.33%, indicators of interest in increasing physics learning time including criteria quite good with a percentage of 53.33%, indicators of adoption of scientific attitudes tend to including good criteria with a percentage of 63.33%, indicators of pleasure in studying physics including good criteria with a percentage of 53.33%.

Attitude Attitude is one aspect that can affect students' understanding of concepts. Students' attitudes towards learning physics will affect learning motivation and learning outcomes. Research on student attitudes that has been carried out using 4 indicators which are based on the CLASS (Clorado Learning Attitude of about Science Survey) and several other researchers which have been modified into 4 indicators, namely indicators of social implications of physics, interest in increasing physics learning time, adoption of attitudes scientific, pleasure in studying physics. The social implication of physics is the attitude of students in realizing whether or not there is an influence of physics in social life, interest in increasing the time to study physics is the attitude of students who show a sense of liking in using their free time to study physics more, the adoption of a scientific attitude is the attitude of students in applying attitudes scientific knowledge in learning physics, namely the tendency, readiness, willingness to give opinions based on science, pleasure in studying physics is the attitude of students who show a sense of love in learning physics with high curiosity (Astalini et al., 2018).

Based on the results of research that has been done, it can be seen that students' attitudes towards learning physics in schools that have a high category are good for all indicators. Students' attitudes towards studying physics in schools which have a moderate category for indicators of the social implications of physics and adoption of scientific attitudes are included in good criteria, but for indicators of interest in increasing time to learn physics and enjoyment in studying physics, the criteria are still quite good. Students' attitudes towards learning physics in schools that have a low category are still in the good enough category for all categories. From the description of the results of the study, it can be concluded that students' attitudes towards learning high school physics for social implications indicators of physics are in the good category, meaning that students are aware of the benefits of physics in social life. The application of the social implications of physics can be seen from cooperation and respect for fellow friends in group discussion activities or practicum of a material, students are required to work together, get to know each other personally and share work fairly, both in terms of ability and expertise, to carry it out independently and be responsible for the work done (Astalini et al., 2019).

Correlation of Concept Understanding and Student Attitudes

Correlation Test is used to see whether or not there is a relationship between two or more variables. Processing of data for correlation test using SPSS program for window 25.00. The results of the correlation between understanding concepts and attitudes of students for the 3 schools are in Table 8.

Table 8. Correlation Test of Understanding of Concepts and Attitudes of Student

Name of School	Significan	Correlation	Description
SMA A	0.000	0.335**	Low
SMA B	0.000	0.585**	Enough
SMA C	0.010	0.551**	Enough

Based on the data in the table, the correlation between understanding concepts and attitudes of students in SMA A has a relationship with the significance value obtained, which is 0.000 and the correlation value is 0.335, which means the correlation is low. The correlation between understanding concepts and attitudes of students in SMA B has a correlation with a significance value obtained of 0.000 and a correlation value of 0.585, which means that the correlation is moderate. The correlation between understanding concepts and attitudes of students in SMA C has a correlation with a significance value of 0.000 and a correlation value of 0.551, which means that the correlation is moderate.

Attitudes and understanding of concepts cannot be separated (Fauziah et al., 2021). Attitudes influence

students' understanding of concepts and can affect student learning motivation to impact student learning effect themselves. The results showed that the correlation between understanding concepts and attitudes of students in high school categories had a low correlation. This is because some students' attitudes towards learning physics are in the excellent category, but the students' understanding of concepts is still low. The results of the correlation research between understanding concepts and attitudes of students in the medium category high school have a moderate correlation. This is because the attitudes of some students towards studying physics are in a good category. However, there are still quite good ones for understanding the concepts they already understand even though they still have partial understanding. The correlation between understanding concepts and attitudes of students in the low category high school has a moderate correlation. This is because the attitude of some students towards learning physics is still in the reasonably good category and their understanding of concepts is still low by experiencing many misconceptions.

The correlation between the variable understanding of the concept and the student's attitude variable shows a positive relationship. A positive relationship means that if the value of one variable increases, the value of another variable will increase (Fauziah et al., 2021). The results of this study are also supported by research conducted by Fauziah, (2021). If students' attitudes towards learning physics are excellent, students' understanding of concepts will also be high.

Conclusion

Concept understanding in schools with high categories experienced moderate concept understanding and low misconceptions. Schools in the medium category experienced medium concept understanding and low misconceptions. Low category schools experienced low conceptual understanding and experienced moderate misconceptions, so it was concluded that high category schools had higher conceptual understanding than medium and low category schools, while low category schools experienced higher misconceptions than medium and high category schools. Student attitudes towards learning physics in schools with a good high category for all indicators. Students' attitudes towards studying physics in schools that have a moderate category for indicators of the social implications of physics and adoption of scientific perspectives are included in good criteria. However, the criteria are still quite good for indicators of interest in increasing time to learn physics and enjoyment in studying physics. Students' attitudes towards studying physics in schools that have a low category are still in the good enough category for all categories. From the description of the results of the study, it can be concluded that students' attitudes towards studying high school physics for social implications indicators of physics are in the excellent category. The correlation between understanding concepts and high school students' attitudes in the high category has a low correlation. The correlation between understanding concepts and attitudes of students in the medium class high school has a moderate correlation. The correlation between understanding concepts and attitudes of students in the low category high school has a reasonable correlation. The correlation between the variable understanding of the concept and the student's attitude variable showed a relationship with the direction of a positive relationship.

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