

# Construct Exploration of Teacher Readiness as an Assessor of Vocational High School Competency Test

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## Construct Exploration of Teacher Readiness as an Assessor of Vocational High School Competency Test

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**Abstract:** Teachers who can adapt and be ready for all changes will also be able to provide a balance to increase the competence of vocational high school students. This is also not denied when teachers become assessors in student competency tests. The objectives of this study were to produce an instrument for the readiness of teachers as assessors; to know good grain reliability; to know the characteristics of the instrument; and to know the difficulty level of the item. The method used in this research is instrument development. Respondents were vocational school teachers who were candidates for competency test assessors. Data collection techniques using a questionnaire. Analysis of construct validity using Confirmatory Factor Analysis. Reliability using Cronbach's alpha. Test the instrument items using the Rasch model. The results are the readiness instruments of the vocational teacher as an assessor has 19 indicators that have been grouped into 5 factors with consistency values being in the same construct (proven construct validity); The result of the calculation of the reliability of this instrument is 0.852, which means that the reliability coefficient is high; There are two items, namely numbers 24 and 18 which indicate the absence of a fit item in the overall item fit criteria; At the item difficulty level, items 8 and 6 have a difficulty score of more than 2, while this indicates that items 8 and 6 have a high difficulty level.

**Keywords:** Competency test, construct exploration, readiness instruments, vocational high school.

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### Introduction

The growing global challenge demands the efforts of teachers to be able to have skills and abilities according to the needs of the times. Teachers as the vanguard in the development of national education are benchmarks for graduates, especially graduates of vocational high schools. Characteristics of vocational high schools have important points on skills, competencies, being able to compete, and being able to work according to industry needs (Mahmudah & Santosa, 2021). As technology develops, ideally, teachers must also be able to adjust to upgrading skills. It aims to prepare vocational high school teachers to be able to face extraordinary cultural acculturation (Mahmudah, 2016). According to World Economic Forum (WEF, 2020) stated that 65% of the workforce would need re-skilling by 2030. Based on this, teachers need to be able to adapt to the development of the era so that they can develop themselves in increasing competence. Thus, the teacher has self-readiness in knowledge, improves skills, and finally can provide learning to students in vocational high schools.

Teacher readiness is one of the main keys in boosting innovation and competition for students in facing the era, including adaptation to digitalization. This can be realized when the teacher has qualified self-qualities and knowledge skills. The teacher's attitude also becomes the basis for implementing and utilizing resources as material for evaluating the implementation of student learning in the competency test. As with the implementation of the competency test, teachers should ideally have a preparedness attitude. That is the basis of the teacher in forming a strong character and personality as an assessor. An instructor with a good attitude will respond well and express positive feelings to the students (Suseno et al., 2018). Teachers who become assessors in the competency tests certainly have a professional attitude, not only providing academic assessments but also providing attitude assessments that support students in being ready to work.

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## Literature Review

### *Commitment*

Commitment is one of the teacher actions that need to be done to dedicate to become a competency test assessor. This teacher's commitment can be done voluntarily, without coercion from anyone. According to Altun (2018), teachers' dedication is an internal factor that motivates teachers to dedicate more time and attention to sustaining their school participation. Likewise, according to Yildiz and Celik (2017) that such an instructor's dedication will be active in creating genuine and meaningful learning and teaching, and as a result, the learning process and teaching will be promoted immediately, promoting both the teachers' and learners' ability. The same thing was conveyed by (Sr, 2018) that teachers' commitment is a significant aspect for achieving education quality. Provided the above, understanding, it's safe to say that the teacher's commitment can be seen from (1) vigor in ensuring school participation; (2) effective learning-teaching; (3) teaching professionals.

### *Self Management*

The success of implementing the competency test can be determined by how a teacher has the attitude to be able to manage his schedule. Of course, teachers who have good management will be able to work more productively and carry out assessments. This is consistent with the statement from (Lorig, 2014) that self-management skills are decision-making. The same thing was conveyed by Ghali et al. (2018) that are all facets of self-perception are all aspects of the self-management system. Another opinion was conveyed by (Ncama & Omisakin, 2011) that self-management education is intended to assist patients in ensuring the best possible fit, largely through their efforts. The same message can be found in (Boger et al., 2015) that self-management also requires activities such as joint decision sharing that people use to access health care and engage effectively in their recovery decisions. Based on the understanding of some of these experts, it can be concluded that self-management for teachers in the current condition is (1) discipline; (2) helping others; (3) primarily as a result of their initiative; and (4) the healthiest imaginable.

### *Partnership*

Cooperation, one of the interactions to work continuously and hand in hand to achieve mutually agreed results. Especially in the student competency test. In the context of the teacher environment, cooperation is an activity to involve each other together in the implementation of competency tests at certification bodies. The theory according to Caspar-Terizakis (2016) that partnership indicates multidimensional engagement between all involved teachers. Another opinion was conveyed by Agnoletto and Queiroz (2019) forming a collaboration to accomplish learning aims that go beyond acquiring basic expertise. The same message is received by (Lillejord & Børte, 2017) the cooperation plan, coordinate, improve, professionalize also organizations. Based on this understanding, it can be concluded that what is meant by cooperation in the development of this instrument is the teacher's efforts to establish a relationship with anyone, both with fellow teachers, parents, guardians, students, and other institutions. The components that are considered in cooperation consist of (1) student-teacher education; (2) student's learning; (3) mutual respect's expertise.

### *Happiness*

Happiness is one of the things that can be used as a basis for being able to survive and finish work. According to Fisher (2017) happiness, manifested as good moods and feelings, well-being, and optimistic behaviors have gotten a lot of coverage lately. The same message was received by Wesarat et al. (2017) that happiness is crucial for organizational performance and productivity. In line with the opinion above, according to (Rao & Bullayya, 2017) that happiness is often equated with a form of mood or emotion. This is also confirmed by (Cui, 2016) that creating a friendly work environment, fostering an open organization and a well-managed staff, and working with a successful organization are all statistically important reasons for organizational satisfaction. In light of the above, it can be concluded that teacher happiness is one of the emotions that must be maintained. This can provide a positive side for the teacher to do his job. So that you can be happy when you have things related to (1) a well-managed team; (2) organizational performance; (3) friendship; and (4) income.

### *Well-Being*

The condition of well-being is one of the main concerns for teachers in implementing competency tests. This condition reflects that teachers who have welfare will-being able to provide the best service to students. The same applies to teachers who are assessors of the competence of vocational high school students. This has an impact on the sense that is within oneself to produce well-being. Finding a sense of meaning resulting from something greater than oneself is what well-being means (Seligman, 2011). The same thing was conveyed by Coffey et al. (2014) Assuming that policy-makers and managers, including communities and universities, deserve to have a varied and rich experience should encourage a wide variety of programs that promote various facets of well-being that people enjoy seeking. The condition of teacher well-being is also determined by the teacher's interactions with others in the environment. This is

as stated by (Arcidiacono & Martino, 2017) that well-being is values are judged primarily based on their positive effect rather than as an aim in and of itself, on people's quality of life. Based on this theory, it can be concluded that the attitude of well-being for vocational teachers today is a condition that needs to be met to ensure work productivity. Especially with the conditions of the Covid-19 pandemic which allows many factors that can affect teachers' well-being attitudes. Some indicators that can be concluded from the above theory for the development of this non-cognitive instrument are (1) positive emotions; (2) competence; (3) bodily health; (4) bodily integrity; and (5) leisure.

#### *The Research Purposes*

Based on the background and theoretical study above, the research purposes are:

1. To find out the construct validity of the teacher readiness instrument as an assessor competency test that has been developed.
2. Determine the reliability of the teacher readiness of instrument as an assessor competency test which is developed.
3. To find out the fit of the items (item difficulty) of the teacher readiness instrument as an assessor competency test which is developed.
4. In order to understand the Rasch model's scientific validity the teacher readiness as an assessor competency test and has been cultivated.

### **Methodology**

#### *Research Goal*

This research uses a theoretical approach to create an instrument. It aims is to build a method that can be used to determine the attitudes of vocational educators. The development<sup>10</sup> research procedure to the modified development steps which are proposed by Mardapi (2012), as follows: (1) compiling instrument specifications; (2) writing instrument items; (3) examining the instrument items; (4) testing the instrument; (5) analyzing instrument items; (6) fixing the instrument; (7) carry out the measurement; (8) interpret the results. The development of this research begins with defining a conceptual definition. This is done by studying the literature review and finding the indicators that will be used in the development instrument.

Of the six variables that became the focus of this development, after compiling a conceptual definition, 19 indicators were found. Where each variable consists of the commitment variable there are four indicators with a total of 6 items, the self-management variable consists of four indicators with a total of 8 items, the partnership variable consists of three indicators consisting of 6 items, the happiness variable consists of four indicators consisting of 8 items, and the welfare variable consists of five indicators with 10 items. The items that have been compiled are then translated into an instrument that is re<sup>17</sup> to be used for development. The first process is to re-examine the instrument items, then test the instrument with content validity and construct validity approaches. The content validity was given to three experts related to vocational high schools, especially those who understood competency assessors. Furthermore, construct validity was given to the respondents.

The results of the validity analysis are then relevant to the items of the instrument that fall out. Furthermore, the researcher improved the instrument according to the analysis that had been carried out. This aims to prepare a measurement of instrument development regarding the reading<sup>23</sup> of teachers in the competency assessor process. The result of this development process is to interpret the results. This research was conducted at a vocational school in Indonesia. The population was the vocational teacher LSP and the study was made up of 115 respondents who were picked at random sampling.

#### *Collecting the Data*

The collecting of data technique in this research used a questionnaire. The development of measuring tools based on the theoretical framework that has been compiled then developed into indicators and then elaborated in question items. Teacher performance appraisal is not only done by tests but can also be done through measuring instruments or instruments instead of tests. Such as observations in the form of a checklist and rating scale, questionnaire, attitude scale, and assessment rubric. Instruments for obtaining non-test teacher performance information are mainly used to measure performance results about skills with attitudes, namely aspects related to what teachers can do or do from what they know and understand. In other words, such an instrument deals primarily with the observable appearance of knowledge and other mental processes which cannot be observed with the senses.

Interpretation of the measurement results of the non-test instruments follows the scoring rules and the classification of the results of the assessment. The instrument for this assessment uses a Likert scale. The principal principle of the Likert scale is to determine the location of the teacher's position in a continuum of attitudes towards the object of attitude, ranging from negative to very positive, namely answers to questionnaires of positive questions.

The instrument for measuring vocational instructor attitude was created using five subscales extracted from the evaluation terminology and included 19 indicators. Using a five-point alternative response model and a Likert scale, these measures were converted into 38 questionnaire items. Table 1 depicts the philosophical structure of the vocational instructor mentality used in this analysis.

Table 1. Instruments

No.	Component	Indicator	Item		Items	Total
			(+)	(-)		
1	Commitment	Maintaining school attendance requires a lot of work.	1	2	2	6
		Effective learning and teaching	3	4	2	
		Teaching professional	5	6	2	
2	Self-Management	Discipline	7	8	2	8
		Helping other	9	10	2	
		Often as a product of their initiative	11	12	2	
		Optimal fitness	13	14	2	
3	Partnership	Student teacher education	15	16	2	6
		Student's learning	17	18	2	
		Mutual respect for each other's expertise	19	20	2	
4	Happiness	Well-managed team	21	22	2	8
		Organizational performance	23	24	2	
		Friendship	25	26	2	
		Income	27	28	2	
5	Well-Being	Positive emotions	29	30	2	10
		Competence	31	32	2	
		Bodily health	33	34	2	
		Bodily integrity	35	36	2	
		Leisure	37	38	2	
<b>Total</b>						<b>38</b>

The vocational teacher readiness has five scales subscales. The first is commitment, that is, a voluntary attitude without coercion. The second rank is self-management, a word that applies to involved the tasks teacher do to navigate. The third subscale is partnership, referring to establishing the a partnership to achieve the objectives of learning. The fourth subscale is happiness, referring to crucial for school performance. The last subscale is well-being, which is feeling a sense of meaning that derives from something greater than one's self.

#### Analyzing of Data

##### Validity

The validity of the content in this study uses the Aiken V Index by using three experts in the field of vocational high schools. The item statement of the instrument is given to the expert and then assessed. The score generated from content validity is declared valid if  $> 0.80$ . Proof of construct validity is done in two ways, namely, EFA and CFA are two forms of factor analysis. In this study, proving the validity of the constructs used exploratory factor analysis. Before analyzing the exploratory factor, the sample adequacy test was conducted by looking at the Kaiser Mayer Olkin (KMO) value. If the KMO value is more than 0.5, the variables and samples are used to allow for further analysis (Retnawati, 2016). Further analysis by looking at the value of eigen formed with a value  $> 1$ , the factors contained can be explained from the percentage of variance. The validity of this construct was analyzed using CFA assisted by Lisrel software version 8.

##### Instrument Reliability Estimates

Estimating the reliability of this instrument uses an internal consistency estimation technique with Cronbach's alpha is a metric that tests the accuracy of argument, greater-than formula 0.60 - close to 1, so the instrument has a high or reliable correlation. Meanwhile, if the value of Cronbach's alpha is below 0.50, then the instrument has a low or unreliable correlation (Basuki & Hariyanto, 2014). This explanation is supported by Supranto's (2009) explanation which states that the reliability used for research purposes is 0.5. The reliability value in this study was seen using Cronbach's alpha value from the SPSS 22 program's review.

*The Goodness of Fit Metric*

In this analysis, the fit statistics of the instrument apply to the fulfillment of two of the three models of fit parameters, namely, Root Mean Square Error of Approximation (RMSEA0.08), p-value 0.05, and Goodness of Fit Index (GFI0.90). RMSEA is the fittest statistic to be used in the confirmatory study, according to Hair et al. (2010).

Table 2. Fitting Statistics Parameter

Goodness of Fit	Fit off Point	Notes
Chi-Square (p-value)	p-value $\geq$ 0.05	Model Fit
RMSEA	FMSEA $\geq$ 0.08	Model Fit
Goodness of Fit Indies (GFI)	GFI $\geq$ 0.90	Model Fit

*Item Difficulty Level*

Item difficulty index is also called the item difficulty level (Retnawati, 2016). The item difficulty level is one of the item parameters that can assist in test interpretation. This is because, by looking at the parameters of this item, it will be known how good the quality of the items is. If an item (Pi) approaches 0, then the problem is too difficult, whereas if Pi approaches 1, then the problem is too easy. Items with this category must be discarded because these items cannot distinguish students' abilities from other students.

Table 3. Difficulty Level Category

Very Easy	Easy	Medium	Difficult	Very Hard
-2,0	-0,5	0	+0,5	+2,0

*Analysis of Instrument Item Characteristics*

The data analysis was started by describing the feasibility of the instrument characteristics. Winstep software is used because it has several advantages: (1) it can analyze data in the form of dichotomous and polytomous; (2) availability of the results of modern theoretical analysis based on the maximum likelihood model using a one-parameter logistic model (Subali & Suyata, 2012). Analysis using IRT can be done by testing unidimensional assumptions through fit analysis or exploratory factor analysis. Test items are carried out unidimensional if the item measures one ability. If the unidimensional assumption has been fulfilled, then automatically the local independence assumption has also been fulfilled. The indication that the test items are unidimensional is the data that fits (fit) the model. To find out whether the model used is by the items, the mean-square (IMS) and outfit mean-square (OMS) infit statistics can be used. The IMS and OMS statistics represent the level of conformity between the data that was observed and the model's predicted values. The test item is said to be a fit model if it has STI and OMS values ranging from 0.5 to 1.05 (Linacre, 2012). The characteristics of the items in this study used the Rasch model assisted by Winstep software.

Table 4. IMS and CSO Value Ranges

Score	Implications for Measurement
>2,0	Breaking the measurement system
1,5 - 2,0	Has no meaning for measurement
0,5 - 1,5	Useful for measurement
< 0,5	Not useful for measurement, but not destructive

*Instrument Measurement Data Analysis*

Analysis of measurement data will be carried out based on items, many teachers as respondents, and the model used for analysis with 1-PL. Polytomous scorecard using the PCM model. The measurement results are presented in the form of a skill frequency distribution chart and a presentation chart based on the ability level category. To determine the readiness of teachers as assessors of vocational high school competency tests, categories are used based on the ideal average and ideal standard deviation with the assumption that teacher readiness is normally distributed. The determination of the mean score (M) and the standard deviation score (SB) is based on the highest and lowest scores of the research variables (Azwar, 2010) which are described in the following table:

Table 5. Teacher Readiness Interval

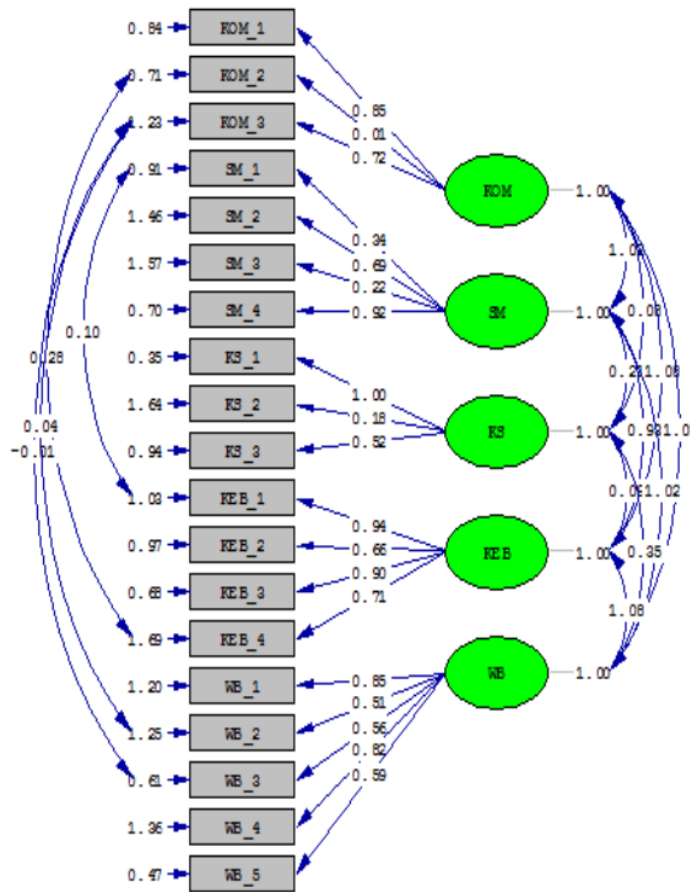
No.	Skill Interval	Category
1	$M + 1,5 SB < \theta$	Very High
2	$M + 0,5 SB < \theta \leq M + 1,5 SB$	High
3	$\theta \leq M + 0,5 SB$	Medium
4	$M - 1,5 SB < \theta \leq M - 0,5 SB$	Low
5	$\theta > M - 1,5 SB$	Very Low

The interpretation of the measurement results is carried out based on the Polytomous score with 4 categories of measurement results. Using the facts of the inquiry, with the Rasch model using Winstep software, the readiness of the teacher as a competency test assessor was obtained.

**Findings**

*The Construct Validity of the Teacher Readiness Instrument which is Developed*

Figure 2 demonstrates the conceptual framework and study outcome of the constructed instrument with a second-order CFA. The results of the second-order CFA analysis are seen in Figure 2, showing that the model produced in this thesis satisfies the goodness of fit statistics. The instrument's model fit is seen by the RMSEA = 0.0016 and GFI = 0.67.



Chi-Square=137.90, df=142, P-value=0.12100, RMSEA=0.0016

Figure 1. The result of CFA second order

**Notes:**

- KOM\_1 : Energy in keeping up involvement in the school  
 KOM\_2 : Effective learning and teaching  
 KOM\_3 : Teaching professional  
 SM\_1 : Discipline  
 SM\_2 : Helping other  
 SM\_3 : Mainly by their own efforts  
 SM\_4 : The best possible health  
 KS\_1 : Student teacher education  
 KS\_2 : Student's learning  
 KS\_3 : Mutual respect for each other's expertise  
 KEB\_1 : Well-managed team  
 KEB\_2 : Organizational performance  
 KEB\_3 : Friendship  
 KEB\_4 : Income  
 9\_B\_1 : Positive emotions  
 WB\_2 : Competence  
 WB\_3 : Bodily health  
 WB\_4 : Bodily integrity  
 WB\_5 : Leisure

Figure 2 illustrates the value of the Uniform Loading Factor as a product of the second-order CFA, while Table 2 displays the t-value and R<sup>2</sup> of the instrument indicators. According to the t-value index, the 19 indicators in the logical framework of vocational teacher readiness are important, according to the findings of the second-order confirmatory factor study. The t-value >1.96 suggests this, with the lowest t-value being 3.39 (SM 1) and the highest being 9.90 (KOM 1). The value of the uniform loading factor based on the outcome of the second-order CFA, which is seen in Table 3, is another piece of evidence. This instrument study can be described as appropriate construct validity and suitable instrument to assess vocational instructor attitude in education, based on the proof of the t-value index and the uniform loading factor.

Table 6. The result of second order CFA

Indicator	Loading Factor	t-value	R <sup>2</sup>	Notes
KOM_1	0.84	0.85	0.65	Fit of the predictor
KOM_2	0.71	0.01	0.00	-
KOM_3	1.23	0.72	0.55	Fit of the predictor
SM_1	0.91	0.34	0.11	Fit of the predictor
SM_2	1.46	0.69	0.01	-
SM_3	1.57	0.22	0.03	-
SM_4	0.70	0.92	0.55	Fit of the predictor
KS_1	0.35	1.00	0.78	Fit of the predictor
KS_2	1.64	0.18	0.02	-
KS_3	0.94	0.52	0.22	Fit of the predictor
KEB_1	1.03	0.94	0.46	Fit of the predictor
KEB_2	0.97	0.66	0.18	Fit of the predictor
KEB_3	0.68	0.90	0.54	Fit of the predictor
9_B_4	1.69	0.71	0.03	-
WB_1	1.20	0.85	0.38	Fit of the predictor
WB_2	1.25	0.51	0.00	-
WB_3	0.61	0.56	0.34	Fit of the predictor
WB_4	1.36	0.82	0.17	Fit of the predictor
WB_5	0.47	0.59	0,42	Fit of the predictor

It can be inferred, based on the findings of the aforementioned study, that 19 indicators that have been grouped into 5 factors are consistently in the same construct (proven construct validity). Furthermore, the results of the criteria fit model analysis can be seen in table 7.

Table 7. Fit Model Criteria

Criteria	Score	Information
Chi Square	137,9	Fit (< 2df)
P-Value	0,1210	Fit (> 0,01)
RMSEA	0,0016	Fit (< 0,08)



*Instrument Reliability*

The instrument reliability coefficient plays the degree of confidence in the measurement's independence from mistakes. The higher the reliability index, the more assured you will be with your calculations. Estimation of reliability in this study using the SPSS program. The instrument's dependability is dependent on data that has been checked and measured using the Cronbach's alpha formula, then it is known that of the 38 question items given to 115 respondents, the average reliability coefficient is 0.852, and the reliability coefficient is high. From the standardized regression weights, the output results are then entered into microsoft format. Excel to calculate the value of construct reliability. The value of the construct reliability of the six variables is greater than the cut-off value of 0.7, so the indicators have good internal consistency. The following are the results of reliability estimates using the SPSS 22 program.

Table 8. Statistics on Reliability

Cronbach's alpha	N of Items
.825	38
Variable	Construct Reliability
Commitment	.807
Self-Management	.815
Partnership	.822
Happiness	.820
Well-Being	.830
Commitment	.851

*Goodness of Fit Instrument*

The item fit test in the limit test used the Rasch approach model. The item fit test using the Rasch model approach is carried out by looking at whether or not the items are fit to the model. This test is performed using the Winstep software. According to Tangney et al. (2004) and Bond and Fox (2015), the means-square worth of the wardrobe, the outfit z-standard, and the point measure The parameters for assessing the degree of item fit are known as correlation. The objects in question are said to be suitable or appropriate if, (1) the accepted outfit mean square (MNSQ) value:  $0.5 < \text{MNSQ} < 1.5$ , (2) the accepted z-standard outfit (ZSTD) value:  $-2.0 < \text{ZSTD} < 2.0$ . (3) value of point measure correlation (point-measure correlation):  $0.4 < \text{point-measure correlation} < 0.85$  (Boone et al., 2014). Whereas if one of the three-item fit criteria are met based on the above criteria, the item can be declared fit with the model. The following is a table of results of item compatibility analysis using the Winstep software.

Table 9. Goodness of Fit

Item	Outfit MNSQ	Outfit ZSTD	PT-Measure Corr.	Information
L_24	2,11	3,6	-0,48	Not Fit
L_18	1,5	3,6	0,19	Not Fit
L_8	1,49	2,7	-0,16	Fit
L_37	1,44	3,2	0,12	Fit
L_6	1,44	2,6	-0,16	Fit
L_10	1,4	3	0,27	Fit
L_29	1,36	1,9	0,33	Fit
L_12	1,24	1,9	0,51	Fit
L_16	1,2	1,6	0,45	Fit
L_38	1,2	1,6	0,31	Fit
L_2	1,13	0,9	0,46	Fit
L_36	1,13	1	0,49	Fit
L_22	1,12	1	0,38	Fit
L_30	1,08	0,7	0,42	Fit
L_14	1,08	0,7	0,38	Fit
L_28	1,04	0,4	0,61	Fit
L_25	1,04	0,4	0,23	Fit
L_34	1,02	0,2	0,47	Fit
L_26	1,01	0,1	0,53	Fit
L_4	0,9	-0,8	0,06	Fit
L_1	0,75	-1,4	0,44	Fit
L_27	0,83	-1,2	0,51	Fit
L_9	0,83	-1	0,4	Fit
L_20	0,82	-1,4	0,56	Fit
L_13	0,78	-1,4	0,34	Fit

Table 9. Continued

Item	Outfit MNSQ	Outfit ZSTD	PT-Measure Corr.	Information
I_5	0,74	-1,3	0,41	Fit
I_7	0,55	-1,7	0,45	Fit
I_15	0,66	-1,6	0,43	Fit
I_32	0,73	-2,4	0,63	Fit
I_3	0,66	-1,6	0,44	Fit
I_17	0,53	-2	0,52	Fit
I_35	0,61	-2,5	0,58	Fit
I_31	0,63	-2,1	0,52	Fit
I_33	0,65	-2,7	0,53	Fit
I_23	0,65	-2,8	0,45	Fit
I_19	0,56	-2,6	0,54	Fit
I_11	0,54	-2,6	0,57	Fit
I_21	0,58	-2,6	0,54	Fit

Table 9 is a table of results of item fit analysis. Table 9 analyzes as many as 38 question items on instrument 9. The yellow mark on table 9 shows that the item is not killed in one of the item fit criteria for the Rasch modeling item, but it can also be seen that in some items marked yellow there is still at least one criterion for the fit item criteria, except items number 24 and 18. As for items number 24 and 18, it illustrates that there are no things that can fit in the bin entire item fit criteria. This shows that items, 24 and 18 do not fit the Rasch model or do not fit the Rasch model. So in this case items number 24 and 18 are not included in the next analysis or are not included in the item difficulty level analysis.

#### Item Difficulty

After doing the item fit test, the next step is analyzing the difficulty degree of the item. The objects in the game's difficulty level in this study were analyzed using the Winstep software. The item difficulty level analyzes many as 35 questions, this is because items 24 and 18 do not meet the fit model. Table 10 below is the result of the analysis of the difficulty level of the items that have been carried out.

Table 10. Item Difficulty Level

Item	Difficulty Level	Information
I_8	4,16	High
I_6	3,98	High
I_30	1,77	Medium
I_34	1,77	Medium
I_4	1,71	Medium
I_10	1,39	Medium
I_12	1,35	Medium
I_38	1,27	Medium
I_14	1,18	Medium
I_16	0,97	Medium
I_22	0,81	Medium
I_26	0,48	Medium
I_37	0,27	Medium
I_32	0,25	Medium
I_36	0,25	Medium
I_20	0,03	Medium
I_28	0	Medium
I_25	-0,43	Medium
I_27	-0,63	Medium
I_23	-0,76	Medium
I_33	-0,79	Medium
I_2	-0,98	Medium
I_9	-1,14	Medium
I_13	-1,16	Medium
I_29	-1,46	Medium
I_35	-1,49	Medium
I_1	-1,52	Medium

Table 10. Continued

Item	Difficulty Level	Information
I_21	-1,62	Medium
I_31	-1,66	Medium
I_19	-1,73	Medium
I_5	-1,84	Medium
I_11	-1,84	Medium
I_3	-2,09	Low
I_15	-2,09	Low
I_17	-2,36	Low
I_7	-2,69	Low

Table 10 is a table of the consequence of the item's complexity level study. The output difficulty levels in table 10 are sequential based on highest to lowest. According to Baker (2001), the characteristics of items in good parameters are at a difficulty level of -2 to 2. The table above shows that items 8 and 6 have a difficulty score of more than 2, while this indicates that items 8 and 6 have a high difficulty level. . While items 3, 15, 17, and 7 have a difficulty score less than -2, while this shows that items 3, 15, 17, and 7 have a low difficulty level. items that do not have a good level of difficulty at this stage can then be corrected or not included in the instrument that will be used for the measurement process.

#### Information Function (IF) and Standard Measurement Error (SEM)

The information function is used to reveal latent abilities as measured by using tests expressed through item donations. The sum of the functions of each object makes up the test knowledge function. The role of knowledge is inversely proportional to measurement error (SEM). The value of the information function of the test equipment will be high if the items that make up the test have a high information function. The following is a curve illustration of the relationship between the information function and measurement error.

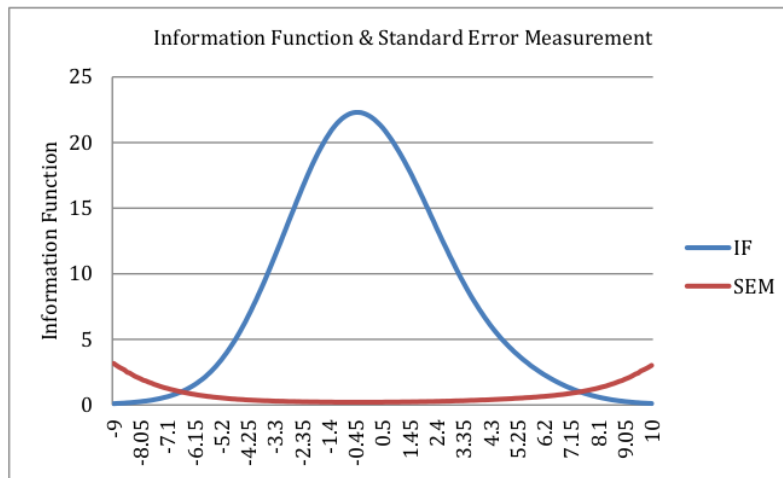


Figure 2. Information Function and Standard Error Measurement Chart

Figure 2 shows that this test provides information of 22.3 and has a measurement error of 0.221. The interval's lower and higher limits are as follows the ability scores where the information function graph capability and measurement error intersect at that interval. This graph indicates that the greater measurement error (SEM). The chart is made using MS Excel.

#### Description of Assessment Results

The description of the results of the assessment of teachers is carried out to describe the results of the assessment based on certain categories. The description of the results of the teachers' assessment was done by categorizing the level interval which was divided into 3 categories, namely good, moderate, and poor. The table below shows the results.

Table 11. Instrument Non-Cognitive Assessment Results Category

Interval	Category
$M + 1SD \leq X$	Good
$M - 1SD \leq X < M + 1SD$	Fair
$X < M - 1SD$	Poor
$1,33 \leq X$	Good
$-1,33 \leq X < 1,33$	Fair
$X < -1,33$	Poor

The description of the effects of non-cognitive tests can also be seen depending on the percentage size in each category. The following is the percentage and frequency of teacher cognitive assessment results.

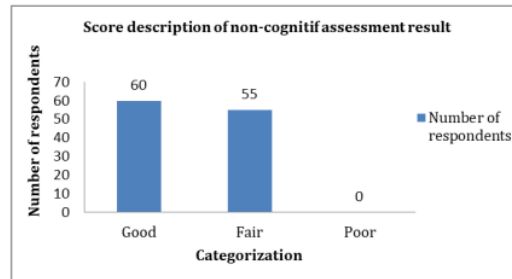


Figure 3. Score Description of Non-Cognitive Assessment Result

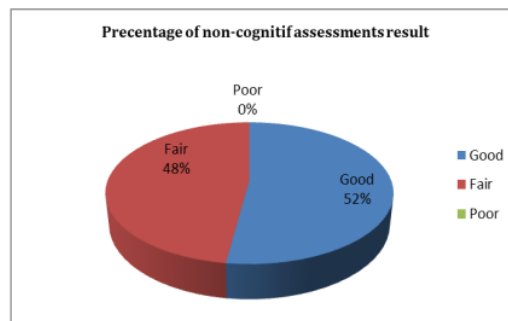


Figure 4. Percentage of Non-Cognitive Assessment Result

Table 12. Score description of non-cognitive assessment results

	Score
Maximum score	3,46
Minimum score	-0,08
Average	1,44

The image above is a [18](#) image of the non-cognitive assessment results. The picture above shows as many as 60 respondents or 55.2% are in a good category. While the results of the cognitive assessment in the moderate category were 55 respondents or 47.8%, and in this study, there were no results of the non-cognitive assessment of teachers in the poor category. The maximum score of the teacher's non-cognitive assessment results in the Winstep software is focused on the findings of the individual measure analysis 3.46 and the minimum score is -0.08. Meanwhile, the mean score of teacher non-cognitive assessments was 1.44.

### Discussion

The readiness of vocational school teachers to become assessors is an important thing to do because teachers as assessors are the key to the quality of graduates as seen from the competencies and skills of students possessed and needed by the industry. From the development of the instrument items that have been analyzed above, it is used to measure the readiness of teachers as assessors in testing in vocational schools throughout Indonesia. The conclusions of the report indicated that the validity, reliability, and accuracy of the data were all satisfactory item difficulty tests showed a good score. This means that the score achieved from the measurement results through various methods and analysis tools exceeds the predetermined standard. That is, this score can be used to measure the readiness of teachers as assessors in testing students related to competence in vocational high schools. Therefore, the instruments used in this study are reliable (Mardapi, 2012).

The readiness of the teacher as an assessor in this competency test is an important thing that must be owned. This is in line with the statement conveyed by Ulucan et al. (2016) that the teacher's attitude is a positive thing that can be implemented in competency test activities which can create a good student examination environment. So that the need for teachers to encourage friendly attitudes (European Commission, 2011). Therefore, it is important to improve the standards that teachers need to have when they become assessors in competency tests. This standard becomes the basis that can be used as quality in student competency testing. This study mentions several variables of teacher readiness as assessors of competency tests which are explored through five things, namely commitment, self-management, partnership, happiness, well-being. The measurement results in this study are in line with the statements conveyed by (Grollmann, 2008) which states that attitude and encouragement with relation to seeking a career as a teacher are interesting research subjects and measures of understanding of vocational education processes.

This competency test process involves students and relevant skills and abilities needed by students as expected by the industry. Attitudes become the basis for teachers during competency tests because of their primary needs. This refers to the findings of an analysis conducted by Susanti et al. (2020) that attitude skills need to be owned by teachers to transfer students' knowledge, talents, personalities, and beliefs in the competence test process. The existence of a relationship with this industry is also a major source in improving attitudes by current conditions. Teachers can provide examples and transfers related to attitudes to prepare students to enter the workforce and have professional attitude readiness Priambudi et al. (2020). So that the attitude of teachers as assessors is also a standard used to improve competence and professional work (Waluyanti et al., 2018).

The commitment of the teacher as an assessor in this competency test is an indicator of loyalty for teachers in carrying out their duties as examiners. This requires a high objective to become an assessor. It is not easy to be influenced by other people and can make judgments reliably and with high validity. This devotion is inextricably connected to the pedagogical and pedagogical integrity of vocational teachers (Yuswono et al., 2014). The commitment of the teacher in becoming a competency test assessor for SMK students has three domains, namely affective, continuum, and normative (Sukanto & Pardjono, 2013). The commitment of the teacher as an assessor in managing competency tests includes an understanding of student characteristics, learning materials, and skills possessed by students (Prasetyo et al., 2013). The attitude of the teacher's commitment as an assessor can be highlighted when each teacher has a good competency, namely methodological competence and technical competence which are the main concerns. Without having this, teachers who become assessors need to be re-tested their competencies.

Self-management is the attitude and skills of the teacher when doing work. The teaching profession certainly has a myriad of jobs, as well as having additional professions, namely being assessor in competence. To complete this work, of course, the teacher as an assessor has a good disciplinary attitude as evidenced by self-management skills. At the time of teaching, the teacher as an assessor knows his duties so that he does not carry multiple roles in one condition. One of the things that need to be considered in the readiness of teachers as assessors are knowing the process of conducting competency tests to measure the achievement of educational institutional goals (Samsudi, 2009). The readiness of teachers as assessors will be more mature if they understand their roles and can have skills in managing themselves from a variety of existing tasks. Therefore, the importance of this self-management attitude is an indicator of the readiness of teachers as assessors in the competency test of vocational students.

The above statement also needs to support the attitude that teachers as assessors need to have, namely the ability to work in partnership. This becomes important because the skills in teamwork to achieve the quality of the competency test can be improved. Various studies evaluating the competency test of vocational students state that the quality of the competency test is still lacking because the partnership between assessors and assessors has a low relationship. This was conveyed by (Kuntoro, 2020) in his research that cooperation has an important objective to achieve the competency test process. The session will better understand what to do both during the demonstration / practical test, as well as the written / oral test. Assessors will also be better able to convey the objectives of the competency test forms that students must complete. This partnership attitude needs to be fostered by assessors wherever they are when testing student competencies.

The happiness assessor's attitude also needs to be raised properly. This means that an assessor tests students with feelings that are not forced, happy, and have a supportive attitude to complete the competency test together. According

to Sintawati (2009) in finding assessors, it is better to consider the standards that have become the provisions of the BNSP. It can be interpreted that in addition to administrative standards, the attitude of the assessor in the competency test must also be considered. Thus it can achieve the minimum standards that must be owned by an assessor in student competency tests.

### Conclusion

It is possible to infer, based on 19 indicators that have been grouped into 5 factors have a consistency value that is in the same construct (proven construct validity). Then it is known that of the 38 question items given to 115 respondents, the average reliability coefficient is 0.852, and the reliability coefficient is high. There are two items, namely numbers 24 and 18 which indicate the absence of a fit item in the overall item fit criteria. This shows that items 24 and 18 do not fit the Rasch model or do not fit the 22 sch model. So in this case items, number 24 and 18 are not included in the next analysis or are not included in the item difficulty level analysis. At the item difficulty level, items 8 and 6 have a difficulty score of more than 2, while this indicates that items 8 and 6 have a high difficulty level. While items 3, 15, 17, and 7 have a difficulty score less than -2, while this shows that items 3, 15, 17, and 7 have a low difficulty level. The items that do not have a good level of difficulty at this stage can then be corrected or not included in the instrument that will be used for the measurement process.

### Recommendations

Researchers make suggestions to politicians and decision-makers based on their results to strengthen the behaviors of teachers who act as assessors in student competency assessments. This is crucial to enhance the consistency, integrity, objectivity, and expertise of teachers in evaluating, analyzing, and making accurate judgments on student competency test outcomes. Therefore, the findings of this study can also be used as a reference in implementing the readiness of teachers as assessors in competency tests to support the improvement of student skills and competencies required by DU/DI. Further research needs to use qualitative methods to be able to explore more deeply related to the attitudes and implementation of teachers in becoming assessors when conducting competency tests on students. That way, it can be an improvement in research results to be applied by vocational school teachers in other schools.

### Limitations

This research was conducted at an Indonesian vocational school. All teachers who become assessors in the student competency test. This is unique research because the existing competency test is related to the vocational graduate skills program. The quantitative approach used in this research is not only as confirmation but also ensures that the items of the instrument can explore the activities carried out by the teacher as an assessor in the competency test of vocational school graduates. The results of this study have transferability to other vocational schools, especially in the attitude of teachers as assessors in competency tests.

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### Authorship Contribution Statement

Cahyono: Conceptualize and design the research, data collection, and funding support. Kartowagiran: Providing technical support, supervising. Mahmudah: Compile the literature review, Design of an instrument and a questionnaire, data analysis and interpretation, analysis result discussion, writing and critical revision of the manuscript.

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