

CONFIRMATORY FACTOR ANALYSIS TO KNOW THE INFLUENCING FACTORS OF ELEMENTARY SCHOOL STUDENTS' SELF-CONCEPT IN JETIS SUB DISTRICT, BANTUL REGENCY

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ABSTRACT

This research aimed to know the factors that influenced elementary students' self-concept in Jetis Sub District, Bantul Regency, Yogyakarta. The subject of this research consisted of 200 fourth grade students from four different elementary schools in Jetis Sub District. The result showed the fit model with one dimension. The value of each fit parameter of GFI, RMSEA, NFI, IFI, CFI, TLI, and AGFI was 0.958, 0.066, 0.953, 0.976, 0.976, 0.967, and 0.958. All factors or dimensions in self-concept instrument had good reliability by looking at the value of $CR \geq 0,7$ categorizing as good reliability, while the value between 0,6 and 0,7 considered to acceptable reliability by underlining that the indicator has load factor that matched the criteria. The internal consistency could be measured by using Average Variance Extracted (AVE). The AVE value that was recommended was $\geq 0,5$. This clearly showed that self-concept has validity evidence of internal structure. Moreover, self-concept has convergent and discriminant validity. The self-concept reliability was considered good, so it will give relatively consistent result when there is re-measurement.

Keyword: Self-concept, CFA, Instrument Development

INTRODUCTION

Education is not only limited to the process of knowledge transfer between educators and students, but also it must be able to shape and develop the personality of each individual in order to become fully human. Being fully human, of course, cannot be achieved easily. There are so many supporting characters that must be fostered since childhood, one of them is related to self-concept. Someone who is able to realize himself is called self-concept. Self-concept is comprehensive representation about one's ability and attitude (Martorell et al., 2014). Meanwhile, William D. Brooks in Jalaluddin argues that self-concept is psychology perception, social, and physic toward others (Jalaluddin, 2007). William H. Fitts in Hendriati defines self-concept as important aspect in a person, because one's self-concept is a frame of reference (frame of reference) in interacting with the environment (Hendriati, 2009). Based on the theories above, it can be concluded that self-concept is one's view, feeling, and belief toward himself, including representation about himself and the desired personality obtained from experience and interaction with others.

There are so many factors influencing one's self-concept. William H. Fitts in Hendriati states that self-concept is influenced by experience, competence, in area valued by others and

self-actualization (Hendriati, 2006). Therefore, Pudjijogyanti in Yulius emphasizes on those influencing factors of self-concept involve the role of: physical image, gender, parents' behavior, and social factor. (Prawoto, 2010). Different from the explanation above, Amaryllia classifies the influencing factors of self-concept consist of the influence of: economic limitation, social class, and age (Puspasari, 2007). The factors that influence the form and development of one's self-concept are distinguished into internal factor covering competence, experience, self-actualization, meaningful feeling, goodness, physical image, gender, and age. Meanwhile, the external factor consisting of the roles of parents, economic limitation, and social class. Self-concept is crucial in forming child's behavior. Dealing with education sector, today's educators starts to realize the self-concept impact toward both child's behavior in learning process conducted in class and the achievement (Soemanto, 1990). Calhoun and Acocella in Ratna Dwi differentiate the two self-concepts into positive and negative (Astuti, 2014). If one has positive self-concept, his or her behavior tends to be positive, whereas, the negative behavior will be negative too. In line with those point of views, positive self-concept can be linked to positive self-evaluation, self-appreciation, whereas the negative self-concept can be linked to negative self-evaluation, self-loathing, feeling of inferiority, and the absence self-acceptance (Burns, 1993).

According to Brooks dan Emmert in Jalaluddin (2007), the signs of positive self-concept are believing to be able to overcome problem and improve himself, feeling equal to others, feeling confident when accepting praise, realizing that not all feelings, expectations, and behaviors can be agreed upon by the community. Furthermore, the signs of negative self-concept are feeling dislike to criticism toward himself, showing responsive behavior when gaining praise, always complaining, feeling that other people do not like him/her, feeling dislike compete to others and pessimist in competition. By noticing the signs about positive or negative self-concept, parents and teacher will be easy to direct their children in order to have positive self-concept. By having that, a child will tend to try their efforts as maximum as they can, so they will be able to achieve their expectations (Subaryana, 2015).

Hurlock has divided three components of self-concept into: 1) *the perceptual component*, 2) *the conceptual component*, and 3) *the attitudinal component* (Hurlock, 1979). Firstly, *the perceptual component* explains one's representation and impression about body appearance and impression made for others; it is often called Physical self-concept. Secondly, *the conceptual component* explains about point of view related to characteristic that different from others in both ability and weakness arranged by one's quality of life adjustment. *Thirdly, the attitudinal component* explains the feeling related to pride and shame.

In this research, the researchers developed a measurement instrument to measure the fourth-grade students' self-concept in elementary school in Jetis Sub district, Bantul Regency, Yogyakarta. Dealing with so many factors influencing one's self-concept, it was needed a construct validity from the latent variable and the indicator variable formed. The research is expected to give overview dealing with how to confirm the hypothesized model and know the relationship of the indicator and latent variable that influenced the fourth-grade students' self-concept in elementary school in Jetis Sub District, Bantul Regency, Yogyakarta. In SEM, there are analysis models: *Exploratory Factor Analysis (EFA)*, *Confirmatory Factor Analysis (CFA)*, and *Full Latent Variable Model* (Nugraha, 2018). EFA is designed to a situation where the relationship among observed variables and the latent variable was unknown or still unclear. In

addition, CFA is used to conduct a research that the researcher have had knowledge about the structure of the underlying latent variable (Sarwono, 2013).

The EFA and CFA factor analysis models focus on the underlying latent variable. Therefore, the strength of all regression paths from all of those factors towards all directly observed variables (regression coefficient or load factor) become its focus of analysis. Confirmatory Factor Analysis is one of multivariate analysis method that can be used to confirm whether the measurement model that is built matches with what was hypothesized. There are two variables in Confirmatory Factor Analysis namely latent and indicator. The latent is a variable that cannot be formed directly, whereas the indicator variable is a variable that can be observed and measured directly.

METHOD

This research used a quantitative research approach. The technique used to measure construct validity was Confirmatory Factor Analysis (CFA). The sampling technique used in this research was cluster random sampling. Cluster was chosen based on formal school types, they were two public primary schools and two private primary schools in Jetis Sub District, Bantul Regency. The respondents involved in this research were 200 fourth-grade students. The latent variable used came from Hurlock's theory: 1) *the perceptual component*, 2) *the conceptual component*, and 3) *the attitudinal component*. The indicator used in this research can be seen on the Table 1 below:

Table 1. Self-Concept Indicator Variable

No.	Sub-Variable	Indicators
1.	Perceptual Component	Physical condition
		Body endurance
		Other people's impressions of one's appearance
2.	Conceptual Component	Distinctive characteristic
		Ability and disability
3.	Attitudinal Component	Family background and origin
		Quality of life adjustment
		Feelings to be recognized and rejected by others

Confirmatory Factor Analysis (CFA) in this research used JASP program version 0.13.1.0

RESULT AND DISCUSSION

The result of preliminary CFA in self-concept variable was presented in two tables. Table 2 generally showed that the measurement model had been fitted. The value of fit parameter GFI, RMSEA, NFI, IFI, CFI, TLI, and AGFI had matched with the specified criteria. The p-value that did not fit could be ignored by observing the other values (Santoso, 2014). Each model and load factor can be seen in picture 1. After conducting model testing and load factor analysis, then reliability testing was conducted. Reliability can be stated as internal consistency of an instrument that can be measured based on the degree of homogeneity of the item. Hair et al explains reliability test in CFA involves Construct Reliability (CR) dan Average Variance Extracted (AVE) (Hair, J.F. et al., 2010). $CR \geq 0,7$ was categorized as good reliability, while CR between 0,6 and 0,7 categorized as acceptable reliability, in condition, the indicator had load factor that fit to the criteria. Internal consistency also could be measured by using *Average*

Variance Extracted (AVE). The AVE's recommended value was >0,5. Based on the data on table 4, it was found that all factors or dimensions in self-concept instrument had good reliability.

Calculation of CR (Construct Reliability) and AVE (Average Variance Extracted)

The following are CR dan AVE formulas (Ghozali & Fuad, 2005):

$$\text{Construct Reliability} = \frac{(\sum \text{Standardized Loading})^2}{(\sum \text{Standardized Loading})^2 + (\sum \text{Measurement Error})}$$

$$\text{Variance Extracted} = \frac{\sum \text{Standardized Loading}^2}{\sum \text{Standardized Loading}^2 + \sum \text{Measurement Error}}$$

Convergent and Discriminant Validity

The convergent validity is how far a measurement positively correlated with other measurement that measured the same construct. In reflective measurement model, the indicator or item of construct treated as different measurement that measure the same construct. Consequently, items that were the indicator of a construct should gather (converge) or share a high proportion of variant. An instrument had fulfilled convergent validity if it fulfilled the requirement (a) load factor AVE ≥ 0,5 (b) composite reliability value (CR) ≥ 0,7 and Average Variance Extracted (AVE) AVE ≥ 0,5 (Ingarianti and Purwono, 2019). Based on the load factor, the value of CR and AVE could be identified: 1) *the perceptual component*, 2) *the conceptual component*, and 3) *the attitudinal component* factor or dimension that fulfilled the convergent validity.

Table 3. Model Accuracy Parameter

Category	Fit Parameter	Output	Criteria	Information
<i>Absolute Fit</i>	<i>Chi square P-Value</i>	0.007	output ≥ 0.05	Unfit
	<i>Goodness of fit index (GFI)</i>	0.958	output ≥ 0.90	Fit
	<i>Root mean square error of approximation (RMSEA)</i>	0.066	output ≤ 0.08	Fit
	<i>Normed fit index (NFI)</i>	0.953	output ≥ 0.9	Fit
	<i>Incremental fit index (IFI)</i>	0.976	output ≥ 0.9	Fit
<i>Incremental Fit</i>	<i>Comparative fit index (CFI)</i>	0.976	output ≥ 0.9	Fit
	<i>Tucker-Lewis Index (TLI)</i>	0.967	output ≥ 0.9	Fit
	<i>Adjusted goodness of fit index (AGFI)</i>	0.958	output ≥ 0.9	Fit

Category	Fit Parameter	Output	Criteria	Information
<i>Parsimonious Fit</i>	<i>Parsimonious Normal Fit Index (PNFI)</i>	0.680	0,60 – 0,90	Fit

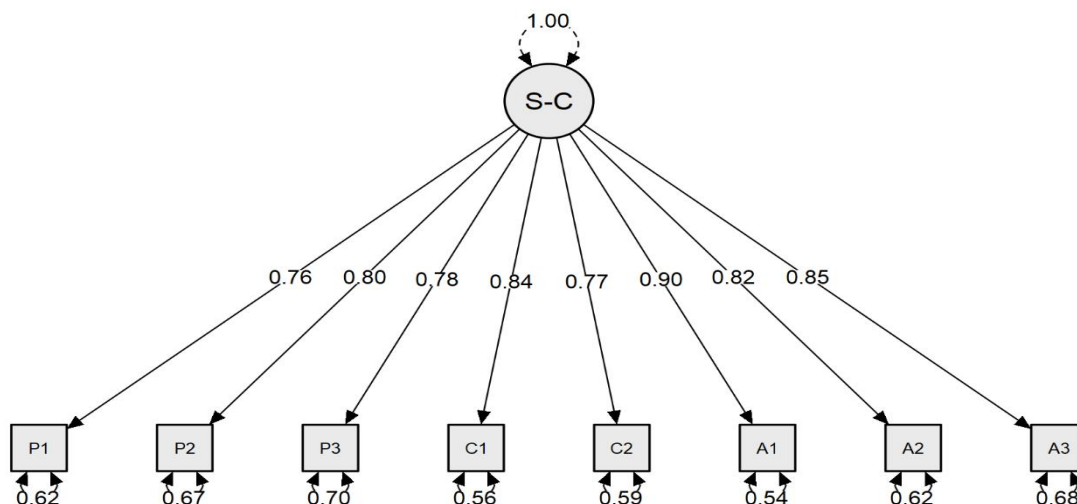


Table 4. CR dan AVE Values

Indicator Variable	λ	Error	λ^2	CR	AVE
P1	0.691	0.522	0.478		
P2	0.697	0.514	0.486		
P3	0.681	0.536	0.464	0.7	0.5
Total	2.069	1.572	1.427		
C1	0.748	0.441	0.560		
C2	0.708	0.498	0.501	0.7	0.5
Total	1.456	0.939	1.061		
A1	0.775	0.400	0.600		
A2	0.723	0.478	0.523	0.8	0.6
A3	0.718	0.485	0.516		
Total	2.216	1.363	1.639		

Table 5. Residual Covariance

Indicator	Estimate	Std. Error	z-value	p	95% Confidence Interval		Std. Est. (all)
					Lower	Upper	
P1	0.623	0.066	9.369	< .001	0.493	0.753	0.522
P2	0.671	0.072	9.333	< .001	0.530	0.811	0.514
P3	0.699	0.074	9.432	< .001	0.554	0.844	0.536
C1	0.556	0.062	8.936	< .001	0.434	0.678	0.441
C2	0.587	0.063	9.258	< .001	0.462	0.711	0.498
A1	0.539	0.062	8.649	< .001	0.417	0.661	0.400
A2	0.617	0.067	9.151	< .001	0.484	0.749	0.478
A3	0.678	0.074	9.187	< .001	0.533	0.822	0.485

Discriminant validity is how far a construct becomes different with the other constructs. It means, a latent variable should explain the variant better or higher than variant found in other latent variables. Therefore, the load factor from indicator in latent variable should be higher than the load factor of all latent variables. One of the ways to test the discriminant validity is to compare the AVE with the square of the correlation between the two constructs. Discriminant validity is achieved if the AVE square root value is greater than the correlation among the constructs. Based on the data in table 5, it is known that all three dimensions in CCM meet discriminant validity.

CONCLUSION

The aim of this research is to do Confirmatory Factor Analysis toward self-concept instrument, so it can be used in Indonesia. Based on the result of CFA, it can be concluded that self-concept model consists of three dimensions: 1) *the perceptual component*, 2) *the conceptual component*, and 3) *the attitudinal component*. It shows that self-concept has validity evidence of internal structure. Meanwhile, self-concept has validity evidence of convergent and discriminant. The reliability of self-concept is considered good, so it will give relatively consistent result when there is re-measurement.

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