

PalArch's Journal of Archaeology of Egypt / Egyptology

Student's Environmental Personality and Sensitivity's Construct Validity Analyzed by Multitrait-Multimethod

¹ Lisa Dwi Ningtyas, ²I Made Putrawan, ³Wardani Rahayu

¹ Master Student in Educational Evaluation and Research, State University of Jakarta, Jakarta, 13260, Indonesia

² Professor at Biological Education Department, State University of Jakarta, Jakarta, 13260, Indonesia

³ Lecturer at Mathematics Education Department, State University of Jakarta, Jakarta, 13260, Indonesia

Lisa Dwi Ningtyas, I Made Putrawan, Wardani Rahayu: Student's Environmental Personality and Sensitivity's Construct Validity Analyzed by Multitrait-Multimethod -- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(9). ISSN 1567-214x

Keywords: Big-Five Environmental Personality, Environmental Sensitivity, Structure Scale, Rating Scale, Multitrait-multimethod.

ABSTRACT

This research was aimed at finding out whether multitrait-multimethod was an accurate tool in validating students' environmental personality and sensitivity's construct validity. A survey method was used by selecting randomly of 151 junior high school students in Jakarta. Four different types of instruments developed measured big-5 personality and environmental sensitivity which each consisted of 23 items and 18 items, with respectively its reliability coefficient was 0.850 (personality by structure scale method), 0.814 (sensitivity by structure scale), 0.839 (personality by rating scale method), and 0.763 (sensitivity by rating scale). Data analyzed by multitrait-multimethod. The research results revealed that the convergent validity provided in the mono-trait hetero-method correlation was higher than the other validity coefficients. Moreover, another finding showed that hetero-trait mono-method correlation was higher than the hetero-trait hetero-method correlation which leads to the conclusion that its construct validity for both traits was appropriate when this tool used to validate those instruments. For the best practice in doing quantitative research, this tool is appropriate applied in

determining instrument validity and reliability as well, as a supplementary approach for another tool called factor analysis, either confirmatory or exploratory.

1. Introduction

Character education is currently being intensively developed in Indonesia. The character education is closely related to student personality and environmental sensitivity. Personality refers to the characteristic patterns, thoughts, emotions, and behavior of a person, whether hidden or manifest (Funder, 2012).¹ However, according to MacKinnon (1962),² Personality emphasizes the more external types of attributes of a person in this case including one's personal attractiveness and other people's reactions to the individual as a stimulus, namely the value of one's social stimulus. Apart from that, according to Keinberg (1967),³ personality is used as a long-lasting way of seeing oneself and others, behaving interpersonal, pursuing their goals, and defending themselves from unpleasant feelings. Furthermore, according to Bell & Sih (2008),⁴ differences in environmental sensitivity in each individual are largely responsible for creating differences in responsiveness. Behavioral responses are generally influenced by many factors and with certain circumstances, so that increased sensitivity may not always be related to behavioral responses to the same degree (Sivek, 2002).⁵ One example is a student who has a high level of sensitivity, but when the student is faced with a new situation, he tends to act more introverted and shier so that he will act the same as students who have a low level of sensitivity.

So far, new research conducted by other researchers is limited to discussing the measurement of each variable personality towards the environment and environmental sensitivity. Other studies have not yet combined it by using two different methods on personality towards the environment and environmental sensitivity variables. For example, research conducted by Sward (1999)⁶ developed an environmental sensitivity research instrument to obtain valid environmental sensitivity instruments based on significant life experiences. This research is purely just developing an environmental sensitivity instrument without any comparisons using different methods to obtain an environmental sensitivity instrument that will be more accurate. Similar to research conducted by Glover, et. al. (2012)⁷ in developing personality instruments. His research provides data on convergent, discriminant, and incremental validity for new measures of narcissistic personality traits made from the perspective of the Five-Factor Model (FFM) of common personality structures. Besides Glover, there are other studies that conduct research on the big five personality variables, but Putrawan (2013)⁸ developed the big-five personality instrument using factor analysis.

Accurate measurement of student's personality to the environment and environmental sensitivity of students can help teachers to accurately determine their personality to the environment and environmental sensitivity. This of course can help the task of teachers to determine the level of personality to the environment and environmental sensitivity of their students. So, teachers can

take appropriate action to their students in increasing the behavior of students who love their environment. In addition, with an accurate personality measurement tool for the environment and environmental sensitivity of students, it can also help the administrative task of teachers in assessing student attitudes by current character education, because personality to the environment and environmental sensitivity are also indicators of character education. Therefore, an accurate measurement of personality towards the environment and environmental sensitivity of students is very important for teachers to make students who have behaviors to protect the environment and for teacher administrative needs in assessing student character education with their environment.

Based on this background, this research discusses the research problem "How is the validity of the construct validity of big-five personality and student environmental sensitivity through multitrait-multimethods?"

2. Materials and Methods

The purpose of this study is to determine the validity of the personality constructs (big-five personality) and environmental sensitivity (environmental sensitivity) of students through multitrait-multimethods. Therefore, this study used a causal survey with was used by selecting randomly of 151 junior high school students in Jakarta. Four different types of instruments developed measured big-5 personality and environmental sensitivity which each consisted of 23 items and 18 items, with respectively its reliability coefficient of personality by structure scale method (0.850), sensitivity by structure scale (0.814), personality by rating scale method (0.839), and sensitivity by rating scale (0.763). Data was analyzed by multitrait-multimethod.

By using the multitrait-multimethod, the results of convergent and discriminant validity were obtained (Table 1). In table 1, it can be seen that the highest correlation results are found in the monotrait-heteromethod on the big-five personality trait with the structure scale and rating scale methods. This can provide evidence that convergent validity is present in the monotrait-heteromethod. But there are differences in the results that people generally expect that the evidence of convergent validity available on monotrait-heteromethod correlations is much higher than other correlation coefficients, namely discriminatory evidence available by heterotrait-monomethod and heterotrait-heteromethod correlations by Anastasi (2004),⁹ Kline (2014),¹⁰ Campbell & Fiske (1959).¹¹ Namely, the environmental sensitivity trait with the structure scale and rating scale methods which have a lower correlation than the heterotrait-monomethod.

Even though in this study there are differences between environmental sensitivity (the same traits) using a structure scale and a rating scale (different methods), it has a lower correlation than the heterotrait-monomethod, both Big-five personality + structure scale and environmental sensitivity + structure scale and Big-five personality + rating scale and environmental sensitivity + rating scale. This is thought to be due to the main strength of the multitrait -

multimethod matrix which is affected by the method used. This can occur because it is related to psychological conditions such as evasiveness, indecision, and indifference in the research sample when filling out the different instruments with these methods. These psychological factors are present in instruments with a scale that is in a neutral category as used in the structure scale and rating scale methods in this study by Broen & Wirt (1958),¹² Cronbach (1946),¹³ Lorge (1937).¹⁴ Thus, the shape of the structure scale and rating scale methods makes it different. However, when viewed from the correlation between methods, the highest is located in the structure scale method. This can be the basis that the big-five instrument of personality and environmental sensitivity is better using the structure scale method when compared to the rating scale method.

However, this study still shows that the lowest correlation is in the heterotrait-heteromethod. Thus, construct validity for both traits was appropriate when a multitrait-multimethod was used to validate this research instrument.

Table 1. Matrix Multitrait-Multimethod

| | | Structure Scale | | Rating Scale | |
|-----------------|---------------------------|----------------------|---------------------------|----------------------|---------------------------|
| | | Big-Five Personality | Environmental Sensitivity | Big-Five Personality | Environmental Sensitivity |
| Structure Scale | Big-Five Personality | | 0,272 | 0,357 | 0,061 |
| | Environmental Sensitivity | 0,272 | | 0,076 | 0,103 |
| Rating Scale | Big-Five Personality | 0,357 | 0,076 | | 0,192 |
| | Environmental Sensitivity | 0,061 | 0,103 | 0,192 | |

3. Conclusion

The conclusions of this study are apparently very interesting when discussed. The results of the multitrait-multimethod matrix obtained in this study were not entirely like the expected multitrait-multimethod matrix in general. This is due to the strength of the psychological factors that are present when filling out the instrument with these two methods. Therefore, psychological factors must also be considered in the various methods used in the instrument.

however, the essence of this research is the hetero-trait mono-method correlation was higher than the hetero-trait hetero-method correlation which leads to the conclusion that its construct validity for both traits was appropriate when this tool used to validate those instruments. For the best practice in doing quantitative research, this tool is appropriate applied in determining the

instrument of validity and reliability as well, as a supplementary approach for another tool called factor analysis, either confirmatory or exploratory.

Acknowledgements

Thanks to Mr. Damianus Dai Koban who helped collect research data and all those involved in the work of this article.

REFERENCES

- D. C. Funder. Accurate Personality Judgment, *Current Directions in Psychological Science*, Vol. 21, No. 3, 177-182, 2012.
- D. W. Mackinnon. The Nature and Nurture of Creative Talent, *American Psychologist*, Vol. 17, No. 7, 484, 1962.
- O. Keinberg. Borderline Personality Organization, *Journal of the American Psychoanalytic Association*, Vol. 15, No. 3, 641-685, 1967.
- A. M. Bell, A. Sih. Insights for Behavioral Ecology from Behavioral Syndromes, *Advances in the Study of Behavior*, Vol. 38, 227-281, 2008.
- D. J. Sivek. Environmental Sensitivity among Wisconsin High School Students, *Environmental Education Research*, Vol. 8, No. 2, 155-170, 2002.
- L. L. Sward. Significant Life Experiences Affecting the Environmental Sensitivity of El Salvadoran Environmental Professionals, *Environmental Education Research*, Vol. 5, No. 2, 201-206, 1999.
- N. Glover et. al. The Five-Factor Narcissism Inventory: A Five-Factor Measure of Narcissistic Personality Traits, *Journal of Personality Assessment*, Vol. 94, No. 5, 500-512, 2012.
- I. M. Putrawan. Measuring Teachers Personality by Applying "Big Five Personality" Based on Teachers Gender and School Level: A Comparative Analysis, *Comparative Education Bulletin*, Vol. 15, No. 1, 60, 2013.
- A. Anastasi. Psychological Testing: Basic Concepts and Common Misconceptions. in *The G. Stanley Hall Lecture Series*, Vol. 5, 148, 2004.
- T. J. Kline. *Psychological testing: A practical approach to design and evaluation*, Sage Publications, California, 2005.
- D. T. Campbell, D. W. Fiske. Convergent and discriminant validation by the multitrait-multimethod matrix, *Psychological bulletin*, Vol. 56, No. 2, 81-105, 1959.
- W. E. Jr. Broen, R. D. Wirt. Varieties of response sets, *Journal of Consulting Psychology*, Vol. 22, No. 3, 237-240. 1958.
- L. J. Cronbach. Response sets and test validity, *Educational and psychological measurement*, Vol. 6, No. 4, 475-494, 1946.
- I. Lorge. Gen-like: Halo or reality?, *Psychological Bulletin*, Vol. 34, 545-46, 1937.