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Conference Paper

Analysis Validity and Reliability As an Instrument to Measure the Self-Academic Concept in a College Student of Cosmetology of Engineering Faculty, State University of Jakarta

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Abstract

This study discusses the validity and reliability of the self-concept academic research. There is one modified instrument, Academic Self-Concept Scale (ASCS). This study involved respondents who were entirely female. The self-academic concept is important to be known because it is the determinant factor of students in their academic ability. High- or low-profile concept of student academic associated with achievements will be achieved. The questionnaire tested in the study can be used to determine the student's academic self-concept measurement model. This research aims to generate empirical validity and reliability using the Rasch Model. The study was conducted on 100 college students of the Cosmetology Studies, Engineering Faculty, State University of Jakarta. Reliability value is based on Cronbach Alpha for a questionnaire that is at a table of 0.618 and it can be concluded that the questionnaire is valid because of the $\geq$ 0.5. Meanwhile, items that are less reliable have value below 20 items.

Keywords: validity, reliability, measurement of academic self-concept

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1. Introduction

Validity is a systematic number or error construct in the list of items used as a measuring tool. This form of validity exploits how well theoretical construction is represented in operational measures/questionnaires [1]. Criteria related to validity are assessed when determining the score relationship for certain criteria [2, 3]. Questionnaires that are used as a tool to measure a variable, through validity, will show a measure of how well to predict research findings. Basically, validity explains how well the data collected in the study [4]. Validity is meaningful as something that measures what will be measured. Validity includes content, constructs, criteria and reliability [5].

A measuring instrument can be said to be reliable if after being tested it meets the reliability requirements. Reality is carried out in three forms; test-retest, alternative forms of reliability and internal consistency reliability [1]. In this study, using corrected item-total correlation with invalid items that are below 0.2 must be discarded to increase the reliability value [6].

Academic self-concept has urgency as a psychological motivation for students to understand that they are capable in certain fields. Academic self-concept can also be interpreted as a student's perception of themselves in the aspects of ability developed through effort and academic interaction [7]. Academic self- concept is related to the competencies and achievements that students will get. Through the measurement of academic self-concept, students' academic behavior will be seen as; whether the course is quite fun, how much effort will be made to achieve the goals in a particular subject, to the level of confidence in the department.

Academic self-concept has the function of predicting academic achievement and providing a basic perspective for educators about the students' personalities [8, 9]. Research has ever been done before [10] also explained that the high academic self-concept is directly related to high academic performance. Thus, the existence of a measuring tool that can be used in assessing students' academic self-concept becomes important, given that in the principles of academic achievement, psychological factors play a role in determining the achievement of learning objectives.

Each individual has two dimensions of self-concept in the form of negative self-concept and positive self-concept. According to psychologists, the education system whose implementation can be declared successful throughout the world is the role of self-concept that is greater than the subject matter [11]. Academic self-concept can be a factor that determines academic choices [12, 13]. In general, academic self-concepts are related to career aspirations. In academic self-concept, includes an assessment of great pleasure and determination by working hard on academic subjects [8]. Gender in the dimension of self- concept influences, because gender is not only perspective on sexuality, biology, but on psychological, social, cultural, and characteristic [14]. This research can be used as a reference to see a picture of self- concept examples of women with a level of student education.

2. Methods and Equipment

2.1. Methods

Testing of academic self-concept instruments uses primary data with a total of 40 in Likert scale items, 0 for never, 1 for once, 2 for rare, 3 for sometimes, 4 for often, and 5 for always. Data was measured using the Alpha Cronbach standard to measure the value of validity and reliability, using SPSS (Statistical Package for Social Science) version 20.0. To see the multidimensionality of academic self-concept and test the structural compatibility [15] theory, there are two factors that influence academic self-concepts, namely, external and internal with three aspects, namely knowledge, hope, and individual judgment [16] using Amos 24.0.

2.2. Research purposes

The objectives of this study are as follows;

1. Analyzing the Academic Self-Concept Scale (ASCS) instrument [17].

2. See the reliability of academic self-concept instruments.

3. Examine the validity of the content used in academic self-concept instrument.

2.3. Research subject

The subject of the study was 120 female college students of the Cosmetology Department, Jakarta State University. However, based on the results of data processing, the data can be continued as research subjects and included in the data analysis requirements of as many as 100 female college students.

3. Results

The reliability of the questionnaire that has been measured shows the number 0.618 [18], if the instrument has a value of Cronbach's alpha >0.60 it can be said to be reliable. While the value of validity, shows that there are 20 items whose value is <0.50. Based on other findings from the literature study, the Academic Self-Concept Scale (ASCS) which is more often used to view academic self-concepts is version 20 items. Then items that do not meet these requirements are removed and produce a reliability value of 0.812. Referring to the empirical study [19] literacy based on Rasch analysis, the questionnaire can be declared good. The technique of analyzing instruments using the

Rasch framework is part of the construct and revision of measuring instruments in the field of social sciences and delineates the nature of the measuring instrument itself, such as reliability, and the construct of validity [20].

TABLE 1: Rasch Analysis Scale.

Scale of Reliability	
Small	< 0.67
Enough	0.67 – 0.80
Good	0.81 – 0.90
Very good	0.91 – 0.94
Excellent	0.94

In addition, the results of the confirmatory factor-based analysis indicate that the measurement results use an academic self-concept scale fit on the subject. This is because the respondents are almost similar, namely women as a whole, so that the social pattern, and the environment is an environment in which the model and system have similarities.

4. Discussion

The data obtained comes from the process of translating the Academic Self-Concept Scale (ASCS) measuring instrument with three repetitions. The first is through the translation process from an English literary expert at Pakuan Bogor University, then revisited and re-translated using a translator machine, then repeated by ensuring the grammar. Furthermore, the accuracy of the language was tested by trying out a questionnaire to be filled by 15 students before the measuring instrument was distributed. The following is a measuring tool regarding students' academic self-concept (Table 2)

5. Conclusion

The validity and reality of the questionnaire stated that as many as 12 items had a correlation value of ≥ 0.5, while 8 other items had significant negative values. This research is an instrument validation process, but there are still other approaches that can be done in testing the validity of the items and provide a more complete definition of the consistency of the order in the instrument pattern. The findings in this study are designed to test the suitability of items in the instrument, so that they can improve the quality of instruments to construct and measure variables.

TABLE 2: Validity of Academic Self-Concept Scale (ASCS).

Item	Validity
Being a student is a very valuable experience.	0.525
If I tried hard enough, I'll be able to get a good value.	0.609**
Often times my attempts at school is appreciated.	0.607**
No matter how hard I tried, I did not succeed in school.	0.630**
I often hope to do a bad test.	0.639**
Overall, I felt I was an accomplished student.	-0.174
I did it well in my class, remembering the time I dedicated to studying.	0.027
My parents are not satisfied with my grades in college	0.702**
Other people looked at me as an intelligent person.	0.632**
Most courses are very easy for me.	-0.118
I sometimes felt like dropping out of school.	0.735**
Most of my classmates are better than me.	0.004
Most of my instructors thought that I was a good student.	0.454**
Sometimes I feel College is too difficult for me.	-0.255*
Overall, I am proud of my score in college.	0.113
Most of the time I take the exam, I feel confident.	0.628**
I feel able to help others for academic matters.	0.073
I feel the lecturer standard is too high for me.	0.681**
I find it difficult to take lessons in class.	0.603**
I am satisfied with the task that I submit.	-0.784**
I feel like I failed.	0.725**
I feel not enough study before the test.	-0.022
Most tests are easy for me.	0.054
I doubt I will succeed in my department.	-0.648**
For me, study hard will be paid off.	0.709**
I have difficulty passing college.	-0.119
I am good at scheduling study time.	0.062
I have a fairly clear understanding of academic goals..	-0.017
I want to become a much better student than it is now.	-0.700**
I often get discouraged about the lecture.	-0.031
I like doing homework.	-0.094
I consider myself a very good student.	0.671**
I usually get a decent value in my courses.	0.635*
I didn't learn as much as I should.	-0.076
I usually feel at the peak of my work in the last week.	0.091
Who else thinks I am a good student.	0.088
I feel that I am better than the average student.	0.018
In most of the courses, I feel that my classmates are more ready than I am.	0.089
I feel that I don't have the skills needed for certain courses in my department.	0.680**
I have a bad study habits	0.781**

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Conflict of Interest

The authors have no conflict of interest to declare.

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