

Developing student social attitude self-assessment instruments: A study in vocational high school

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ABSTRACT

This study aims to develop a self-assessment instrument in the affective domain of students' social attitudes, which was modified by the case of the instrument item. The measurement results can be used as a recommendation for the self-assessment of students' social attitudes at school. The sampling technique used is cluster random sampling. The instrument was content validated by five experts using Aiken, and construct validation using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), while the reliability estimation used Cronbach's Alpha coefficient. The results showed that there were seven instrument factors to assess the affective domain of students' social attitudes, namely honest, disciplined, polite, caring, responsible, responsive, and proactive. Content validity using the Aiken index shows 28 valid items. The construct validity of the instrument was carried out using EFA with a KMO value of 0.618, which means it has met the requirements. The fit model based on the CFA results shows the Chi-square value $<2df = 258.02 < 2 \times 341, p\text{-value} = 0.416 > 0.05$, RMSEA = 0.0197 < 0.08, CFI = 0.91, GFI = 0.86, AGFI = 0.88. In item estimation, the factor loading value is > 0.3 , which means the items in the instrument are valid. The estimated reliability of the instrument shows the Cronbach Alpha coefficient value of 0.895, which means that all developed instruments are reliable. Valid and reliable instruments are very important to get good information about the affective assessment of students' social attitudes.

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INTRODUCTION

Learning assessment carried out by teachers is a systematic process of collecting, analyzing, and interpreting information to determine the extent to which students have achieved learning objectives (Kazu & İş, 2018). In the 2013 curriculum, learning assessment includes cognitive, affective, and psychomotor competencies (Apsari, 2018; Retnawati et al., 2016; Rohmatulloh et al., 2019). The aim is to prepare students to have the ability to live as individuals and citizens who are faithful, productive, creative, innovative, and effective, and able to contribute to the life of society, nation, and state in the world civilization (Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 69 of 2013).

The assessment program is carried out on an ongoing basis with the aim of monitoring the process and progress of student learning and increasing the effectiveness of learning activities (Tuluk & Yurdugül, 2020). Quality learning encourages students in addition to having good

knowledge and skills, it is also expected that there will be changes in behavior, perceptions, and understanding in a positive direction (Yilmaz & Yurdugul, 2016). The situation in the learning assessment field is more inclined to students' cognitive and psychomotor competencies, while attitudinal competence is often neglected (Kabha, 2019). Whereas attitude competence is a fairly important aspect in learning assessment (Nanda, 2019). The response of students' attitudes is a form of affective response as individual feelings that arise towards the object or subject that are in line with the results of the assessment (Christensen & Knezek, 2015). Individual feelings will arise because of the information that is captured and generate new values as a result of the response (Hill et al., 2021).

Attitude assessment can be carried out by the teacher through written observations or recorded in a journal and supported by self-assessment and peer-assessment (Nejad & Mahfoodh, 2019). The assessment must be accompanied by a scale and Rubik (Ahmad, 2020). The attitude assessment in the 2013 Curriculum divides attitude competencies into two, namely spiritual attitudes (Core Competencies 1 and 2) which are related to the formation of students who believe and fear God, and social attitudes (Core Competencies 3 and 4) which are related to the formation of students' social character: religious, nationalist, independent, integrity, and cooperation (Hasanah et al., 2017; Julia & Supriyadi, 2018). Spiritual attitude is a manifestation of individual vertical interaction with the one and only God, while social attitude is a manifestation of the harmony of individual life with others or society (Mu'awanah et al., 2020).

In practice, in vocational high schools in the Special Region of Yogyakarta, they still experience difficulties in conducting attitude assessments, especially social attitude competencies. This is because teachers are still having difficulties in developing social attitude assessment instruments (Hadi & Andrian, 2018). This is because the teacher focuses more on the development and assessment of students' cognitive, so that the affective aspect is more difficult for teachers to carry out and design an assessment instrument. In addition, teachers are also more likely to spend their time teaching despite the importance of making and conducting appropriate assessments (Setiawan & Suardiman, 2018). Whereas the assessment program at the SMK level is not only limited to knowing that students already have a good attitude, but furthermore it is necessary to prepare students to have a positive attitude that is in following with the community or work environment later (Tentama & Riskiyana, 2020).

The main implementation of the assessment of student social attitudes is carried out using observation techniques during one semester by teachers, counseling guidance teachers, and homeroom teachers during the learning process and outside of learning written in journal books. (Setiadi, 2016). Journal books consist of anecdotal notes, records of certain events, and other valid and relevant information related to students' social attitudes (Baidhowi, 2018). Assessment of social attitudes by the teacher is strengthened by self-assessment and peer-assessment (Nejad & Mahfoodh, 2019; Setiawan et al., 2019; Stančić, 2021). In the final stage, the homeroom teacher collects data and information from the results of the social attitude assessment carried out by subject teachers, counseling guidance teachers, and self- and peer-assessment. (Directorate of Vocational High Schools, 2018). These results are summarized into a description that describes the student's character (Yan & Cheng, 2015) in schools and districts (Julia & Supriyadi, 2018).

Teachers need instruments that can be used to assess attitudes in the learning process, practical and easy to do in schools and districts (Setiawan et al., 2019). A good instrument can measure students' real social attitudes objectively (Gonulal, 2019). For this reason, it is necessary to develop a social attitude assessment instrument that can reflect the state of students' social attitudes. This can be done by modifying the items of the instrument with examples of cases or events that may occur (Alimuddin et al., 2020; Schoen et al., 2017). The answer choices provided are also adjusted to the possible responses that can be made by students (Lee & Wong, 2015). This item has a score level of 1, 2, 3, 4, 5 according to the Likert Scale model (Croasmun, 2011; Mardapi, 2017). The instrument development scheme is very good for measuring student attitudes because students can choose answers according to their hearts and feelings without know-

ing the score level of each answer as in previous research (Rusijono et al., 2020). This is because the affective component can be said to be an individual's emotional feelings towards objects and subjects that are in line with the results of the assessment (Givens, 2010). This form of instrument development has not yet been developed, so it is very suitable if used in assessing students' social attitudes, so that the ultimate goal of this research is to produce a valid and reliable social attitude assessment instrument and be able to measure the affective ability of the social attitudes of Vocational High School students appropriately.

METHOD

This research is a Research and Development (R&D). The sampling technique used was the stratified cluster random sampling technique. In stratified cluster random sampling, the population is grouped into homogeneous strata so that the group will be heterogeneous with other groups (Fenu et al., 2021) and the next process is the selection of clusters from each stratum. The process of grouping the population into stratum is aimed at making the samples taken from each stratum represent the characteristics of the population well (Makela et al., 2018). The sample is randomly selected which is intended to be an unbiased representation of the total population.

The sample used in this study was 526 Vocational High School (VHS) students spread across five regencies and cities in the Special Region of Yogyakarta. The instrument used in this study is a questionnaire sheet consisting of 28 items, where the question design of the instrument item is modified with examples of cases or events that may occur or be experienced with the answer options having an answer degradation following a Likert scale, namely from 5, 4, 3, 2, 1. The analysis technique in this study is a quantitative descriptive statistical technique. To validate the instrument, content validation and construct validation are carried out. Content validity was analyzed using the V-Aiken approach. Meanwhile, construct validity was analyzed using Explanatory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Meanwhile, to determine the reliability of an instrument, an analysis is carried out to obtain an estimate of the reliability of the instrument using the Cronbach alpha approach.

FINDINGS AND DISCUSSION

The instrument developed was tested for validity with content validity and construct validity. Content validity was tested by involving five experts and analyzed using the Aiken formula. Based on (Aiken, 1985) an instrument with five raters is declared valid if the V value is more than 0.80. The results of the analysis using the Aiken formula in this study are presented in Table 1.

Table 1. Result of Content Validity Analysis with V-Aiken

Item	V-value	Criteria	Item	V-value	Criteria
1	0.94	Valid	15	0.88	Valid
2	0.94	Valid	16	0.88	Valid
3	0.94	Valid	17	0.88	Valid
4	0.81	Valid	18	0.88	Valid
5	0.88	Valid	19	0.88	Valid
6	0.88	Valid	20	0.88	Valid
7	0.88	Valid	21	0.88	Valid
8	0.94	Valid	22	0.81	Valid
9	0.88	Valid	23	0.81	Valid
10	0.94	Valid	24	0.81	Valid
11	0.88	Valid	25	0.81	Valid
12	0.88	Valid	26	0.81	Valid
13	0.88	Valid	27	0.88	Valid
14	0.81	Valid	28	0.94	Valid

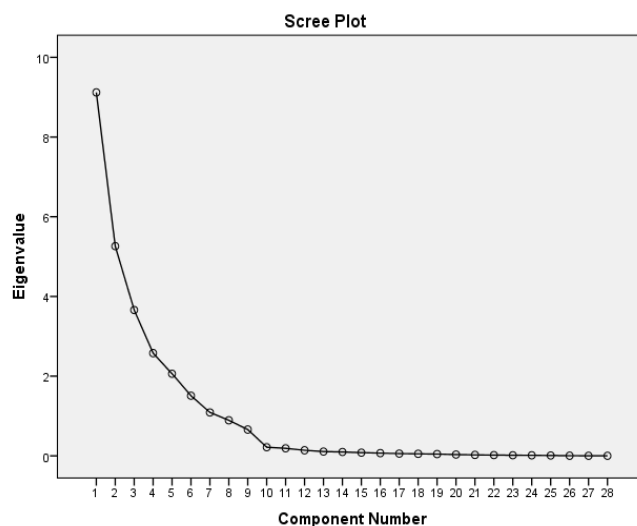


Figure 1. Scree Plot Analysis of Students' Social Attitude Instruments

Table 2. Rotated Matrix for Seven Factors

No	Indicator	Component Factor						
		1	2	3	4	5	6	7
1	Not cheating on exams	0.886						
2	Handing over to the authorities the items found	0.880						
3	Not doing plagiarism	0.870						
4	Not falsifying information or lying	0.688						
5	Admitting mistakes to teachers and friends if they make mistakes	0.684						
6	Coming to school on time		0.666					
7	Obeying the rules or school rules		0.615					
8	Collecting assignments following the allotted time		0.901					
9	Respecting elders			0.899				
10	Using polite language when speaking			0.883				
11	Asking permission when entering the teacher's room			0.783				
12	Behaving following local norms and customs			0.659				
13	Willing to help others without expecting anything in return				0.749			
14	Being actively involved in school activities				0.901			
15	Prioritizing group interests to achieve common goals				0.851			
16	Respecting differences of opinion and beliefs with others				0.833			
17	Forgiving other people's mistakes				0.859			
18	Not imposing your opinion or belief on others				0.916			
19	Carrying out individual duties as a form of obligation properly					0.659		
20	Taking responsibility for mistakes made					0.756		
21	Returning borrowed items					0.932		
22	Being cooperative					0.628		
23	Being quick to respond when a friend is having trouble						0.948	
24	Responding to questions given by the teacher						0.937	
25	Saying thank you after receiving help from others						0.920	
26	Actively asking when learning							0.862
27	Taking part in school activities							0.819
28	Being sensitive to school conditions							0.748

Based on the results of the calculation of the Aiken V coefficient, 28 items are declared valid because they have an Aiken V coefficient > 0.60 . Furthermore, the instrument was analyzed constructively with Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA is carried out to ascertain whether certain items support these factors and these factors support the variables. The results of factor analysis with the help of SPSS produce: (1) Keyser Mayer Oikin (KMO) value $0.618 > 0.50$ (Wagiran, 2015); (2) Barlett's Test for Sphericity $0.00 < 0.05$ (Field, 2009); (3) MSA Anti Image Correlation > 0.3 (Budiyono, 2019); (4) Eigen value > 1.0 (Kaiser, 1960), and *Rotated Component Matrix* > 0.4 (Retnawati, 2016). This proves that the correlation between items is sufficient to meet the factor analysis. The scree plot generated from the analysis can be seen in Figure 1, and it shows seven factors that support the theoretical basis of students' social attitudes.

The rotated factor matrix for the seven factors: (1) honest (A); (2) discipline (B); (3) polite (C); (4) care (D); (5) responsible (E); (6) responsive (F); and (7) proactive (G) are presented in Table 2. As shown in Table 2, each factor has a loading factor > 0.30 (Hair et al., 2010).

These seven factors can explain a total of 80.429% of the variance in the assessment of students' social attitudes. Furthermore, the 28 items were then continued for confirmatory factor analysis (CFA) with a large-scale trial with a sample of 526. This analysis is used to explain or test the empirical theory that has been built in a model from EFA (Cramer, 2003; Jöreskog & Sörbom, 1993; Kartowagiran et al., 2019). The model is based on the theory of the empirical data structure based on the theory or hypothetical model. The results of construct validity with CFA in the empirical construct can be seen in Figure 2.

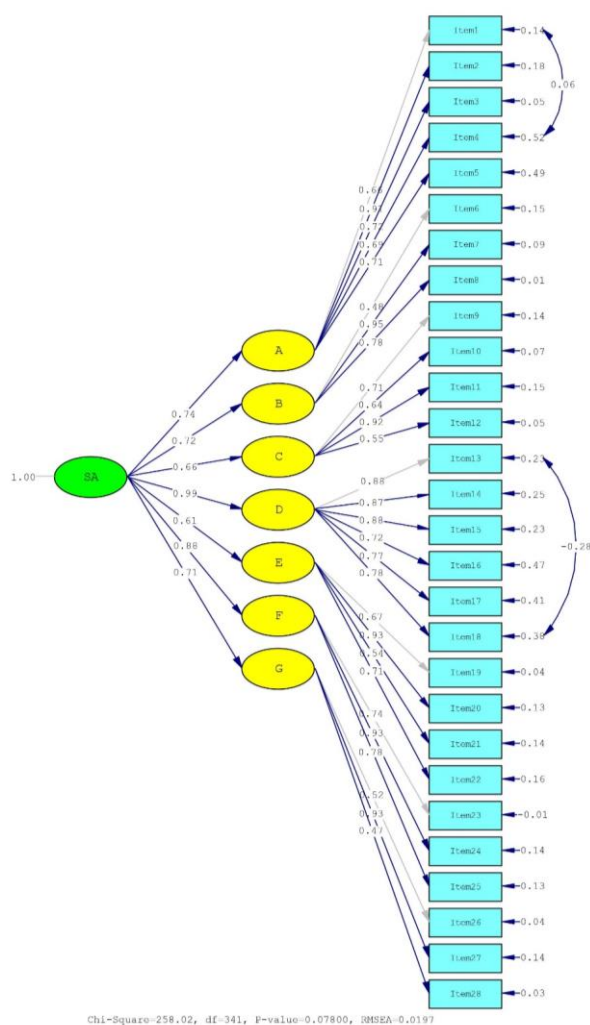


Figure 2. Construct of Student Social Attitude Assessment Instruments

Based on the predetermined criteria, the construct of the validated student social attitude assessment instrument can be declared fit, because it has a Chi-square value $< 2 \text{ df} = 258.02 < 2 \times 341$ (Jöreskog & Sörbom, 1993), $p\text{-value} = 0.416 > 0.05$ (Pedhazur, 1997), RSMEA = 0.0197 < 0.08 (Ferdinand, 2002), Comparative fit index (CFI) = 0.91, Goodness of fit (GFI) = 0.86, and Adjust goodness of fit index (AGFI) = 0.88. In addition, the loading factor value of each item shows a value > 0.3 which means all items are acceptable (Hair et al., 2010). Thus, it can be concluded that the model developed is fit (Nunnally & Bernstein, 1994). After the instrument is valid, the next step is to determine the estimated reliability of the instrument. The criteria for determining the reliability of the instrument are based on the value of the Alpha-Cronbach coefficient, with the criteria for the coefficient of the Alpha value > 0.5 (Feldt & Brennan, 1989; Wagiran, 2015). The results of calculations using SPSS show that the Cronbach Alpha coefficient value is 0.895, which means the instrument is reliable.

The development of non-test instruments on the assessment of social attitudes of VHS students consists of seven aspects, namely becoming: (1) honest; (2) discipline; (3) polite; (4) careful; (5) responsible; (6) responsive; and (7) proactive. Honest aspects include not cheating and not cooperating in doing the exam, submitting to the authorities the items found, not committing plagiarism (Kesuma et al., 2011; Majid, 2017; Malloy et al., 2019; Payan et al., 2010; Sarah et al., 2019; Torka, 2019; Zhang et al., 2018). The discipline aspect consists of coming to school on time, obeying school rules or regulations, collecting assignments according to the specified time (Anderson et al., 2019; Hardiana & Sano, 2019; Mack & Reyes-Chua, 2019; Luiselli et al., 2005; Majid, 2017). Polite aspects include respecting elders, using polite language when speaking, and asking permission when entering the teacher's room (Rivai et al., 2019; Mahmud, 2018; Mustari, 2014; Oetomo, 2012; Sumarti et al., 2020).

The caring aspect consists of helping friends who have difficulties, helping teachers who have difficulties, and empathy for the social environment (Ford & Ford, 1989; Puspitasari et al., 2018; Tabi'in, 2017). Responsible aspects include carrying out individual duties as a form of obligation properly, being responsible for mistakes made, and returning borrowed goods (Sumartono & Sridevi, 2016; Lewis, 2001; Yasmin et al., 2016; Majid, 2017; Zuchdi & Ode, 2013). The responsive aspect consists of responding quickly when a friend has difficulties, responding to questions given by the teacher, saying thank you after receiving help from others (Brown, 2007; Sumartono & Sridevi, 2016; Ford & Ford, 1989). The proactive aspect includes actively asking questions during learning, participating in school activities, and being sensitive to school conditions (Crant, 2000; Major et al., 2006; Parker et al., 2006; Seibert et al., 1999).

Based on the feasibility analysis, all instruments that have met the criteria are valid and reliable. From the results of the Aiken V index calculation, an item or device can be categorized based on its index. The instrument is declared valid with five ahli raters if the value of V Aiken is more than 0.80 (Aiken, 1985). Based on the results of data analysis, all items on the social attitude assessment instrument are in the valid category. The results of the Cronbach's Alpha reliability calculation from the social attitude assessment instrument obtained a value of 0.895 which is in the very reliable category.

A good instrument in addition to meeting content validity and reliability, must also have construct validity (Aguilar et al., 2017; Otaya et al., 2020). The instrument was analyzed constructively with Exploratory Factor Analysis and Confirmatory Factor Analysis. EFA is conducted to ascertain whether certain items support these factors and these factors support the variables. From the results obtained the Keyser Mayer Oikin (KMO) value of $0.618 > 0.50$, Barlett test for Sphericity < 0.05 , Anti Image MSA correlation > 0.5 , Eigen value > 1.0 , and Rotated Component Matrix > 0.4 . This proves that the correlation between items is sufficient to qualify the factor analysis.

Furthermore, the CFA test is carried out, this analysis is used to explain or test the empirical theory that has been built in a model from EFA (Cramer, 2003; Jöreskog & Sörbom, 1993). The model is based on the theory of the empirical data structure based on the theory or hypothe-

tical model. Based on the results of the construct analysis of the validated student social attitude assessment instrument, it can be declared fit, because it has a Chi-square value $< 2 \text{ df} = 258.02 < 2 \times 341$ (Jöreskog & Sörbom, 1993), $p\text{-value} = 0.416 > 0.05$ (Pedhazur, 1997), RSMEA = 0.0197 < 0.08 (Ferdinand, 2002), Comparative fit index (CFI) = 0.91, Goodness of fit (GFI) = 0.86, and Adjust goodness of fit index (AGFI) = 0.88. In addition, the loading factor value of each item shows a value > 0.3 which means all items are acceptable (Hair et al., 2010). Therefore, it can be concluded that the model developed is fit (Nunnally, 1994).

CONCLUSION

From the results of the study, it can be seen that the instrument formed to measure the self-assessment of the social attitudes of Vocational High School students consists of seven aspects, including being (1) honest; (2) discipline; (3) polite; (4) careful; (5) responsible; (6) responsive; and (7) proactive. The seven aspects were then developed into indicators following the existing theoretical studies, where the instrument items were modified using case examples that might occur in students' lives. Self-assessment is chosen as a form of social attitude assessment that comes from the perspective or perspective of students. This is in accordance with the student assessment guidebook. The student's social attitude self-assessment instrument was developed to measure the affective development of students' social attitudes that appeared as a result of the learning process. This is following the student assessment guidebook. The student's social attitude self-assessment instrument was developed to measure the affective development of students' social attitudes that appeared as a result of the learning process.

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