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Abstract. Career readiness is an important key that must be possessed by students before entering the business world/industrial world. In an effort to understand the level of student career readiness, a valid and reliable instrument is needed. So the purpose of this research is to test the validity and reliability of the instrument. This research uses a quantitative approach with instrument development and validation methods. The sample in this study was 344 Vocational High School students in the Province of East Java-Indonesia. Data analysis using Winstep. Based on the results of the winstep program analysis of the 60 items developed, 3 items were not used because they did not meet the three item validity standards. While the reliability in special category. Based on the results of unidimensional , each dimension can measure the variable properly and is not influenced by other factors that cause changes in the results instrument From several analysis results, it can be concluded that the career readiness instrument can be used to measure the career readiness of SMK students.

Introduction

Career readiness is the most important thing that students master before entering the business and industrial world. Career readiness is a capital that needs to be owned by both students who want to work or continue their studies (Lestari *et al*., 2019). Career readiness is a set of abilities that can be used as provisions for students including the ability to recognize self-characteristics to be associated with work or further studies to achieve career success. Career readiness and good work competence are very important for students, especially Vocational High School in Indonesia means Sekolah Menengah Kejuruan (SMK) students (Amri *et al*., 2022). This is because the purpose of vocational school graduates is to be prepared to produce trained workers in accordance with the needs of the world of work in accordance with the competencies in their expertise field (Alfan, 2014; Andini *et al.*, 2021). This Vocational High School (SMK) in Indonesia is one of the places to prepare resources to be able to work in their respective fields with the aim of forming a competitive, skilled and competent workforce as early as possible (Supriatna et al., 2021) without requiring a long adaptation time (Putri & Sutarto, 2018).

The phenomenon that occurs is inversely proportional to the main goal of career readiness. Many SMK students are not ready to enter the business world/industrial world. The lack of optimal SMK graduates is a problem that needs to be addressed (Ramadhan *et al.*, 2022). Based on the analysis in several research results, there are many vocational students who are doubtful

and unable to determine and decide to enter the world of work or further study, are not ready to enter the world of work and lack confidence or even have no confidence in their abilities. (Sersiana & Lukitaningsih, 2014) as well as many students who are not sure about the choice of majors (Kurniawan et al., 2021).

These phenomena show that readiness among SMK students has not yet been achieved (Wahyuni et al., 2021). This is also caused by poor mastery of skills, especially the mastery of soft skills possessed by students. Many vocational high school graduates become unemployed due to poor student readiness (Hartiningtyas et al., 2016). This statement is supported by the percentage of the open unemployment rate for vocational high school students. The absorption rate of SMK graduates (Vocational High Schools) in Business World/Industrial World in Indonesian means Dunia Usaha/ Dunia Industri (DU/DI) which is still minimal compared to graduates in other education units (Badan Pusat Statistik, 2022).

Career readiness is defined as the fulfillment of competencies that enable students to enter career paths with potential for advancement in the future (Conley, 2010). Conley explained that what is meant by the fulfillment of career readiness competencies is a set of skills and knowledge that students must possess. This set of skills and knowledge will be fulfilled so that students can continue to higher education or the world of work. More specifically, it is related to the ability to understand self and work understanding.

The four indicators include Key Cognitive Strategies; Key Content Knowledge; Academic Behaviors; Contextual Skills and Awareness. Key Cognitive Strategies (academic strategies) are aspects of knowledge that aim to prepare students to choose further studies/work. This indicator covers the way individuals obtain, manage and respond to information properly. Key Content Knowledge (mastery of content) is an aspect of knowledge that aims to equip students in mastering the material. Mastery of the material is needed by students to prepare for further studies (mastery of subject matter according to the chosen scientific study group) and to prepare for work (mastery of work competencies related to the demands of the industrial world, for example: mastery of IT, electricity, and science related to industrial demands Academic Behaviors (academic behavior) is an aspect of knowledge that aims to equip students to understand themselves. The indicators include Self-Awareness, Self-Monitoring and Self-Control. Furthermore, Contextual Skills and Awareness are indicators related to mastery of skills. The skills referred to are related to the demands of the company or college that students will go to. In addition, students are required to be able to adapt and be aware of the work/advanced studies that will be chosen. Adaptation it is in m terms of adjustment to the norms, traditions, and regulations applied in the new environment.

Kevin J. Fleming defines career readiness as the effectiveness of a person to direct the path that connects education with work / further study to achieve a fulfilling, financially secure and successful career. (Fleming, 2016). According to Fleming, career readiness aims to direct individuals to have a career in an ever-changing global economy. This era requires adaptability, commitment to lifelong learning, and mastery of skills and knowledge.

Fleming said that career readiness consists of four indicators, namely academic skills, life skills, employability skills, and technical skills. Academic skills are the ability to understand the material and the ability to apply the material to solve problems in the real world. This ability can foster a competitive spirit in students. Furthermore, life skills are individual ways to survive. This dimension consists of managing finances well, surviving, having an attitude of fortitude and perseverance, knowing how to set goals, and being able to identify action plans for the future. The third indicator, namely employability skills, is the ability related to the way a person gets a job or further study of their choice. Indicators include the ability to manage time, solve problems creatively, and communicate effectively. The last indicator is technical ability. Technical ability is the fulfillment of the competencies required by the company / specific further studies. The indicators include mastery of information technology skills and mastery of industrial skills.

Career readiness according to Jennifer R. Curry is a competency that is prepared for students in order to develop skills and knowledge that are relevant to career demands. Career according to Curry and Milsom emphasizes the importance of self-understanding (knowing one's interests, talents, values, and beliefs) and career understanding (knowing specific job training and skill requirements) so that career goals can be identified and specifically pursued. (Curry & Milsom, 2017).

Curry and Milsom mention that there are two aspects of career readiness, namely knowledge, skills and attitudes. The knowledge aspect is the ability that students need to be successful in career and college choices. This aspect aims to help students identify self-understanding, critical thinking and knowledge of work/advanced study information. This aspect can help guidance and counseling teachers identify the interventions needed for the counselee. The next aspect is skill. This aspect includes employability, technical ability and attitude that helps students' career readiness. Indicators in this aspect include mastery of work skills, social interaction, communication, and mastery of financial literacy. Next is the attitude aspect, the indicators in it include critical thinking, responsibility and active listening.

When viewed from the above definitions, the definition of career readiness as a whole is the individual's ability to relate self-characteristics to work and further study to achieve success in the future. The essence of career readiness is the ability to relate self-characteristics. The abilities referred to in the above definition include aspects of cognitive, psychomotor and affective mastery that are needed for individuals to enter the transition from school to work or further study with a viable career path in today's context.

The definition of career readiness above with the existing phenomena is less relevant. So that the unconsciousness of students and guidance and counseling teachers regarding their lack of career readiness makes them unable to prepare themselves optimally to achieve work/advanced studies that are in accordance with the educational goals they have achieved. Yet many states have increased their high school graduation competency to emphasize preparation for college and careers (Hackmann et al., 2019). Career readiness includes the acquisition of knowledge and the ability to apply knowledge through skills to demonstrate career success. This includes the ability to think critically and solve problems, communicate effectively, work collaboratively, and be self-directed in the learning process. Career-readiness students have the knowledge and technical skills necessary for a career in their work (Ifejika & Agomuo, 2015).

Therefore, measurements are needed to determine the career readiness of students to continue further studies/work. These measurements were analyzed using the Rasch model. Rasch is a measurement model that can overcome the limitations of the classical measurement model which not only knows the validity and reliability of a measurement scale but also to determine the categorization of respondents, the level of difficulty of the statement to be able to discard respondents' answers that are considered not serious (Sumintono & Widhiarso, 2014). The instrument developed is different from the instruments before that were previously developed. The findings in this study will help guidance and counseling teachers, especially at the vocational high school education level, in helping students to prepare for careers (work/college). The results of the synthesis in this study were developed based on three figures who explained the grand theory of career readiness. This research instrument is also adapted to the challenges in the era of disruption.

Based on several explanations regarding career readiness above, the purpose of this study is to develop a career readiness scale for vocational high school students. This research is expected to help students to be able to identify career readiness through this instrument that has been developed.

Method

This type of research is a quantitative approach. This research method is the development and testing of career readiness instrument validation. The implementation of this research was carried out in March-June 2022. The initial procedure of the research was to synthesize a theory of career readiness based on three figures who discussed career readiness, then develop the instrument into three main points, namely cognitive, affective and psychomotor. Furthermore, conducting an expert test to several career guidance and counseling experts, then conducting a readability test to students. After that, it was continued with instrument validation to the sample in this study totaling 344 people, who were selected using the proportional random technique. This instrument was distributed to SMK students in East Java.

This inventory initially consisted of 60 items, after going through the above procedures it became 57 items using a Likert scale with a scale of 1-5. Research data were analyzed using the Rasch model using statistical analysis of conformity (Sumintono & Widhiarso, 2014). The statistical analysis of suitability used MNSQ clothing parameters with an ideal range (+0.5 to +1.5), ZSTD clothing with an ideal range (-2.0 to +2.0) to find suitability of items and people (Sumintono & Widhiarso, 2014). The scale development is based on the synthesis of several experts who discuss career readiness (Conley, 2010; Curry & Milsom, 2017; Fleming, 2016). The blueprint of the scale developed is as follows:

Table 1. Synthesis of the concept of career readiness

Aspect	Indicator	Σ	Percentage
1. Cognitive	**Self understanding**	8 items	16,7 %
	Students are able to know their own strengths and weaknesses		
	Knowledge Work information / further study	5 items	10 %
	Students are able to learn about work information or further study		
	Decision on work/advanced studies	6 items	10 %
	Students are able to determine the choice of work/advanced studies in accordance with the educational path		
	Number of Items	22 items	36,7 %
2. Affective	**Discipline**	8 items	13,3 %
	Students Bring the behavior of obedience, obedience, order and regularity		
	Perseverance	8 items	13,3 %
	Students show seriousness and are continuous in doing something		
	Anticipate risk	4 items	6,67 %
	Students Take the initiative to consider what might happen		
	Number of Items	20 items	33,3 %
3. Psychomotor	**Job Skills**	5 items	10 %
	Students are able to practice the competencies required in industry or further studies		
	Effective communication	5 items	10 %
	Students are able to create good relationships through communication		
	Work planning/advanced studies	8 items	10%
	Able to clearly plan career goals		
	Number of Items	18 items	30 %

Based on the operational definition described above, the statement items are developed based on the three aspects of career readiness, namely cognitive, affective and psychomotor. These three aspects are then developed into several indicators listed in the above aspects. then developed into several statements with a total of 60 items.

Result

The instrument that has been compiled consists of two kinds of statements, namely favorable and unfavorable statements. Saifuddin Azwar defines favorable and anfavorable as an attitude towards an object that shows feelings of support or partiality (favorable) and feelings of being unsupportive or impartial (unfavorable) on the object. (Azwar, 2014). So that in the statement items there are two types of questions that are meaningful to support career readiness (favorable) and do not support career readiness (unfavorable).

The research instrument is a data collection technique that uses a Likert scale to assess students' career readiness. This instrument uses a Likert scale with a scale of 1-5. According to Sugiono (Sugiono, 2010) Likert scale is a scale used to measure attitudes, opinions, and perceptions of a person or group of people about social phenomena. The type of research questionnaire used is a closed questionnaire so that respondents only give a check mark in the column that has been provided. In this questionnaire, the measurement scale is determined to see a description of the characteristics of the respondents. The scale is divided into five, namely Very Appropriate, Appropriate, Fairly Appropriate, Not Appropriate, and Very Incompatible. The following is a test of validity and reliability based on the results of the Rasch model:

If the design of the study is complex or the stimuli require if detailed description, additional subsections or subheadings to divide the subsections may be warranted to help readers find specific information.

The result and discussion section are used to highlight important points, to summarize key ideas, or to make connections. In a literature review, the discussion or conclusion section provides an opportunity to critically assess the findings of other studies and to draw conclusions in relation to your research question.

The conclusions is intended to help the reader understand why your research should matter to them after they have finished reading the paper. A conclusion is not merely a summary of the main topics covered or a re-statement of your research problem, but a synthesis of key points. It is important that the conclusion does not leave the questions unanswered. This means setting your paper in the context of previous work. The implications of your findings should be discussed within a realistic framework.

Reliability

To find out the value of respondent reliability, item reliability and cronbach's alpha, it can be seen in the table 2 and 3 of criteria for the value of person reliability, item reliability and cronbach's alpha in the following table tests (Sumintono & Widhiarso, 2014)

Table 2. Person Reliability Value and Item Reliability Criteria on Rasch Model

Scores	Classification
< 0,67	Weak
0,67 – 0,80	Enough
0,81 – 0,90	Good
0,90 – 0,94	Very Good
> 0,94	Special

Table 3 Criteria for Cronbach's Alpha Value on the Rasch Model

Scores	Classification
< 0,5	Poor
0,5 – 0,6	Bad
0,6 – 0,7	Fair
0,7 – 0,8	Good
> 0,8	Very Good

Tabel 4. Instrument Reability Test Result

	Mean Measure	Separation	Reliability	Alpha Cronbach
Person	0.46	2.67	0.88	0.87
Item	0.00	9.65	0.99	

Based on the picture above, it can be analysed that the reliability test is divided into three parts, namely 1) Overall Reliability; 2) Item reliability and 3) Person reliability. It is known that Cronbach's Alfa is 0.87 (very good category), while Person Reliability is 0.88 (good category) and Item Reliability is 0.99 (special category).

It is also stated that the mean measure on the person is 0.46. This value indicates that the tendency of the subject's ability is proportional to the level of difficulty of the question. The Cronbach's Alpha value indicates that this instrument is generally satisfactory in the trial. The Person Reliability value is 0.88 and the Item Reliability value is 0.99. This shows that the subject provides consistent answers and the quality of the items on the instrument has special reliability.

Construct Validity

The first step to see the validity of the construct is done by looking at the polarity of the item (item polarity). It is stated in the table that all items have a positive Point Measure Correlation (PMC) value. This shows that there is no conflict between the items and constructs that are measured. Next, the researcher looked at the Principal Component Analysis of Rasch Residual to see the unidimensionality of the construct. As shown in the image below, this exam consists of 60 active items/questions with explanations below:

Table 5. Standarized Residual Variance

		--Empirical--		Modeled
Total raw variance in observations	86.0	100.0%		100.0%
Raw variance explained by measures	26.0	30.3%		30.7%
Raw variance explained by person	3.9	4.5%		4.5%
Raw variance explained by items	22.2	25.8%		26.1%
Raw unexplained variance (total)	60.0	69.7%	100.0%	69.3%
Unexplained variance in 1st contrast	8.0	9.4%	13.4%	
Unexplained variance in 2nd contrast	4.0	4.6%	6.6%	
Unexplained variance in 3rd contrast	2.7	3.1%	4.4%	
Unexplained variance in 4th contrast	2.3	2.6%	3.8%	
Unexplained variance in 5th contrast	2.2	2.5%	3.6%	

The findings of the construct validity above are known that having a variance measured at 30.3% over 20% indicates that the figure is desired by the Rasch Model (Linacre, 1994). It can be concluded that the item is said to have good instrument validity. Beside that variance below

10% is 9.4%, 4.6%, 3.1%, 2.6% and 2.5% so that each dimension can measure the variable properly and is not influenced by other factors that cause changes in the results instrument. Therefore, there is no second dimension in the construct of the career readiness instrument because all items/questions are indeed designed to measure the respondent's career readiness.

Content Validity

While the criteria used to see whether the items are valid or have good quality in the Rasch model are if they meet the criteria below (Sumintono & Widhiarso, 2014). a) Accepted Outfit mean square (MNSQ) value: 0.5 <MNSQ< 1.5. b) Value of Outfit Z-standart (ZSTD) received: –2.0 < ZSTD< +2.0 (but ZSTD can be ignored if the number of respondents is >300).c) The required Point Measure Correlation value. Alagumalai, Curtis, & Hungi (2005) classified these scores into very good (>0.40), good (0.30–0.39), moderate (0.20-0.29), unable to discriminate (0. 00-0.19), and requires an examination of the items (<0.00). From several items, it can be seen that several Outfit columns, namely the Mean Square value above, indicate that all items do not meet the Pt Measure Corr and Out fit MNSQ criteria, so item number 6, 12, 25 were discarded because the item did not meet at least two of the criteria for item validation. Therefore, the researcher decided to research and re-examine the problems that existed for the two items/questions or it could be said to be revised either through the decision to repair or replace to suit. So it can be concluded that :

Table 6. Item Validity Results

Item *fit* (Qualifying 3 criteria above)	Revised Item (Qualifying 2 criteria above)	*Misfit* (Unqualifying 2 criteria above)
1, 3, 4, 5, 7, 8, 9, 11, 13, 14, 16, 18, 19, 21, 22, 23, 24, 26, 28, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 55, 56, 57, 59, 60	2, 10, 15, 17, 20, 27, 29,41, 53, 58	6, 12, 25
47 items	**10 items**	**3 items**

Based on the results of the quality analysis using the Rasch model, 47 items were declared valid (accepted), 10 items to be revised, and 3 items to be discarded because they did not meet the MNSQ outfit requirements, Outfit ZSTD, and Point Measure Correlation (Pt Measure Corr).

Distinguishing Power

The discriminatory power of a question is the ability of the question to distinguish between students who have a high level of ability and students who have low abilities. In the analysis through the Rasch model, to be able to distinguish between high and low students' abilities, an analysis of the individual's ability level was used. In addition, it can also be seen by identifying groups of respondents based on the respondent separation index. According to Sumintono and Widhiarso said that the greater the separation value, the better the quality of the instrument in terms of overall respondents and items, because it can identify groups of respondents and items (Sumintono & Widhiarso, 2014). The separation value in the image above can also be interpreted as the quality of the instrument and also the quality of the research subjects. Another equation to see the grouping more accurately is to use the strata separation equation (H):

- **Person Separation Analysis**

$$H = \frac{[(4 x Separation) + 1]}{3}$$

$$H = \frac{[(4 x\ 2,37) + 1]}{3}$$

H = 3.49

H = 3 (round up) *so there are 3 categories*

- **Item Separation Analysis**

$$H = \frac{[(4 x Separation) + 1]}{3}$$

$$H = \frac{[(4 x\ 9,65) + 1]}{3}$$

H = 13,02

H = 13 (round up) *so there are 13 categories*

Based on the calculation above, it is known that the item separation value is 13.02, the H value is rounded up to 13, so there are 13 groups of questions. For respondents, a separation value of 3.49 was obtained with H = 3 rounded to 3, indicating that the respondent group can be divided into 3 groups based on the respondent's separation value. Person separation (H=3) is a good category in the sense that the continuum items are quite broad between difficult and easy. Separation of items (H=13) of more than 5 indicates that the continuum is very high and highly variable so that respondents can be measured accurately using this instrument.

The career readiness instrument developed has been tested for validity and reliability. It can be said that this instrument can be used to determine the level of career readiness of vocational high school students. This instrument can be used by removing 3 statement numbers that are considered invalid and revising some statements that are considered poorly understood. In addition to testing the validity and reliability, the researchers also conducted empirical tests through instrument experts. Furthermore, the researcher also tested the readability of several students who had the same characteristics.

There are many factors that affect the readiness of SMK students. Readiness to work is influenced by factors such as knowledge, skills and attitudes. Knowledge and skills of vocational students can be seen from their professional abilities. On the other hand, regarding attitudes, we can see the self-efficacy of SMK students. Professional ability can be defined as the ability that a person has in terms of knowledge, attitudes, and skills to work in a particular field. People with professional abilities can do their jobs better than those without these abilities. Judging from the developmental age of professional vocational students, the average age of development is teenagers (16-19 years), students need to receive work preparation guidance (Pangastuti & Khafid, 2019). Career readiness is expected to be used as a guide to reassure students that they have understood themselves and their goals after graduating from the education unit.

Rating Scale

Table 7. Summary of Rating Scale Result

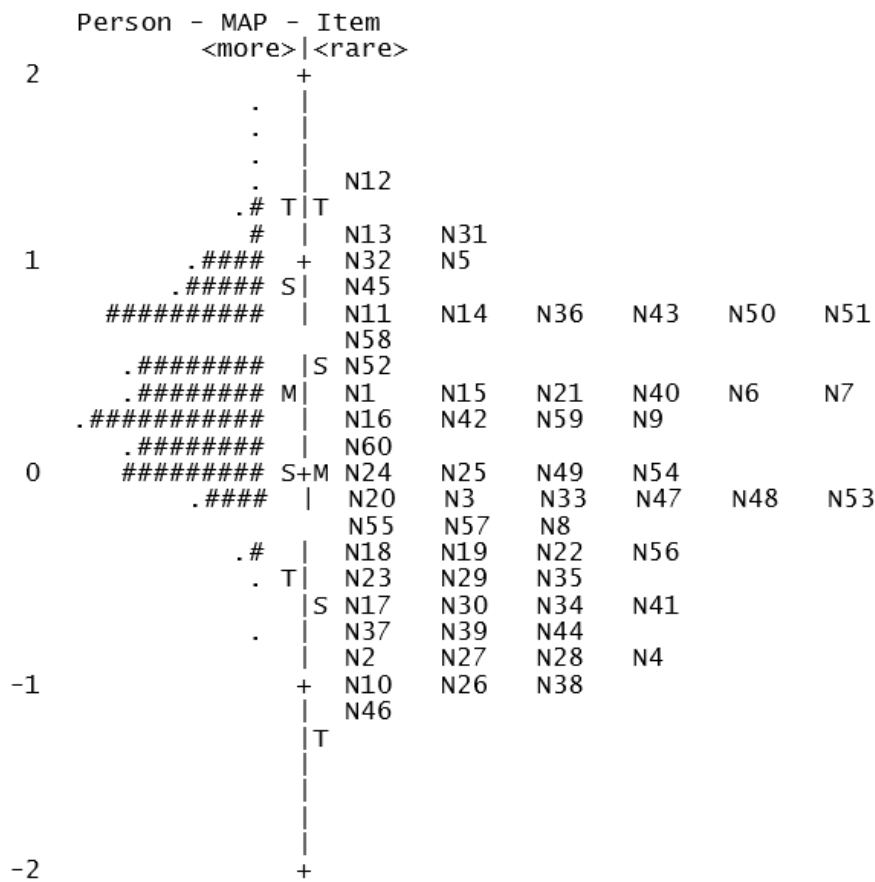| Category Label	Obsvd Avrge	Infit MNSQ	Outfit MNSQ	Andrich Threshold
1	-0.21	1.26	1.32	NONE
2	-0.14	0.97	0.97	-1.61
3	0.21	0.91	0.88	-0.79
4	0.71	0.94	0.94	0.42
5	1.15	0.97	0.97	1.98

In the table 7 above, it can be seen that the average observation starts from logit -0.21 for a score of 1 (which is very inappropriate), then there is an increase up to a score of 5 (which is very appropriate) with a logit value of 1.15. It can be seen that between choices 1 to 5 shows an increase in the logit value which indicates that the respondent can confirm choices 1 to 5 (very unsuitable to very appropriate).

Another measurement is the Andrich Threshold to assess the accuracy of the polytomies that have been used. The Andrich Threshold value which leads from None negative to continues to lead to a positive value indicates that the given option is valid for the respondent.

Variable Map

Based on the output of the rasch model, variable map are below:

```
     Person - MAP - Item
            <more>|<rare>
  2              +
             .   |
             .   |
             .   |
             .   |   N12
           .# T|T
            #  |   N13   N31
  1       .####  +   N32   N5
          .#### S|   N45
        ######### |   N11   N14   N36   N43   N50   N51
                      N58
        .#######  |S N52
        .####### M|   N1    N15   N21   N40   N6    N7
      .########### |   N16   N42   N59   N9
        .#######  |   N60
  0     ######### S+M N24   N25   N49   N54
          .####   |   N20   N3    N33   N47   N48   N53
                      N55   N57   N8
          .#    |   N18   N19   N22   N56
          .   T|   N23   N29   N35
               |S N17   N30   N34   N41
          .    |   N37   N39   N44
               |   N2    N27   N28   N4
 -1            +   N10   N26   N38
               |   N46
               |T
               |
               |
               |
               |
 -2            +
```

Picture 1. Variable Map Result

Based on the results of the analysis above, the distribution of variable map, difficulty levels can be concluded that there is one number with a very difficult level of difficulty, item number 12. Meanwhile, the other numbers are in categories that can be understood by students. The difficult category is for items that are above a score of 2 and the easy category is for items below a score of -2.

Discussion

The results of the above instruments prove that the career readiness instrument has been validated and has proven its reliability based on criteria (Chan et al., 2014). This instrument is expected to help students to have career readiness so that they are motivated to develop readiness and can identify their own career goals (Niles & Harris-Bowlsbey, 2017). So, guidance and counseling teachers can help with post-vocational secondary school planning, as it involves students in thinking and planning for the future after graduating from vocational high school education (Harris et al., 2016).

Career readiness means students who are ready for college and career can qualify for and succeed at entry-level, college courses that carry credit leading to a baccalaureate or certificate, or career path-oriented training programs without the need for remedial or development courses (Lindstrom et al., 2020). Another opinion about career readiness is Super stated that career readiness is the ideal condition for a person at a certain age in completing his developmental tasks (Nabawi et al., 2021). So that career readiness becomes the main key before students graduate in the education unit.

Career readiness consists of two factors. The two factors include capability and complexity. Ability refers to an individual's intellectual and emotional ability to make rational decisions and can be influenced by emotional states and intelligence (Strauser et al., 2015). Based on the factors mentioned above, several aspects related to career readiness were developed, namely cognitive, affective and psychomotor aspects. These three aspects already represent aspects of career readiness according to several figures that have been developed.

In some developed countries such as the United States and Korea reforming education through a balance of learning assessment and career readiness assesment (Choi et al., 2018). this is what needs to be a reference for education in Indonesia that this career readiness instrument is a benchmark for increasing student work readiness in addition to preparing students for further studies. This instrument is expected to be a benchmark for preparing the careers of vocational high school students before entering the business world/industrial world or studying at a university (Hackmann et al., 2019). Readiness assessment into the provision of career guidance and counseling is one way to increase efficiency and focus on the integrity of appropriate career guidance services (Melvin & Lenz, 2014). It is the responsibility of educators to prepare all students for college and work so that students have the right career readiness (Clark, 2015).

From the item analysis and Racsh modeling analysis, it can be seen that the instrument career readiness that has been developed has good reliability and validity. So that this instrument can be used for further research.

Conclusion

Respondents who filled out this career readiness instrument were 344 students. The target respondents are only distributed to high school students (SMK) who are domiciled in the East Java area. The results of the item analysis through the validity test of Rasch modeling showed that of the 60 items tested, 47 items were suitable for use with a note that 10 items were revised and 3 items were discarded. So that the final total of items becomes 57 items. The results of the reliability test showed that the interaction between the respondents and the items as a whole had a special degree of reliability and met the criteria for reliability. In the sense that the subject provides consistent answers and the quality of the items on the career readiness instrument has special reliability. From the results of this questionnaire test, it can be said that the item validity and instrument reliability have been tested.

The career readiness instrument has been tested for validity and reliability, so that it can then be applied to Vocational High School students which aims to test students' readiness for work or further studies. It is hoped that this instrument can be developed for high school students or other educational units. Then this instrument can be developed with a larger number of respondents to strengthen the reliability of this instrument and can also be distinguished based on other factors such as from various ethnic backgrounds or the geographical location of

students' schools. This effort can then be used as a basis for intervention and career strengthening before entering the business and industrial world.

Acknowledgements

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