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Psychological Measurement of the Validity and Reliability of the Short form Career Decision Self-Efficacy Scale

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Abstract

The weak need assessment process in schools makes counseling teachers unable to develop demand programs according to students' needs. This study aims to modify and test a career instrument, namely the Career Decision Self-Efficacy Scale Sort Form (CDSE-SF). The CDSE-SF scale was previously developed by Elisabeth Betz. It is hoped that this research will become a solid foundation that will be used by researchers in completing the dissertation research that is being designed by researchers. This research is a small part of the dissertation construction being designed by researchers. The population of this research was all students of class X SMA in Gresik Regency. The sampling process was carried out by using the technique of probability sampling area sampling. The data analysis technique in this study will use confirmatory factor analysis. The results of the study explain that the validity and reliability of 25 items have been tested. The loading factor value has a value of more than 0.5. On the Self-Assessment indicator, five items have values from 0.841 to 0.899. On the Occupation Information indicator, the loading factor value is 0.813 to 0.874. Indicator Loading factor planning 0.862 to 0.915. The Goal setting indicator has a loading factor of 0.703 to 0.879. while the loading factor for the Goal Setting indicator is 0.788 to 0.884. on the reliability test, the Cronbach alpha value for each indicator is more than 0.85 which indicates that the instrument is reliable. In the Composite Reliability aspect, the value of each indicator ranges from 0.89 to 0.952. The scale tested must have a score ≥ 0.7 so that it is said to have a composite reliability value. This study describes the validity and reliability of all items in the CDSE. But keep in mind that the sample used is the majority of Javanese culture high school students. To get a more complex picture, it is necessary to test the validity of the different cultures of the various characteristics of students in Indonesia.

Keyword: career decision self efficacy, sort form, validation, high school student

Pendahuluan

CDMSE is the original acronym for career decision self-efficacy scale (Taylor & Betz, 1983), but because that term has been copyrighted for the term career decision-making, Nancy Betz and Karen Taylor changed the name to Career decision self-efficacy scale (CDSE) (Betz et al., 2005; Chaney et al., 2007). The CDSE scale has a long version consisting of 50 items and a short version of the scale consisting of 25 items. Both CDSE-LF (Career Decision Self Efficacy-Long Form) and CDSE-SF (Career Decision Self Efficacy-short Form) measure five competency domains of career choice based on the Crites career maturity model (Crites, 1973; Crites & Savickas, 1978).

CDSE-LF The scale is considered too long and has lower reliability than the CDSE-SF. CDSE has five domains that are measured, namely: Self Appraisal (SA); Occupational Information (OI), Goal Setting (GS), Planning (P), and Problem Solving (PS). The CDSE scale has answer choices in the form of a Likert scale of 10

from 1 to 9, but in its development, the Likert scale of 10 that was originally used was shortened to a Likert scale of 5 (Betz et al., 2005). The career decision self-efficacy scale (CDSES) (Taylor & Betz, 1983) is a career scale that is often used in career development literature in America (Luzzo, 1993; O'Brien, 2003); China (Hampton, 2005; Jin et al., 2012); Southern Africa (P. Creed et al., 2006; P. A. Creed et al., 2002), Malaysia (Stead et al., 2022); Indonesia (Situmorang & Salim, 2021; Sofyan et al., 2022). CDSES is based on Albert Bandura's Self Efficacy theory. He postulates that one aspect that greatly influences career success is Self Efficacy. Individual belief in seeing/assessing their ability to successfully carry out tasks is the main mediator in behavior change (A Bandura & Hall, 2018; Albert Bandura, 1971, 1986, 1997, 2017).

CDMSE-SF was first developed by Elisabeth Betz. In previous studies, this scale has been tested for its validity and reliability by several experts from various countries. Similar results were obtained from samples used in Europe (Betz et al., 1996), Australia and South Africa (Chaney et al., 2007;P. Creed et al., 2006; P. A. Creed et al., 2002), Indonesia (Chaney et al., 2007) CDMSE validity and reliability - SF is at a good level.

The behavioral domain relevant to the career decision-making process is defined as behavior that exhibits the five Career Choice Competencies postulated in the career maturity model (Crites, 1973; Crites & Savickas, 1978). Thus, the domains that are defined as behaviors that are relevant to competence in Career Decision Self-Efficacy are; (1) accurate self-assessment, (2) gathering job information, (3) choosing goals, (4) making plans for the future, and (5) problem solving. Following the specifications of the domain of interest, the definition of each competency (Crites, 1973)is reviewed to determine the specific behaviors relevant to each competency.

However, cultural differences between different research samples forced researchers to re-examine them. The researcher also modified several sentences in the instrument by adjusting the language and culture without reducing the meaning of the item. The reliability of the CDSE-SF was tested on American students (Taylor & Betz, 1983).

Research examining the challenges of CDSE-SF was conducted with different cultures, namely high school students in Australia and South Africa (P. Creed et al., 2006). Students in Australia have a dominant factor, namely: the information gathering aspect of the job information subscale and goal selection, while students in South Africa have a dominant factor in the decision making aspect, which includes items from the selection subscale and target planning (P. Creed et al., 2006).

Various studies have demonstrated the defeat of CDSE-SF. However, the CDSE-SF in Indonesia has not been confirmed, especially in Javanese culture. The purpose of this research is to test the validity and reliability of CDSE in high school environments.

Research methods

Research design

The conceptual framework of this study is as follows:

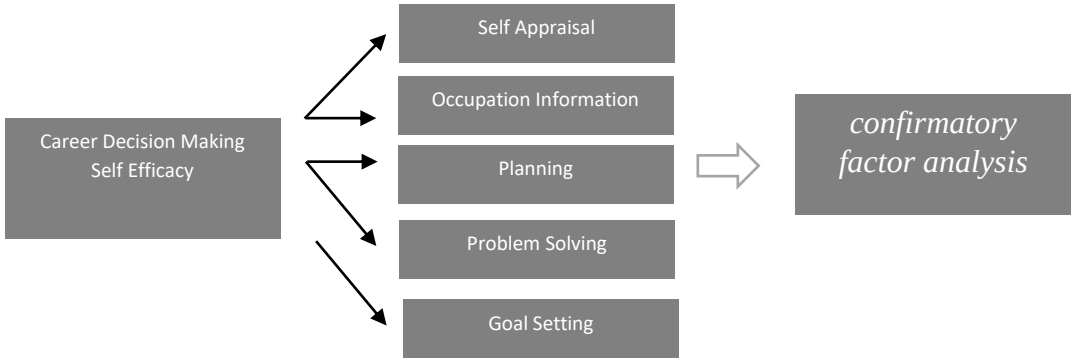

Chart. research concept framework

The CDSE indicator was developed into 25 items. Analysis tests will be carried out using confirmatory factor analysis. From the factorial test, valid and reliable items will be obtained which are ready to be used as research instruments.

This research is a quantitative study using confirmatory factor analysis to test the validity and reliability of the CDMSE-SF for high school students in the Gresik Regency. The results of this study will become supporting data in dissertation research taken by researchers. The research will be conducted at one of the high schools in Gresik Regency. The research will be conducted for 8 months.

Sample population

The population of this study was all students of SMA Negeri Gresik who were in class X. The sampling technique used by the researcher was probability sampling, an area sampling technique. Regional sampling techniques are used to determine samples if the object to be studied or the data source is very broad, for example, the population of a country, province, or district (Sugiyono, 2017). SMA sampling will be taken from the eastern, southern, central, northern, and western regions of Gresik. The number of samples obtained was 579 students from a number of high schools in the Gresik area.

Data collection technique

The primary data collection technique uses the career problem self-report technique. Self-report instruments will be developed and made online to facilitate data dissemination.

Research Instruments

The self-report instrument developed by the researcher is based on problems in the career field, especially the career maturity of high school students. Based on the SCCT conceptual framework used by researchers, there are five indicators that will be used by researchers.

The instrument will use periodic Likert answers with a scoring range between 1 to 5. The Likert scale is a scaling method for attitude statements that use the distribution of responses as a basis for determining the value of the scale by using responses that are categorized as very inappropriate. , appropriate, inappropriate, or very inappropriate (Azwar, 2012).

The following is a CDSE-SF research instrument design that has been developed by Elisabeth Betz as follows:

Table. CDSE-SF design

Scale	Indikator	Item
1	Self Appraisal	5, 9, 14, 18, 22
2	Occupational Information	1, 10, 15, 19, 23
3	Goal Selection	2, 6, 11, 16, 20
4	Planning	3, 7, 12, 21, 24
5	Problem Solving	4, 8, 13, 17, 25

Data analysis technique

The data analysis technique in this study used confirmatory factor analysis using the SMART PLS application. The instrument was designed using a Likert scale model. In the next stage, the results of the response will be rated from very satisfied to very dissatisfied.

Research Results and Discussion

Research result

Validity

Used to prove that the questions on each variable in this study can be understood by respondents in the same way as intended by researchers. Acceptable validity is the loading factor value ≥ 0.5 (Hair, Jr., J.F., Anderson, R.E., Tatham, R.L., Black, 1992). After being analyzed using Smart PLS, it was found that the Load Factor values for all variable indicators were not less than 0.5 as shown in the following figure:

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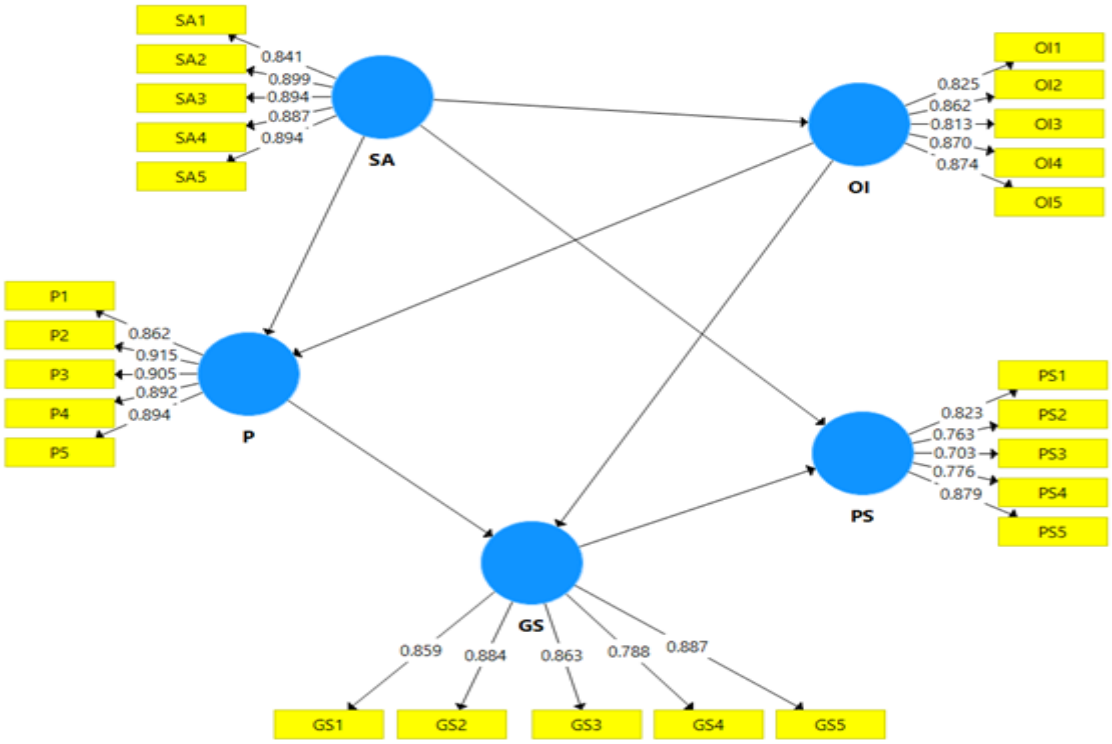

Figure. The factor Loading of CDSE Indicators

Descriptions:
GS : *Goal Setting*
OI : *Occupational Information*
P : *Planning*
PS : *Problem Solving*
SA : *Self Appraisal*

Reliability

Cronbach's Alpha (Contruct Reliability)

Construct reliability tests are needed to find out which instrument items when used twice to measure the same symptoms will provide relatively consistent measurement results (Putka & Sackett, 2010). The Cronbach Alpha scale was reduced to 5 criteria (Brown, 2002).

Table. The Cronbach Alpha Scale

Cronbach Alpha Scale	Description
0,81 to 1,00	Very Reliable
0,61 to 0,80	Reliable
0,42 to 0,60	Quite Reliable
0,21 to 0,41	Unreliable
0,00 to 0,20	Very not

Source: (Dahlan, 2014).

Table. Construct Reliability

CDSE Indicators	Cronch's Alpha
GS	0.909
OI	0.903
P	0.937

PS	0.850
SA	0.929

Source: Reliability Test Outputs Using Smart PLS

Based on the reliability test results above, it can be concluded that all variables have a reliability value above 0.81, this indicates that the level of reliability is on the Very Reliable scale.

Composite Reliability

Composite Reliability testing is used to show the internal consistency of an indicator in latent variables. Usually, the value of Composite Reliability tends to be greater than Cronbach Alpha (Fornell & Larcker, 1981a, 1981b).

It is considered reliable if the Composite Reliability value is ≥ 0.7 (Nunnally & Bernstein, 1994).

Table. *Composite Reliability*

CDSE Indicators	Cronch's Alpha
GS	0.932
OI	0.928
P	0.952
PS	0.893
SA	0.947

Sumber: Luaran Uji Reliabilitas Menggunakan Smart PLS

The value of Composite Reliability is obtained by a value of ≥ 0.7, absolutely the indicators for all variables have very good internal consistency.

Model Fit

Statistical analysis of research data has a model that can describe how well the model is used in a series of observations. The following is a smart pls results table regarding the Fit Model in this research data.

Table. *FIT Model*

Indikator *Model Fit Indicators*	*Saturated Model*	*Estimated Model*
SRMR	0.045	0.047
NFI	0.903	0.897

Sumber: Output Fit Summary Using Smart PLS

Model fit can be measured in several ways:

1) Look at the Standardized Root Mean Square Residual (SRMR) value

The model will be considered good if the SRMR value is <0.10 or 0.08 (Bentler & Bonett, 1980; Bentler & Yuan, 1999; Hu & Bentler, 1999). Based on the results above, the SRMR value was 0.045, meaning that the statistical model of this research data is suitable for use in a series of observations made by researchers.

2) Look at the Normal Fit Index (NFI) value

Values for this statistic range from 0 – 1 (Bentler & Bonett, 1980; Bentler & Yuan, 1999; Hu & Bentler, 1999). NFI value > 0.90 indicates a good fit, while 0.80 < NFI < 0.90 is referred to as a marginal fit. Based on the results above, the NFI value is 0.903, meaning that the model used is a good fit.

Discussion

In assessing the suitability of a good model or what is called the Fit Model, it can be seen in some of the results of the fit model index values that came out after the analysis. This study uses two fit measures to evaluate how well the data fit the model, (1) Normed-fit index (NFI) and (2) Standardized Root Mean Square Residual (SRMR), the NFI value reported in table 4.3 is 0.903, the value for this statistic ranges from 0 – 1. Bentler and Bonnet (1980) recommend a value greater than 0.90 indicating a good fit. More recent suggestions suggest that the cut-off criterion should be NFI ≥ 0.95 (Hu & Bentler, 1999). The main weakness of this index is that it is sensitive to sample size, it will produce an underestimated value if the sample is less than 200 (Mulaik et al., 1989; Hu & Bentler, 1999), and therefore it is not recommended to be used alone, so researchers also use the SRMR value, this statistic is the root the square of the difference between the residuals from the sample covariance matrix and the hypothetical covariance model and SRMR has standardized its value so it is much more meaningful to interpret. Values for the SRMR range from 0 – 1, considered to have a good match if the value is less than 0.05 (Isham et al., 2021; Diamantopoulos et al., 2000), but values as high as 0.08 are considered acceptable (Hu & Bentler, 1999). Based on the analysis results in table 4.3 the SRMR value is 0.045, this shows that the proposed theory fits the existing data.

The validity of the SEM model of this study was analyzed using the Smart PLS 3.0 program, researchers in the model contained 5 (five) variables analyzed, namely (1) GS (Goal Selection) as measured by 5 (five) indicators: GS1, GS2, GS3, GS4, and GS5. (2) OI (Occupational Information) is measured by 5 (five) indicators: OI1, OI2, OI3, OI4, OI5, OI6. (3) P (Planning) is measured by 5 (five) indicators: P1, P2, P3, P4, and P5. (4) PS (Problem Solving) is measured by 5 (five) indicators: PS1, PS2, PS3, S4, and PS5. (5) SA (Self Appraisal) is measured by 5 (five) indicators: SA1, SA2, SA3, SA4, and SA5. As shown in Figure 4.1, the direction of the arrow between the indicator and the variable is towards the indicator which shows that the study uses a relatively appropriate reflective indicator for measuring perception or the Measurement (Outer) Model on CDSE.

Validity or Evaluation of the Measurement (Outer) Model of the CDSE variables in this study looks at the Loading Factor value of each indicator according to Figure 4.1, all indicators on the four variables: (1) Variable GS (Goal Selection), (2) Variable OI (Occupational Information), (3) variable P (Planning), (4) variable PS (Problem Solving), (5) variable SA (Self Appraisal) after being analyzed all indicators have a loading factor value of >0.7 which can be interpreted as meeting the validity limit instrument, making it suitable for measuring CDSE variables.

Reliability in this study was tested using Cronbach's Alpha (Construct Reliability) and Composite Reliability. The Cronbach Alpha test model shows reliability with higher numbers from the Cronbach Alpha value column, the level of data reliability will be better and can be said to be a reliable instrument (Palupi, 2013). In accordance with table 4.2 there are the results of the analysis: (1) GS (Goal Selection) variable has a value of 0.909, (2) OI (Occupational Information) variable has a value of 0.903, (3) P (Planning) variable has a value of 0.937, (4) variable PS (Problem Solving) has a value of 0.850, (5) the SA variable (Self Appraisal) has a value of 0.929. All Cronbach's Alpha values for each of the CDSE indicators are > 0.8, which means that the instruments used for CDSE measurements in this study are good and appropriate. Cronbach's alpha measures the lower limit of the reliability value of a construct while composite reliability measures the actual value of the reliability of a construct, because of this Composite reliability is considered better in estimating the internal consistency of a construct, so researchers also analyze the reliability of instrument data using Composite reliability as shown in table 4.2. results (1) Variable GS (Goal Selection) has a value of 0.932

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