International Journal of Scientific Research and Management (IJSRM)
||Volume||13||Issue||03||Pages||4028-4040||2025||
Website: https://ijsrm.net ISSN (e): 2321-3418
DOI: 10.18535/ijsrm/v13i03.el04

How Far Math Teachers Evaluate Attitude Students at Vocational School? Studies Phenomenology in Yogyakarta

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Abstract
Importance evaluation attitude students at School Intermediate Vocational often neglected, though matter This own impact on the development of students and preparation for the world of work. Study This aims to understand to what extent the mathematics teacher evaluates the attitude of students at vocational school. With an approach to phenomenology and involving 16 vocational school teachers in Yogyakarta, the research used a questionnaire open and interview for collecting data. Data analysis shows that math teachers evaluate the attitude of students through five stages, including base evaluation attitude, planning, implementation, obstacles, and suggestions. The findings mainly cover the fact that evaluation attitude is not optimal, more teachers focus on the instrument cognitive, and yet There is an instrument valid and reliable attitude. Need exists attention more to evaluation attitude for increase quality education at vocational schools.

Keywords: Evaluation, Attitude, Phenomenology

Introduction

Math teachers train students not only ability cognitive, but affective skills (Ibnu Wachyudi, Sukestiyarno, 2015). Cognitive abilities are the focus main in various curriculum education and becoming the standard evaluation development child. Cognitive, originating from the Latin word “cognitio" refers to the process of understanding and knowledge Alone (Gunawan & Paluti, 2017). Suharsimi Arikunto, (2016) states that affective abilities are related abilities with attitudes and values. Ability skill or motor k is the ability to manipulate objects, and neuromuscular coordination (Dudung, 2018; Demirci, 2017).

The National Council of Teachers of Mathematics (NCTM) is an organization that provides standards and guidelines for teaching mathematics. NCTM emphasizes the importance of developing students' mathematical communication skills (Hanisah & Noordyana, 2022). Organizational standards are used to develop teaching materials and assess student abilities (Zickuhr, 2016). NCTM also emphasizes the importance of assessing students' mathematical abilities and attitudes, and provides indicators to measure students' problem-solving abilities and mathematical dispositions (Maryani et al., 2021; and Mauleto, 2019).

Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 104 of 2014 concerning Assessment of Learning Outcomes by Educators in Primary Education and Secondary Education, states that students' abilities consist of cognitive, affective, and skills (Mendikbud, 2014). Meanwhile, the current independent curriculum is based on the Regulation of the Minister of Education, Culture, Research and Technology of the Republic of Indonesia Number 7 of 2022 concerning Content Standards for Early Childhood Education, Basic Education Levels, and Secondary Education Levels. In the scope of material for Vocational High Schools/Vocational Madrasah Aliyah/Other Equivalent Forms, it is stated that work culture can be manifested in students' attitudes/character (Kemdikbud, 2022). This means that assessing attitudes/character is very important in improving the work quality culture of vocational school students.

Students' attitudes towards mathematics have cognitive and affective components (Wen & Dubé, 2022). The affective component of mathematics attitudes refers to long-term positive or negative emotional dispositions towards mathematics (Marchis, 2011). Integrating cognitive and affective domains into teaching and learning strategies is very important (Hii Bii Hui, 2023). This study also found that game-based learning (GBL) had a positive impact on students' affective domains, including their attitudes toward mathematics (Hii Bii Hui, 2023). Therefore, it is important to create positive affective attitudes towards mathematics in students, which can be achieved through effective teaching strategies and the use of GBL.

An instrument is something capable device giving close results condition original from the object being measured. To ensure the quality tool's optimal gauge, important To do a thorough analysis of influencing factors in performance tools at school (Kholis et al., 2020). Instrument affective in mathematics subjects has an role important in speeding up achievement objective learning that has been planned, esp when used in supportive learning model context achievement (Lusiana & Lestari, 2013). In practice, vocational schools in the Special Region of Yogyakarta, still There is challenge in evaluating attitudes, especially competence attitudes. Difficulty This happens because the teachers still face difficulty in designing instruments To measure the attitude of students (Nurrahman et al., 2022).

Mathematics teachers carry out attitude assessments using observation techniques during the learning process during learning hours (Kusaeri, 2019). Apart from that, attitude assessments can also be carried out using affective assessment instruments prepared by mathematics teachers (Rohantizani & Isfayani, 2023; Hidayad et al., 2017). When conducting attitude assessments, mathematics teachers also need to pay attention to classroom conditions that are pleasant and conducive to student learning (Kusaeri, 2019). This can be done by sowing positive seeds through the learning process and forming students' spiritual and social attitudes through examples of the behavior of the people within them (Kusaeri, 2019).

Factors that influence student attitudes to mathematics include teacher characteristics, time teaching, and learning-based games (Russo et al., 2023; Evans & Field, 2020; Wan et al., 2021). Teachers need to integrate cognitive and affective domains in strategy Study teach (Turgut Karakose , Hakan Polat, Ramazan Yirci, Tijen Tülübaş, Stamatios Papadakis, 2023; Wan et al., 2021). Teachers are also expected to be able to carry out various things techniques For measuring attitude mathematics, including observation, interviews, and methods of reporting self (Wan et al., 2021).

Problems faced by mathematics teachers in conducting attitude assessments include 1) Difficulty in implementing spiritual and social attitude competencies in mathematics learning. 2) Difficulty in developing effective assessment instruments that are in accordance with the demands of the 2013 Curriculum. 3) Lack of understanding by mathematics teachers regarding the attitude assessment techniques used, the purpose of assessing student attitudes, and the influence of assessing student attitudes in learning. 4) Lack of readiness of schools and teachers in implementing the 2013 Curriculum which requires changes from the previous curriculum Hidayad et al., 2017; Rohantizani & Isfayani, 2023). Apart from that, according to Zamir et al., (2022) and Putra et al., (2022) it is stated that several teacher difficulties include: 1) Teachers have difficulty implementing attitudinal competence in mathematics learning, especially in relation to problem-based learning; 2) Challenges in developing and using appropriate instruments to assess attitudes, especially in the context of technology-based assessment; 3) Lack of understanding by mathematics teachers about the purpose of attitude assessment, the influence of student attitudes on learning, and techniques for conducting effective attitude assessments. Furthermore, based on the results of filling out questionnaires and also interviews with mathematics teachers as many as 16 participants in the period 21 October to 4 November 2023 in Yogyakarta, it was stated that the majority of teachers were not optimal in preparing and assessing attitudes due to too much teacher administration and also additional tasks. teachers other than teaching.

Research Uyun et al., (2023) about "Development Instrument Character Education Assessment Profile Pancasila Students Elementary School Students Based on Android" produces characteristics adequate psychometrics and can considered a valid and reliable instrument For measuring attitude Pancasila Student Profile among elementary school students in Mataram City. Next is research Hidayati, (2022) about " *Development of the 5 S Model (Smile, Greet, Greeting, Polite, Polite) for Realize Profile Pancasila* students *at S DN Pendem 01 Batu City* " produced an *instrument* 5S Based development Profile Pancasila students included in category Good. Meanwhile research Sabon et al., (2022) objective main To create A questionnaire to evaluate self-related Pancasila character that can used by students.

Based on Policy Independent Curriculum which includes Learning Based Project (LBP) is Project Strengthening Profile Pancasila students. Project This is an approach to learning cross-purposeful discipline for observing and thinking of solutions to problems in the environment around. Use approach learning-based different projects with learning extracurricular-based projects in class. Project This aim is to develop the character and competence of students as active global citizens, train them in Skills solution problems in various conditions, as well show not quite enough responsibility and care for the problems around them. Project This nature is holistic, contextual, student-centered, and exploratory. Projects the very beneficial for students, among other things, strengthen their character and develop their ability solution problems in various conditions. The project is also purposeful for strengthening the profile of Pancasila students who are an integral part of the Independent Curriculum. Project This is held in a way flexible in matter content, activities, and time implementation. The project is an activity learning-based project designed co-curricular For steady achievement competence and character in accordance with profile student Pancasila which is based on Standards Competence Indonesian Graduation (Kemdikbud, 2022).

Research conducted by Lara Nieto-Márquez et al., (2020) states that attitudes towards mathematics are students' tendencies to act positively or negatively towards mathematics, which ultimately determines their intentions and behavior towards this subject. In addition Yigletu et al., (2023) argues that the attitude of secondary school mathematics teachers towards the teaching profession is important for the performance and learning Atnafu, (2014) outcomes of their students. The development and use of reliable and valid instruments such as a scale for mathematics teachers' attitudes towards teaching mathematics can help assess teachers' perceptions and attitudes toward teaching mathematics. Research Lara Nieto-Márquez et al., (2020) and Atnafu, (2014) use a quantitative approach, whereas in this research the approach used is qualitative with adopt the approach phenomenology (Soriano & Co, 2022; Kalkan & Dağlı, 2021; Koopman & Koopman, 2020; Jailani et al., 2023; Jailani et al., 2020; Gerard et al., 2016; and Jailani et al., 2023).

Looking at various problems and also the importance of assessing attitudes or character in vocational school students. So there is a need for research with the title "How Much Do Mathematics Teachers Assess Students' Attitudes in Vocational Schools? Phenomenological Studies in Yogyakarta". Study This aims to take photos of what extent is the mathematics teacher assessing the attitudes of students at vocational schools in Yogyakarta

Methodology

This research is a qualitative research by adopting a phenomenological approach (Soriano & Co, 2022; Kalkan & Dağlı, 2021; Koopman & Koopman, 2020; Jailani et al., 2023; Jailani et al., 2020; Gerard et al., 2016; Jailani et al., 2023). This approach was chosen to understand the subject's experience in depth and explore the meaning behind the phenomenon being studied. Through qualitative methods, this study aims to explore the perspectives and understanding of participants related to the topics raised (Marsh et al., 2009; Zafar, 2025). The phenomenon is about how far mathematics teachers assess students' attitudes in vocational schools. To find out how mathematics teachers assess student attitudes in this research, it will be discussed in five parts, namely the basis for assessing attitudes; attitude assessment planning; and implementation of attitude assessment, obstacles/barriers and challenges to attitude assessment, and suggestions or recommendations for attitude assessment in vocational school mathematics subjects.

The participants in this research were 16 vocational school mathematics teachers in Yogyakarta City. Participants came from 8 (eight) state vocational school mathematics teachers, and 8 (eight) private vocational school mathematics teachers in Yogyakarta. Participants consisted of 5 (five) male teachers and 11 female teachers. There are 7 (seven) teachers aged between 28 years and 40 years, and 9 (nine) mathematics teachers aged over 40 years. Apart from that, of the 16 mathematics teachers, based on their working status, they consist of 2 (two) Non-Permanent Teachers 8 (eight) Permanent Foundation Teachers, and 6 (six) Civil Servants. On average, there are 13 teachers with more than 10 (ten) years of teaching experience, while there are 3 (three) teachers with less than 10 (ten) years of teaching experience, namely (1 year, 4 years, and 5 years). Based on participant analysis, attitude assessment is basically included in the curriculum, namely in the Learning Process Plan or teaching module, but its implementation has not been optimal.

Data was collected using open questionnaires and interviews, to determine the implementation of attitude assessment in mathematics learning. An open questionnaire about how far mathematics teachers assess student attitudes is carried out by teachers in vocational schools. Interviews confirm more deeply related to

how far mathematics teachers assess students' attitudes in vocational schools. Not all participants or teachers who filled out the researcher's questionnaire were interviewed, of the 16 teachers, only seven teachers agreed to be interviewed. This is due to the teachers' busy lives who also have additional duties apart from teaching, so they did not wish to be interviewed. So when researchers confirmed their willingness to be interviewed, they reasoned that there was not yet time. This interview activity was carried out online and offline. The interview activities were also recorded, and a willingness to be interviewed form was provided. Then, to write the transcript, the researcher used *Google Docs* in *the Voice Typing Tools*.

The analysis was carried out using the Bogdan, dan Biklen, (2007) ; Zurqoni et al., (2020); Bogdan & Biklen, (2007; 1992); Zurqoni et al., (2020) to gain an understanding and interpretation of how far mathematics teachers assess students' attitudes in vocational schools. This analysis was carried out during data collection in the field and after coding and categorization. Coding of the transcript was carried out using manual coding via *MS Word* which was then concluded from the results of the participants' responses.

To the research participants, the researcher conveyed that all information from interviews and questionnaires was only used for research. All information regarding participant ID is kept confidential. The researcher also stated that all the information and results of this research have nothing to do with the fate of the participants in the future. Apart from that, participants also signed a consent form to be interviewed.

Results And Discussion

After distributing questionnaires and interviews with 16 vocational school mathematics teachers in Yogyakarta, several results were obtained related to the extent to which mathematics teachers assessed students' attitudes in vocational schools. To find out the various ways mathematics teachers assess student attitudes this research will be discussed in five parts, namely the basis for assessing attitudes; attitude assessment planning; implementation of attitude assessment, obstacles/barriers and challenges to attitude assessment, and suggestions or recommendations for attitude assessment in vocational school mathematics subjects. The description of the research results is described as follows.

Basis for Attitude Assessment

Judging from the results of random questionnaires and interviews, it was found that 16 mathematics teachers in Yogyakarta had included attitude assessment in the curriculum, both in the 2013 curriculum and the independent curriculum. Attitude assessments that have been included in the Learning Process Plan or teaching modules are part of the administration of accreditation so their implementation is more of a formality or has not been implemented optimally. This is in line with what was mentioned by several vocational school mathematics teachers who said that attitude assessment had been included in the Learning Process Plan and teaching modules, but its implementation was not optimal.

"So, for the attitude values themselves, we have actually administratively included them in the Learning Process Plan for the old curriculum, for the current curriculum the teaching modules. However, the implementation may be different for each teacher. And to be honest, I'm not optimal myself." **[teacher 1]**

"In fact, we have administratively included the attitude values themselves in the Learning Process Plan. "The implementation of learning still needs to be improved." **[teacher 2]**

"So there are forms and examples of instruments in the Merdeka Curriculum. "So, for example, it is already in the Merdeka Curriculum for examples of instruments, then we adapt it to what is needed in the school, so we don't apply everything" **[teacher 5]**

Furthermore, information related to integrating attitude assessment into the curriculum or mathematics learning *plan* can be described in Table 1.

Table 1. Integrating Attitude Assessment in the Curriculum

Phenomenon	Relationships Between Phenomena	Conclusion
Observations during KBM	Attitude assessment in mathematics subjects is carried out through observations.	Activities or integration of attitude assessment in the curriculum for mathematics students vary.
Student observation (observation)		
Observation during learning		
By observation		
Student observations		
Observation sheet and attitude assessment journal	Attitude assessments have been outlined in the Learning Process Plan, journals, observation sheets, and rubrics.	
Self-assessment, peer-to-peer assessment outlined in a rubric, and special notes		
In the Learning Process Plan		
Our attitude is integrated according to the material and methods		
With a journal		
Include it in the Learning Process Plan		
By keeping a journal		
Attitude assessment when participating in learning	Attitude assessment is carried out during learning, including attitudes that are expected to emerge and attitudes that appear during learning activities.	
The attitude that is expected to emerge in learning		
Attitudes and activities during learning		
Learning takes place		
I definitely integrate attitude assessment into every teaching and learning activity		
Completion of assignments, accuracy of assignment collection.	Attitude assessments are carried out during group assignments and assignment submissions.	
Group discussion activities.		

Overall, it can be concluded that the activities or integration of vocational school mathematics teachers in assessing attitudes towards mathematics students is very varied. In general, attitude assessments have been outlined in Learning Process Plans, journals, observation sheets, and rubrics. However, in its implementation, it is more about administration or it has not been implemented optimally. Attitude assessment is carried out during learning, including attitudes that are expected to emerge and attitudes that appear during learning activities. Apart from that, attitude assessments are carried out during group assignments and when collecting assignments. In this case, to improve the quality of students' attitudes towards themselves, friends, and teachers, it is hoped that attitude assessment will not only be administrative. Mathematics teachers may focus on preparing students' cognitive instruments, their attitudes towards mathematics can greatly influence the quality of teaching and learning (Bogdan & Bilken, 1992). Several studies show that there is a relationship between mathematics teaching and students' attitudes toward the subject, as well as the influence of mathematics teachers' attitudes on students' achievement in mathematics (Net et al., 2023; Asli & Zsoldos-Marchis, 2022). It is important for prospective teachers to realize that their attitudes towards mathematics influence students' attitudes and/or performance, and that mathematics attitudes consist of cognitive components that can be known and developed from within, such as creativity and cognitive flexibility (Asli & Zsoldos-Marchis, 2022). Therefore, it is important for mathematics teachers to assess and encourage positive attitudes toward mathematics in addition to preparing students' cognitive instruments.

Attitude Assessment Planning

Furthermore, information related to certain criteria used to assess student attitudes in mathematics subjects can be presented descriptively in Table 2.

Table 2. Criteria for Assessing Student Attitudes in Mathematics Subjects

Phenomenon	Relationships Between Phenomena	Conclusion
Through an attitude assessment rubric	Attitude assessment in mathematics subjects is carried out through rubrics	The criteria for assessing attitudes in mathematics vary from one teacher to another
Attitude assessment observation format.		
It is stated in the attitude assessment evaluation rubric		
The criteria used are as they apply in life	The criteria for assessing attitudes toward mathematics subjects vary	
Motivation to solve mathematical problems		
There are several criteria that I use to assess student attitudes		
Attitude of activeness and creativity	Attitude assessment consists of various types	
Observe students' behavior, words, and responses		
If children actively ask questions about things they don't know, there is a plus point,		
No	Does not have attitude assessment criteria	
Don't have		

Overall it can be concluded that the criteria for assessing attitudes in mathematics subjects vary from one teacher to another. The assessment of student attitudes is adjusted to the characteristics of each student and school. The assessment of attitudes carried out by mathematics teachers during learning takes place through observation, activeness, creativity, behavior, speech, and responses. Apart from that, there are also teachers who do not yet have attitude assessment criteria. Based on the results of the analysis in Table 2 it is important for teachers to be aware of the impact of their attitudes towards mathematics on students' attitudes and performance, and to implement strategies that encourage positive attitudes towards mathematics. Although there may be no standard guidelines for uniform assessment of student attitudes, teachers can use a variety of assessment tools and strategies to evaluate and encourage positive attitudes toward mathematics (Zamir et al., 2022; Asempapa, 2022; De-la-Peña et al., 2021). In this case, there is a need for standard guidelines for assessing the attitudes of vocational school students in mathematics by teachers. Through these standard guidelines, students' attitude assessments will of course be uniform.

Implementation Evaluation Attitude

Furthermore, to find out if the teacher collects information about assessing students' attitudes during the learning process, it can be presented in detail in Table 3 as follows.

Table 3. Information about student attitudes during the learning process

Phenomenon	Relationships Between Phenomena	Conclusion
By chatting directly	Information related to student attitudes during the learning process can be collected by direct observation	Techniques for collecting information about students' attitudes during the learning process can be done by direct observation, self-assessment, or peer assessment.
Through observation, question and answer		
Through observation/observation		
Through observation/observation.		
Direct observation		
During the process of learning activities		
Using observation sheets		
Observations with output in the form of notes		
Direct observation of students		
This can be done with self-assessment instruments and peer assessments	Information about student attitudes during the learning process can be done through self-assessment and peer-to-peer assessment	
With self-assessment and assessment between friends.		
With self-assessment and assessment between friends.		
Questionnaires, self-assessments, and peer assessments		

Overall, it can be concluded that vocational school mathematics teachers can collect information about students' attitudes during the learning process through direct observation, self-assessment, and peer assessment. Teachers' various methods and techniques related to collecting information about students' attitudes must be carried out with a heart-to-heart approach (León-Mantero et al., 2020). Teachers must know what students want or desire. Teachers must be able to enter the world of students. They should create a comfortable and supportive learning environment that fosters mutual respect, positive attitudes, and regulatory flexibility (Ardıç, 2021). So at the beginning of learning the teacher must convey what the learning contract is like to the students. So that the assessment of attitudes in learning in mathematics subjects can run smoothly. This is in line with what was mentioned by several vocational school mathematics teachers who said that attitude assessment can be seen from direct observation, self-assessment, or assessment between friends.

"This attitude can be taken from an assessment between friends, an assessment between friends. So, each friend will give their own assessment." **[teacher 1]**

"Assessment sheet with friends, self-assessment, and then assessment between friends, and various kinds" **[teacher 4]**

" In book curriculum 13 (K13 teacher's book). Already There is attitude to the subject the math is there two evaluation that is evaluation self yourself and judgement between Friend. "...."Do you enjoy learning mathematics? like that. When studying Mathematics what do you want? So, that's an example of an attitude instrument in a mathematics subject. Regarding this honest attitude, for example, do you answer your own answers when taking a math test? Well, this is a story with characters and all of that is self-judgment. When studying, your group is active. Well, that also includes self-assessment. So, if you can answer it yourself, then you can arrange it as an instrument between friends. So later we can exchange assessments, so for example, A assesses B and then B assesses A or something else. For example, have you ever found out that your friends are cheating? and so on" **[teacher 7]**

Obstacles /Barriers and Challenges to Attitude Assessment

Various obstacles or obstacles and challenges are faced by mathematics teachers in implementing student attitude assessments in *mathematics* subjects. It is described in detail in Table 4 as follows.

Table 4. Obstacles/Barriers and Challenges for Mathematics Teachers in Implementing Student Attitude Assessments

Phenomenon	Relationships Between Phenomena	Conclusion
Many vocational school students still think that mathematics lessons are not as important as major subjects	Lack of student motivation in learning mathematics	Obstacles/Barriers and Challenges for Mathematics Teachers in Implementing Student Attitude Assessments consist of lack of motivation, limited reach of teachers, assignments outside of school, many approaches, and peer influence
The attitude of students who tend to be tired and dizzy first when studying mathematics.		
The assessment was less than optimal due to limited observation coverage for many children	Limited range of observation, so subjectivity arises	
Subjectivity can still emerge		
with observation, there are angles that cannot always be monitored		
Teachers have duties outside of school which make it impossible to carry out attitude observations.	The teacher has outside work	
There are many approaches that must be taken	There are many approaches that teachers take both in terms of material and attitudes	
The material presented and the attitudes that will be assessed.		
Students' attitudes are influenced by their group of friends in the class	Influence of friends	

In general, it can be concluded that the obstacles/obstacles and challenges for mathematics teachers in implementing student attitude assessments consist of lack of motivation, limited reach of teachers, assignments outside of school, many approaches, and peer influence. As mathematics teachers, of course, we hope that mathematics does not become a scourge for students in a lesson, especially at the vocational school level. Teachers are required to be more innovative in terms of learning in the classroom. Teachers must use a variety of teaching methods to meet different learning styles and preferences. This can include the use of visual aids, hands-on activities, and technology to make the learning process more interesting and enjoyable (Islam et al., 2022). Planning/model/strategy/learning approach is one of the keys to successful learning (Garrett, 2008). Teachers, especially mathematics students, must be able to package mathematics as something interesting and fun for students. Of course, this is not as easy as turning the palm of your hand. There are many things that teachers must do to be more innovative in classroom learning. This is in line with what was mentioned by several vocational school mathematics teachers who said that teachers must innovate, limited time in teaching, and heterogeneous students, and the difficulty of assessing spiritual attitudes are obstacles/obstacles and challenges for teachers.

"Of course there are obstacles and challenges. Teachers must always be innovative. You always have to look at the situation. Frankly, this year it is getting harder, Generation Z is having more difficulty than my generation when they were at school. We have to enter their world. What do they do? Look at your cellphone for example, what do you see? So I often ask/please scroll Instagram? please what do you want to see, so I pay attention. They confide/tell stories, that's the first time we enter their world. If possible, we can create media according to what we want. Once I was given a game, because I had been a judge for an innovation competition at P4TK. So I have a lot of math game apps. So I gave them math games. Actually, they like games, but because the game is math, I give children who like games even more headaches. If possible, play with light material. A challenge to create a fun application (so indirectly they learn mathematics)." **[teacher 4]**

"*As for the obstacles themselves, perhaps I have already said at the beginning that in the private vocational school where I work, the level of heterogeneity is very high, so here there are probably very smart children, and there are also children whose term is very poor. here. So of course, extra effort is needed as a teacher here, whether it is related to cognitive, affective, or psychomotor."....". So his family background is very different, his academic background is also very different, and his attitude background is also very different. "So as a teacher, we have to be able to take the middle path or the middle point, what we can take is what kind of learning."* **[teacher 5]**

"If there are obstacles, ma'am, at school we only meet for 4 hours, while the workload is piling up, so sometimes I like to overdo it, I haven't approached *the A in this class yet. Sometimes it's a matter of time, ma'am."* **[teacher 6]**

"Obviously, there have been obstacles since the 2013 curriculum year. So in the K13 curriculum, if I'm not mistaken, there are two attitudes, namely attitudes towards the social and attitudes towards the spiritual or towards God (so each teacher must assess how they pray in relation *to how they read the Qur'an and so on). Well, the difficult thing is related to the attitude of assessing spiritual attitudes, so we as teachers assess spiritual attitudes, it's not just whether the child prays before learning to pray and so on. "As a teacher, of course, we experience difficulties and obstacles there"* **[teacher 7]**

Attitude Assessment Suggestions or Recommendations

Suggestions or recommendations made by vocational school mathematics teachers to improve the assessment of students' attitudes in *teaching* mathematics in vocational schools. It is described in detail in Table 5 as follows.

Table 5. Suggestions or Recommendations for Attitude Assessment in Mathematics Subjects at Vocational Schools

Phenomenon	Relationships Between Phenomena	Conclusion
Be diligent in always making student attitude assessment rubrics and self-reflection rubrics	The need to prepare valid student attitude instruments	Suggestions or recommendations for assessing attitudes in mathematics subjects at vocational schools are the preparation of valid student attitude instruments; teacher guidance; heterogeneous students; attitude assessment is important; group work and media/visual aids; and delivery of assessments at the start
The teacher prepares a question sheet instrument for students		
Clear boundaries and patent indicators for all vocational school mathematics teachers		
Arranging instruments		
Teachers need appropriate attitude assessment instruments so that accurate and valid assessment results are obtained		
Assessment of students' attitudes in learning mathematics needs support from parental observations		
Teachers always guide and direct students	The need for teacher guidance	
The teacher's perspective in understanding and providing assessments to students		
Attitude emphasis will differ according to the conditions faced by each class character	Students are heterogeneous so attitude assessments need to be adjusted to character	
Attitude assessment is important to form superior students and competent graduates.	Attitude assessment is important	
Students prefer group work methods and the use of teaching aids.	The need for group work and media/visual aids	
Any assessment should be conveyed at the outset	Submission of assessment at the start	

In general, it can be concluded that the suggestion or recommendation for assessing attitudes in mathematics subjects in vocational schools is the need to prepare valid student attitude instruments; teacher guidance; and heterogeneous students; attitude assessment is important; group work and media/visual aids; and delivery of assessments at the start.

In assessing student attitudes, apart from uniformity of attitude instruments, valid and reliable instruments are also needed (Mamolo & Sugano, 2023; Buntins et al., 2021; Nolan et al., 2012; Landsverk et al., 2023). This means that the student attitude assessment instrument is able to measure what it wants to measure. Of course, if the instrument is valid and reliable it will produce accurate and valid data. This is in line with what was mentioned by several vocational school mathematics teachers who said that there was a need for standard indicators or simplified instruments to validate the instruments; As a teacher, we don't just provide knowledge, we also need to instill character values in students.

"Our advice from teachers is to ask for help, for example, from whom should an instrument be validated? Is it just enough to go to the school *supervisor or what? "The suggestion is that teachers teach for a lot of hours, right? Not to mention the added burden of a lot of administration, perhaps they could be given standard indicators or simplified instruments to validate the instruments."*

[teacher 6]

"Perhaps in general a mathematics teacher should not only pursue the cognitive material of students who are good at mathematics, but a teacher must also pay attention to the attitudes or characters of children during learning because the success of a child is based on research *and also the needs of DUDI and input from Business and Work World. It doesn't require children whose grades are 9-10 but rather requires children who have good character. If you can score good numbers, your character will also be good. Even now, you don't even need to have good grades, but just good character is enough. Because later it will be continued during the interview. So as a teacher we don't just provide knowledge, we also need to instill*

character values in students. "The character of respecting oneself is respecting parents, respecting friends, respecting teachers, respecting time, respecting the learning process, and so on... So that when times change, children will be able to adapt to changing times." **[teacher 7]**

Conclusion

This research shows that mathematics teachers assess students' attitudes in five stages, namely basic attitude assessment; attitude assessment planning; implementation of attitude assessment; obstacles/obstacles and challenges of attitude assessment; and suggestions or recommendations for assessing attitudes in vocational school mathematics subjects. The explanation of the five stages is as follows. 1) The activities or integration of vocational school mathematics teachers in assessing attitudes towards mathematics students varies greatly. 2) Criteria for planning attitude assessments in mathematics subjects vary from one teacher to *another*. 3) Techniques for collecting information about students' attitudes during the learning process can be done by direct observation, self-assessment, or peer assessment. 4) Obstacles/obstacles and challenges for mathematics teachers in implementing student attitude assessments consist of lack of motivation, limited reach of teachers, assignments outside of school, many approaches, and peer influence. 5) Suggestions or recommendations for assessing attitudes in mathematics subjects at vocational schools are the preparation of valid student attitude instruments; teacher guidance; heterogeneous students; attitude assessment is important; group work and media/visual aids; and delivery of assessments at the start.

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