Validity and Reliability of Self-Concept Instrument Using Rasch Model

Meyliani Latifah*, Ipah Saripah, Dodi Suryana, Yaya Sunarya

Universitas Pendidikan Indonesia , Dr. Setiabudhi St., No. 229, Bandung, West Java, 40154, Indonesia
*Corresponding author, e-mail: meyliani@upi.edu

Abstract
The development of instruments designed to assess student self-concept is crucial. This understanding of self-concept is based on the premise that it is a dynamic and ever-evolving construct. The concept of self-concept is initially conceived as a unidimensional structure but subsequently evolves into a multidimensional construct. The present study assesses the validity and reliability of the newly developed self-concept instrument. In Indonesia, there is a paucity of research that employs the Rasch Model to examine self-concept instruments, particularly in the context of the junior high school population. The objective of this study was to analyze the self-concept instrument using the Rasch Model with a sample of 113 students at the junior high school level. The research methodology employed is quantitative, with a cross-sectional design. The sampling technique employed was simple random sampling. The findings of the study indicate that the instrument effectively assesses the intended dimensions of self-concept. The reliability of the self-concept instrument is deemed to be of a high category, while the reliability of the self-concept item is considered to be of an excellent standard.

1. Introduction

Self-concept is defined as an individual's feelings, views, and assessments about themselves, derived from the results of interactions with the surrounding environment (Burn, in Fitriani, 2019). This definition illustrates that self-concept encompasses elements of an individual's feelings, judgments, and views about themselves. The self-concept is not an inherent characteristic; rather, it is a construct that is shaped by the individual's experiences and interactions with their environment (Haryati, Astuti, & Fadillah, 2022). These experiences and interactions contribute to the formation of the self-concept.

The concept of self-concept is not a matter of pride regarding an individual's self; instead, it is the individual's self-acceptance of their own attributes. According to Ranny et al. (2017), individuals can be said to have good self-acceptance if they are able to understand and accept themselves with all the changes that occur during adolescence. However, in reality, not all individuals are able to receive the circumstances and changes that occur to them. This leads to the formation of positive and negative self-concepts.

Those with a positive self-concept are more confident, courageous, independent, enthusiastic about learning, active in learning, and confident in themselves (Gunarsa, 2008). Conversely, individuals with a negative self-concept are more likely to experience inhibition of self-actualization and failure in social interaction. Those with a negative self-concept are more likely to exhibit negative behaviors in relationships and to experience difficulty in controlling themselves in certain situations. The negative self-concept that develops in individuals results in a lack of understanding of their own situation, an inability to accept their situation, and low self-esteem. Consequently, it is of paramount importance for individuals to cultivate a positive self-concept, as it serves as a valuable asset in the planning of one's life, both in the present and in the future (Setianingsih, 2015). The development of

a positive self-concept in individuals will result in the growth of self-confidence, a positive personality, and an increasingly mature way of thinking. This will enable individuals to become strong individuals in facing the challenges of the times.

In order to measure an individual's self-concept, it is necessary to utilize an instrument as a measuring tool. An instrument is defined as a tool used to measure a variable or measuring object in accordance with academic requirements (Djaali, 2000). In order for an instrument to be considered valid and reliable, it must be able to measure what it is intended to measure and demonstrate an acceptable level of accuracy. An instrument is considered to be valid if it provides measurement results that accurately reflect the actual state of the phenomenon being measured. In addition, an instrument is deemed reliable if it consistently yields the same results when tested on the same group at different times or occasions.

The instrument is said to be valid or able to describe the self-concept if it has been analyzed and declared valid. Laboreria et al. (2023) conducted research using the Spanish version of the Nurses Self-Concept Instrument (NSCI) with a sample of 483 nurses. The internal reliability test was evaluated using Cronbach's Alpha, while the construct validity test was assessed using exploratory and confirmatory factor analysis. The results demonstrated that the Spanish version of the NSCI instrument exhibited satisfactory measurement properties. Research conducted by Hartanti and Marfu'i (2019) indicated that the self-concept scale instrument analyzed using the Rasch Model was unsuitable for measuring the self-concept of engineering faculty students. This was because the self-concept scale suggested that the quality of the items was inconsistent, and the reliability level remained in the medium category. Marnburg and Luo (2014) employed the Levels of Self-Concept Scale (LSCS), developed by Salenta and Lord (2002), to assess the self-concept of Chinese hospitality industry employees. The reliability of the LSCS factors was evaluated using internal consistency (IC), the split-half technique, and the correlation between factors calculated by SPSS. Initially, a Confirmatory Factor Analysis (CFA) was conducted. This was followed by an item-specific factor association analysis, convergent and discriminant were identified using regression analysis. The findings indicated that the LSCS instrument is suitable for use in Eastern cultural context research, as it exhibits satisfactory reliability and discriminant validity. However, to achieve more optimal outcomes, it is recommended to enhance the instrument's convergent validity. Another study conducted by Joyce and Yates (2007) aimed to assess the academic self-concept questionnaire items analyzed by the Rasch Model. The sample consisted of 120 students from 13 different public elementary schools. The results demonstrated that the majority of the academic self-concept questionnaire items exhibited an adequate fit with the Rasch Model. Reynolds, et al. (1980) conducted a study using the Academic Self-Concept Scale (ASCS) with 59 items tested on college students. Item scale correlations were corrected using the Cureton (1966) technique. Internal reliability of items was based on Cronbach's Alpha coefficient, and scale validity was established on the correlation between the ASCS and GPA and scores on the Rosenberg scale. The results indicated that the ASCS is a reliable and valid measure of academic self-concept. However, further cross-validation studies are necessary. The ASCS can be a valuable tool for research with college populations and a suitable measure for clinical use by college counselors.

Previous research indicates that self-concept instruments are predominantly derived from existing self-concept scales and evaluated outside the educational context. Moreover, the Rasch Model is rarely employed to assess the validity and reliability of self-concept instruments, particularly in Indonesia. In hindsight, instruments analyzed using the Rasch Model have been tested on elementary school students and university students, with the reliability level of the instrument remaining in the moderate category. To date, there has been no renewal of research that discusses specifically the analysis of self-concept instruments using the Rasch Model. This is the reason for researchers to conduct research on the validity and reliability of self-concept instruments using the Rasch Model, which is tested on adolescents at the junior high school level. The Rasch Model offers several advantages, including the ability to provide a detailed description of the structure of the instrument scale, including item and person explanations. It can also measure item ability and difficulty, as well as solve data integrity problems by using logit transformations derived from respondents' raw data (Carvalho, Primi, & Meyer, 2012; Wu & Adams, 2007; Linacre, 2010). In addition, Taufiq, et al. (2021) posit that the Rasch Model offers several other advantages, including

the ability to provide a linear scale with equal intervals, the capacity to predict missing data, the capability to provide more accurate estimates, the ability to detect model inaccuracies, and the generation of replicable measurements. The implementation of the Rasch Model is designed to produce a measurement scale that can provide accurate information about the quality of the items and test respondents. In essence, Rasch Model analysis yields information about the characteristics of items on the instrument and students who have been formed into the same metric (Sumintono & Widhiarso, 2015). The Rasch Model presents five types of information, including unidimensionality, item analysis, respondent ability analysis, Wright map analysis, and instrument analysis (Yusuf, et al., 2021).

In this study, researchers constructed and compiled the research instruments pertaining to self-concept. The development of this self-concept instrument commenced with the formulation of the construct to be measured (in this context, self-concept) based on the theory studied, developing aspects and indicators based on the constructs that have been contained in the variable construct formulation, making instrument grids including aspects, indicators, item numbers, and the number of items for each aspect and indicator; making items in the form of positive and negative statements; conducting instrument trials to the field; and testing the validity and reliability of self-concept instruments using the Rasch Model. The self-concept instrument developed by researchers differs from previous studies, mainly because it is based on Berzonsky's theory (1981), which posits that self-concept encompasses four aspects: physical, social, moral, and psychological. Additionally, the instrument's aspects and indicators align with Bloom's taxonomy, which classifies them into three domains: cognitive, affective, and psychomotor. This study aims to analyze self-concept instruments using the Rasch Model in adolescents to provide empirical evidence regarding the validity and reliability of self-concept instruments from five perspectives, encompassing dimensionality, Wright map analysis, item analysis (item suitability level, item difficulty level, and item bias detection), rating scale, and instrument analysis.

2. Method

This study was quantitative research with a cross-sectional design. The study's respondents were ninth-grade students from one of the junior high schools in Bandung City, Indonesia with a total of 113 students. The sample was selected using a simple random sampling technique. The data collection technique employed in this study utilized a Likert scale, which measured attitudes, views, and opinions regarding specific social symptoms (Hidayat, 2021). The scale comprised both favorable and unfavorable items. The score for each alternative answer on favorable (positive) items, ranging between 1-4, represents strongly disagree, disagree, agree, and strongly agree. In contrast, the score for each alternative answer on unfavorable (negative) items ranges between 1 to 4, with 1 representing strongly agree, 2 agreeing, 3 disagree, and 4 strongly disagree.

In the process of data collection, this research employed self-concept instruments based on aspects and indicators derived from Berzonsky's (1981) theory. The self-concept comprises four main aspects, namely physical self-concept, which includes aspects such as appearance, body size, and health; social self-concept, which encompasses the ability to interact socially with one's environment and a sense of worth; moral self-concept, which concerns a person's sense of responsibility, ability to distinguish between right and wrong, and adherence to applicable rules; and psychological self-concept, which encompasses feelings, thoughts, and attitudes towards oneself. The psychological self-concept encompasses feelings, thoughts, and attitudes that individuals hold toward themselves. It includes a sense of responsibility, the ability to distinguish between good and bad things, adherence to applicable rules, and faith in the religion one follows. The following attachment is to be considered in conjunction with the self-concept instrument outline presented in Table 1.

Table 1. Outline of Self-Concept Instrument

No.	Aspect	Indicator
1.	Physical	The individual's ability to assess his/her own appearance
		The individual's ability to assess the state of his/her body
		The individual's ability to assess his/her health condition
2.	Social	Individual's ability to interact with others

No.	Aspect	Indicator
		Ability to have self-acceptance in the social environment
3.	Moral	The individual's ability to build his/her relationship with God and satisfaction with his/her religious life
		The individual's ability to comply with all applicable rules
4.	Psychological	The individual's ability to manage emotions
		Individual's ability to make decisions
		Individual ability to change behavior

Once the results of the self-concept instrument had been obtained, the data were subjected to analysis using the Rasch model. The data were subjected to analysis in accordance with the following criteria: aspects of unidimensionality, Wright map analysis, item analysis (item suitability level, item difficulty level, and item bias detection), rating scale, and instrument analysis.

3. Results

The self-concept of students was analyzed using the Rasch Model, which focused on five aspects, namely unidimensionality, Wright map analysis, item analysis (item suitability level, item difficulty level, and item bias detection), rating scale, and instrument analysis. The description of these aspects is presented in the following.

3.1. Unidimensionality Analysis

The unidimensionality analysis was performed to examine the attributes or dimensions tested using the instrument with the help of the Winstep version 3.73 application. This analysis examined the value of the raw variance explained by the measures and the unexplained variance in the first to fifth contrast. The measurement of unidimensionality can be determined when the raw variance explained by measures is equal to or greater than 20%. The interpretation benchmarks for unidimensionality are as follows: 20-40% in the moderate category, 40-60% in the good category, while above 60% with unexplained variance in the 1st to 5th contrast of residuals, each less than 15%, represents the excellent category.

Table 2. Unidimentionality

	Description	Value 1	Value 2	Value 3	Value 4
1.	Total raw variance in observations	40.6	100.0%	100.0%	
2.	Raw variance explained by measures	12.6	31.0%	31.2%	
3.	Raw variance explained by persons	2.4	5.9%	6.0%	
4.	Raw variance explained by items	10.2	25.0%	25.2%	
5.	Raw unexplained variance (total)	28.0	69.0%	100.0%	68.8%
6.	Unexplained variance in 1st contrast	3.9	9.5%	13.8%	
7.	Unexplained variance in 2nd contrast	2.5	6.2%	9.0%	
8.	Unexplained variance in 3rd contrast	2.1	5.1%	7.4%	
9.	Unexplained variance in 4th contrast	1.7	4.2%	6.0%	
10.	Unexplained variance in 5th contrast	1.6	3.9%	5.6%	

Table 2 presents the results of the raw variance explained by the measures included in the "sufficient" category, which account for 31.0% of the total variance. With regard to the residuals, the unexplained variance in the first contrast to the fifth contrast is 9.5%. The unexplained variance in the first contrast is 9.5%. The unexplained variance in the second contrast is 6.2%. The unexplained variance in the third contrast was 6.2%, while that in the fourth contrast was 5.1%, and that in the fifth contrast was 4.2%. Finally, the unexplained variance in the fifth contrast was 3.9%.

3.2. Item Analysis: Item Difficulty and Suitability

The difficulty of an item can be assessed using the Winstep application on Measure Order items. It is known that the standard deviation (SD) has a value of 0.79. The level of item difficulty can be divided into four categories when the standard deviation (SD) value is combined with the average logit value. These categories are as follows: the very difficult item has greater than + 1 SD, the difficult

category has 0.00 logit + 1 SD, the easy category has 0.0 logit - 1 SD, and the very easy category has less than - 1 SD. The difficult category is defined as 0.0 to (-0.79), the easy category is defined as 0.0 to (-0.79), and the easy category is defined as 0.0 to less than -0.79.

The logit value of each item in the Winstep application was examined in order to determine the level of suitability of the items. This was done by sorting the items from the most difficult to the easiest. There are three items that belong to the very difficult category, namely item numbers 28, 11, and 19. A total of 12 items are classified as difficult, including item numbers 4, 12, 6, 3, 15, 2, 23, 25, 20, 9, 1, and 24. In contrast, there are 10 items that fall into the "easy" category, as indicated by item numbers 16, 26, 18, 27, 8, 17, 10, 13, 5, and 22. Finally, there are three items in the "very easy" category, as identified by item numbers 14, 7, and 21.

The Item Fit Order processing in the Winstep application indicates that the items are suitable for measuring self-concept, thereby preventing any misunderstandings about the items. In the Item Fit Order section, the OUT FIT MNSQ, OUT FIT ZSTD, and POINT MEASURE CORRELATION columns can be examined to gain insight. The criteria for determining whether an item is suitable or misfit are as follows: the OUT FIT MNSQ value should be greater than 0.5 and less than 1.5, with a value closer to 1 representing a more suitable item. Similarly, the OUT FIT ZSTD value should be greater than -2.0 and less than +2.0, with a value closer to 0 representing a more suitable item. The point measure correlation must be greater than 0.4 and less than 0.85. Items that meet at least one of these three criteria can be considered fit.

In light of the aforementioned statement, it can be posited that self-concept items are suitable if they meet at least one of the three criteria. In the case of the OUT FIT MNSQ, all items meet the aforementioned criteria. In the OUT FIT ZSTD, only 12 items meet the criteria, namely item numbers 11, 22, 8, 1, 17, 19, 25, 20, 13, 18, 7, and 26. In POINT MEASURE CORRELATION, only nine items meet the criteria, specifically item numbers 25, 20, 23, 16, 21, 5, 13, 7, and 26. It can be concluded that all self-concept instrument items are declared fit, and no items are eliminated because they have met at least one of the three criteria. This indicates that the self-concept items are readily comprehensible to students and are capable of accurately measuring the construct of self-concept.

3.3. Rating Scale Diagnostic

The rating scale diagnostic is designed to ascertain the extent to which respondents comprehend the distinctions between the answer choices pertaining to the self-concept variable, with each alternative score being designated as 1, 2, 3, or 4. In this study, there are four answer choices, including highly agree, agree, disagree, and highly disagree. An increase in the Observed Average and Andrich Threshold values at their respective levels indicates that respondents are able to differentiate between the responses to the self-concept variables. The following Andrich Threshold values are presented in .

Table 3. Rating Scale Diagnostic

CATEGORY OBSERVED				OBSVD	SAMPLE	INFIT	OUTFIT	ANDRICH	CATEGORY
LABEL	SCORE	COUNT	%	AVRGE	EXPECT	MNSQ	MNSQ	THRESHOLD	MEASURE
1	1	194	6	−.40	−.58	1.16	1.22	NONE	−2.84
2	2	745	24	.02	.11	.87	.84	−1.57	−.99
3	3	1531	48	.77	.75	.96	.95	−.29	.87
4	4	694	22	1.40	1.40	1.02	1.01	1.86	3.04

Table 3 illustrates the conformity of the responses and reveals an increase in the score of the alternative answers at levels 1, 2, 3, and 4. The results of the analysis demonstrate that the levels on the self-concept instrument align with the actual state of student behavior.

3.4. Analysis of Instrument

The instrument analysis is presented in the Winstep application in the Summary Statistics section. The following details of the self-concept instrument analysis are presented in Table 4 and Table 5.

Table 4. Summary Pearson

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	80.1	28.0	.66	.28	1.02	−.2	1.00	−.2
S.D	7.2	0	.56	.02	.51	1.9	.48	1.9
MAX.	101.0	28.0	2.60	.37	2.77	4.7	2.58	4.4
MIN.	65.0	28.0	−.42	.26	.28	−3.9	.29	−3.9
	REAL RMSE .31 TRUE SD .47 SEPARATION 1.53 Person RELIABILITY .70							
	MODEL RMSE .28 TRUE SD .49 SEPARATION 1.75 Person RELIABILITY .75							
	S.E. OF Person MEAN = .05							

Table 5. Summary Item

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	323.3	113.0	.00	.14	.99	−.2	1.00	−.1
S.D	43.2	.0	.79	.01	.24	1.9	.25	2.0
MAX.	390.0	113.0	2.11	.16	1.46	3.4	1.49	3.7
MIN.	200.0	113.0	−1.36	.13	.58	−3.7	.58	−3.7
	REAL RMSE .15 TRUE SD .78 SEPARATION 5.37 Item RELIABILITY .97							
	MODEL RMSE .14 TRUE SD .78 SEPARATION 5.63 Item RELIABILITY .97							
	S.E. OF ItemMEAN = .15							

The Person Measure indicates the mean score of all respondents on the items of the student self-concept instrument. When the average value of respondents exceeds the level of difficulty of the instrument items, the average person value is greater than the average item (with an average item of 0.0 logit). The Cronbach Alpha value of 0.74 reflects the interaction between the person and the items as a whole in the excellent category. The Person Reliability value of 0.70 indicates that the respondents' answers are consistent and fall within the moderate category. In contrast, the Item Reliability value of 0.97 reflects the quality indicators of the items in the instrument, which are considered to be of an excellent standard.

Table 4 and Table 5 present the INFIT MNSQ and OUTFIT MNSQ column results, which distinguish between the person table and the item table. When viewed from the person table, the average value of INFIT MNSQ is 1.02, while the average value of OUTFIT MNSQ is 1.00. Further, the average value for INFIT MNSQ is 0.99, and the average value of OUTFIT MNSQ is 1.00, the ideal value of MNSQ is 1. The closer the average value to 1 indicates better results. Therefore, it can be concluded that the average person and item are close to the ideal criteria. The average value of INFIT ZSTD and OUTFIT ZSTD is -0.2, indicating that the quality of persons and items is good. The closer to 0 indicates better results, because the ideal value is 0.

This concept pertains to the separation or grouping of individuals and items. The degree of individual separation indicates the extent to which a set of items in the student self-concept instrument is distributed across the logit ability range. A greater individual separation signifies a more effective instrument. This implies that the items in the instrument are capable of reaching individuals with a high level of ability, along with those with the lowest. In contrast, item separation illustrates the extent to which the sample subject to measurement is dispersed along a linear interval scale. Higher item separation indicates more precise measurement. This is because it allows for the identification of groups of respondents and items (Sumintono & Widhiarso, 2014). This index is also helpful in describing the usefulness of the measured construct.

The output presented in Table 4 and Table 5 indicates that the separation for the person is 1.53, while the separation for the item is 5.37. It can be observed that the greater the separation value, the better the quality of the person and instrument. Therefore, the separation value for the person and separation for the item is 2 and 7, respectively. It can be concluded that the research respondents exhibit a diversity of abilities that can be classified into two groups. The difficulty level of the items is distributed across seven groups, with the easiest items at the top and the most difficult items at the bottom.

4. Discussion

Unidimensionality represents a tool for calculating the reliability of a research model, as indicated by a good level of dimensional fit (Wijayanto, 2007, in Aprilia et al., 2021). The unidimensionality of an instrument is determined by its ability to measure various attributes (Muslihin et al., 2022). Table 2 indicates that the raw variance explained by the measures has a value of 31% and is within the sufficient category. Furthermore, the measurement of unexplained variance in the first to fifth contrast of residuals does not exceed 15%. This suggests that the instrument construct has effectively measured each dimension of self-concept in students at one of the Junior High Schools in Bandung, Indonesia. The instrument comprises four aspects, namely physical, social, moral, and psychological self-concept.

The difficulty level of the self-concept instrument employing the logarithmic odd unit (logit) form is contingent upon the probability of the respondent's response. This enables the results to be utilized for the classification of the respondent's ability, which is divided into four categories: very difficult, difficult, easy, and very easy (Mulyanti & Rahmania, 2022; Wulandari et al., 2022). The level of item difficulty indicates the probability of respondents answering the question correctly (Erfan et al., 2020). Upon review of the item difficulty analysis, it was found that three items were classified as very difficult, 12 items as difficult, 10 items as easy, and three items as easy. These results demonstrate the heterogeneity in the level of difficulty of students' self-concept instruments. Furthermore, with regard to item fit analysis, the self-concept instrument comprises 28 items that fit the Rasch model. This is evidenced by meeting at least one of the three criteria. Consequently, no items were eliminated or discarded.

The rating scale diagnostic was conducted to ascertain whether the response options provided to respondents were confusing or not. In addition, the rating scale diagnostic is also useful for determining the suitability of the number of response options for each scale (Zile-Tamsen, 2017). The self-concept instrument consists of levels 1 to 4, with the answer options being very unsuitable to very suitable. The results of the self-concept rating scale instrument indicate that the observed average and rich threshold values have increased. This evidence suggests that respondents are able to differentiate between the various responses to self-concept variables.

The analysis of person and item instruments provides overall information, including the quality of respondents, the quality of the instruments used, as well as the interaction between respondents and items (Chan., Ismail., & Sumintono, 2014). In the self-concept instrument, the overall Cronbach alpha obtained is 0.74, indicating a good category. The person reliability has a value of 0.70, indicating a sufficient category. The item reliability has a value of 0.97, indicating an excellent category. These findings indicate that the Cronbach alpha value indicates high instrument reliability. This value is a measure of reliability in the form of interaction between a person and an item as a whole (Aziz, 2015). In contrast, the person reliability revealed inconsistencies in the responses provided by the respondents. These inconsistencies may be influenced by various factors. According to Hidayat (2021), the determination and consistency of research results do not solely depend on the reliability of the research instrument but are also influenced by the process and conditions of using research tools during data collection in the field. Nevertheless, apart from that, this self-concept instrument has demonstrated very good item reliability. In this context, the quality of the instrument items is highly reliable (Muntzahimah, Putri, & Khusna, 2020). The reliability test was employed to ascertain the consistency of an instrument despite its repeated measurement (Tarigan et al., 2022).

The self-concept instrument is considered to possess high-quality self-concept data if the values for validity and reliability are in the upper range. This is supported by the findings of Hayati & Lailatussaadah (2016), which indicate that the higher validity and reliability of an instrument indicate more accurate data obtained from a study. The Rasch Model is a measurement model that takes the form of results, with estimates of the validity and reliability of each respondent who answers the items and the level of difficulty in each item being measured (Searing, 2008). The Rasch Model is a valuable tool for conducting research on self-concept, as it enables researchers to develop test instruments that are unambiguous and free from bias (Cobos-Aguilar et al., 2011; Lauriola et al., 2016).

The instrument developed in this study has been declared as valid, thereby, it can measure what it is designed to measure (in this case, the self-concept). The difficulty level of the items in the self-concept instrument varies, ranging from very difficult, difficult, easy, and very easy. Furthermore, all items in the self-concept instrument fulfill the requisite criteria for measuring self-concept, namely the fulfillment of at least one of the three criteria for item suitability. In retrospect, the results of the diagnostic rating scale analysis also demonstrate that respondents comprehend the range of responses to the self-concept variable. This can be observed from the increased average and rich threshold values, from the smallest to the largest value. Meanwhile, the person reliability analysis is in the sufficient category, while item reliability is in the excellent category. Fitri (2017) revealed that the Rasch Model serves as the only analytical tool capable of testing the validity and reliability of research instruments while simultaneously testing the suitability of the person and item. The results of the analysis of the self-concept instrument show that the instrument construct developed is valid and reliable.

In conjunction with guidance and counseling services, this self-concept instrument can assist counseling teachers in discerning the illustration of students' self-concept, whether students exhibit a positive or negative self-concept. In light of the fact that the initial step undertaken by counseling teachers before providing services is to conduct a need assessment, which is a fundamental activity for developing an accountable program (Gibson & Mitchell, 2011), it is important to note that need assessment is not merely a process based on opinion. Rather, it is a fact-finding endeavor designed to identify and address student needs. This ensures that the services provided are aligned with the identified student needs (Anni, 2012). By understanding students' self-concept, counseling teachers can develop programs related to self-concept, thereby fostering a positive self-perception in students (Folastri & Prasetyaningtyas, 2017).

This study seeks to provide guidance and counseling services with the aim of facilitating a positive shift in students' self-concept. Juliana et al. (2014) posit that services designed to optimize students' self-concept should include classical guidance, which entails the development of material related to self-concept, including adolescence, puberty, human development, changes that occur during puberty, and attitudes needed when experiencing various kinds of changes in puberty. Individual counseling can be conducted using Rational Emotive Behavior Therapy (REBT) techniques, which facilitate a deeper understanding of oneself and the establishment of more effective social interactions (Setyowati & Suwarjo, 2021). Group counseling, on the other hand, allows for the sharing of experiences and the provision of feedback, fostering a sense of mutual reinforcement among members (Imro'atun, 2017). This can be achieved through the implementation of assertive training techniques, which facilitate the ability of students to view and understand themselves in a positive manner and to optimize their potential (Maharani & Ningsih, 2015). Group guidance can be conducted through the utilization of game techniques or the provision of the topics to be discussed by the group members, including human development, free sex, and changes experienced during puberty (Lutfiyani & Bhakti, 2017; Juliana et al., 2014). As Hanggara (2016) asserts, group guidance has been empirically demonstrated to be an efficacious approach for fostering students' competencies and abilities, particularly within the context of educational development

5. Conclusion

All items of the self-concept instrument meet the standard criteria for a measuring instrument. The items used in the self-concept instrument consist of 28 items. They were distributed into four categories according to their level of difficulty, demonstrating the instrument's capacity to assess self-concept in a diverse manner. The instrument's construct effectively measures the dimensions of self-concept in students at one of the Bandung City Junior High Schools. Furthermore, the reliability of the instruments developed in this study was classified as high, and the reliability of the items was deemed to be excellent. However, it is regrettable that some responses were classified as inconsistent. This is undoubtedly influenced by a number of factors.

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