

Validation Behavioural Academic Confidence Scale on Indonesia College Student

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ABSTRACT--*The purpose of this study was to validate Academic Behavioural Confidence (ABC) scales for students in Indonesia. Academic behavioural confidence scales are useful to help teachers understand their students and organize effective learning models. The scale of academic behavioural confidence original consists of 24 items which consist of six components namely: grade, studying, verbalizing, attendance, understanding, and requesting. The participants of this study were students at A private university in Semarang, total research participants 753 students. Using exploratory factor analysis found a different component compared to the findings of the previous study, namely the understanding component, so that in this study four components formed the scale of academic behavioural confidence, namely: grade, verbalizing, studying, and understanding.*

Keyword--*Academic behavioural confidence, Scale validation, College Students*

I. INTRODUCTION

Academic behavioural confidence (ABC) is a construct that refers to students' belief that they can perform competently in certain learning situations (Hlalele & Alexander, 2011). Academic Behavioral Confidence is conceptualized as a way for students to behave insofar as they have strong beliefs, firm beliefs, or certain expectations in their abilities that are determined by students' academic self-efficacy (Mary & Shalini, 2013; Sander & Sanders, 2009). Academic Behavioral Confidence is a combination of self-efficacy and academic self-concept (Sander & Sanders, 2006). The preparation of the constructs of confidence in the context of higher education is very important because it is very possible that the experience of education in universities will affect self-esteem when academic challenges are faced and met or vice versa (Sander & Sanders, 2006).

Academic behavioural confidence is a variant of academic self-efficacy, referring to cognitive assessments that relate specifically to the expectation of competence to do something related to future academic-related behaviour in undergraduate students such as: attending college, independent study etc. (Nicholson, Putwain, Connors, & Hornby-, 2013). Academic behavioural confidence is related to how far students have strong confidence and belief in expectations related to how they respond to the demands they face in college (Sander & Sanders, 2003). Academic behavioural confidence is a variant of self-efficacy, it is related to cognitive assessment, the focus is on the expectations of their academic competencies in the future (such as attending lectures, studying independently, etc.) (Ochoa & Sander, 2012). However, one thing that might be different from self-efficacy, academic behaviour

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beliefs are not different beliefs in competencies in different academic domains, and the difference lies in learning behaviour (Sander, Arias, Stevenson, & Jones, 2011).

Various studies related to students' academic performance have always been a material that continues to be researched and developed, including confidence as a predictor of academic achievement proven able to predict academic achievement in mathematics and English, because it is related to students' metacognitive skills, even variable confidence is a better predictor than self-concept, self-efficacy, and anxiety (Stankov, Lee, Luo, & Hogan, 2012). Given the importance of the role of self-confidence in student academic performance, it is necessary to develop a scale that measures the domain of self-confidence (Hlalele, 2012; Hlalele & Alexander, 2011). So far, in Indonesia, there has not been found a scale that expresses student confidence based on academic measurement attributes. In Indonesia, a scale that expresses student confidence based on academic measurement attributes has not been developed so far.

Developing ABC scale is very necessary as it can serve as a survey instrument to assess the beliefs of students whether they have anticipated learning behaviours in relation to their academic assignments (Sander & Sanders, 2007). ABC Scale was first developed in 24 items that measure self-confidence in the academic context in 2003 as a derivative of the parent concept of self-efficacy (Bandura, 1977; Sander & Sanders, 2003).

The development of the ABC scale was previously carried out on 284 student participants from two majors namely psychology 102 and medicine 182, resulting in internal reliability of 0.88 (Sander & Sanders, 2007). Previous research involving 865 research participants resulted from 24 items analyzed exploratory and confirmatory factors resulting in a reduction of 17 items and other items divided into four factors: value, verbalization, learning, and attendance (Sander & Sanders, 2009). The scale adaptation conducted in Spain to 2056 students majoring in psychology from three academic years 2003, 2004 and 2005 found that the ABC grade, studying and Verbalizing subscales were significantly correlated with the deep approach to learning as predictors (Sander et al., 2011).

Academic Behavioural Confidence (ABC) is a construct that refers to students' beliefs that they can perform competently in certain learning situations (Sander & Sanders, 2007). Self-confidence plays an important role in learning on campus, students with a higher level of academic confidence are shown to perform high in postgraduate students (Shaukat & Bashir, 2015). Previous research in Turkey involving 577 undergraduate students found 16 valid items in exploratory and confirmatory factor analysis on three factors, namely planning, verbalizing, and assignment (Shaukat & Bashir, 2015). Research involving 169 students using the ABC scale without testing the measuring instrument because it has been adopted in previous studies (S N Matoti & Junquera, 1992; Sheila N Matoti & Matoti, 2011), found significant differences in different age groups, while gender was not found to be significant differences, overall, a high level of academic behaviour confidence was found for respondents (Shaukat & Bashir, 2015).

Some studies use academic behavioural confidence to measure self-efficacy in an academic context (Ochoa & Sander, 2012; D. Putwain, Sander, & Larkin, 2012). Internal consistency academic behavioral confidence 0.89 with internal consistency of each scale factor namely studying (0.740), understanding (0.74), attendance (0.70), grade (0.72), verbalization (0.60), clarifying (0.53) on 14 items analyzed (Shaukat & Bashir, 2015). Other studies also explain the internal consistency of three factors formed separately namely grades (0.79), verbalizing (0.74), and studying (0.70) and have predictive validity when correlated with academic performance in 206 undergraduate psychology students (D. Putwain et al., 2012).

The purpose of this study was to validate the scale of academic behavioural confidence in a sample of college students in Indonesia using exploratory factor analysis. Factor analysis is an interdependence technique whose main purpose is to determine the underlying structure among the variables in the analysis, in factor analysis, the variable plays a key role in any multivariate analysis (Hair, Black, Babin, & Anderson, 2014). Exploratory factor analysis (EFA) has become one of the standard methods and is most widely used to demonstrate the construct validity of a measurement instrument (Fayers, Hand, Cancer, Office, & Keynes, 1997). The purpose of using Exploratory factor analysis (EFA) is to analyze interdependencies between observed variables and underlying theoretical constructs, often called factors so that the structure underlying the observed variables can be found (Jung & Lee, 2011).

II. METHOD

1.1. Participants

The participants of the study were 753 undergraduate students of a university in Semarang Indonesia consisting of 246 (32.9%) male and 505 (67.1%). The participants of this study came from four majors namely Psychology 415 (55.1%), Communication Science 125 (16.5%), English Education 59 (7.8%), Islamic Education 154 (20.5%), and were taken from four years of academic, freshmen 197 (26.2%), sophomore 239 (31.7%), junior 291 (38.6%), and senior 26 (3.5%).

1.2. Instrument

The academic belief behaviour scale (Academic Behavioral Confidence) was first published as an academic confidence scale (Academic Confidence Scale), consisting of 6 components (Sander & Sanders, 2003). Scale re-naming is done because the new scale focuses on confidence in actions and plans related to academic studies (Sander & Sanders, 2009).

24 item ABC (Academic Behavioural Confidence) scale (Kirikkanat, Soyer, & Counseling, 2015; Sander & Sanders, 2009), used to measure the extent of student confidence in undergoing the learning process (Sander, 2009; Sander & Sanders, 2007). Scale response using a Likert model with a rating of 0 for responses, not at all confident until 4 very confident.

1.3. Procedure

The primary purpose of exploratory factor analysis (EFA) is to group variables that are highly correlated with each other but also relatively uncorrelated with other variables; these groups are then considered as potential evidence of the structure of the underlying factors (Fayers et al., 1997). The process of adaptation of Academic Behavioural Confidence in this study is to use double translation from two experts who already have an understanding of the construct first. The next step is to discuss with experts to compare and determine the translations used from the two translations if found differences between the two translation items essentially. The scale translation process is done in one round, namely double translation, then summarizes the results of the translation from the previous double translation, the translation process is carried out only in one round because there is no difference essentially the translation results from the two translators (Keeney, Hasson, & Mckenna, 2011). After obtaining the translation results that are not conflicting, the next step is to fill the scale

by the study participants obtained by random cluster method. Scales that have been filled and collected are then scored and then tabulated and analysed. Exploratory factor analysis in this study using SPSS 25 software.

III. RESULT AND DISCUSSION

The construct validity of the academic behavioural confidence scale tested by exploratory factor analysis. Construct academic behavioural confidence tested in exploratory factor analysis research taken from the original version scale. This research determines whether the scale used in different contexts can produce the same results because some of the things expressed through items on the ABC scale are possible problems that only apply in specific contexts. Each scale adaptation process in a different context will produce a construct that is not always the same (Kirikkanat et al., 2015). Before an exploratory analysis carried out the reliability test is a measurement of the level of consistency of a measuring instrument that needs to be considered between time periods so that measurements made at a reliable time point (Hair et al., 2014). A commonly used measure is internal consistency, which needs for consistency between variables on the scale that is summed (Churchill, 1979). The reason for internal consistency is that individual items or scale indicators must all measure the same construct and are thus interrelated (Hair et al., 2014). The overall value of the item to the total (r_{ix}) of the entire item range is 0.338-0.596, which means that all items have a total coverage value of 0.3 received in favour of the sponsored Limit (Robinson, Shaver, & Wrightsman, 1991), the next diagnosis is to see internal consistency $\alpha = 0.887$ which means that the ABC scale can be relied upon in carrying out its measuring function. This study examines whether the item loading of the subscale corresponds to the item loading in the original version. Items consisting of five subscales, namely grades, verbalising, studying, attendance and understanding as many as 24 items analysed as a subject of exploratory factor analysis rotation. The Bartlett test of sphericity is a statistical test for the overall significance of all correlations in the correlation matrix (Hair et al., 2014). The KMO measures of sampling adequacy were 0.910 more than 0.80 which means meritorious (Hair et al., 2014) and Bartlett's Test of Sphericity was significant ($p < 0.001$), which falls into the range of being superb, so it is believed that the sample size is adequate for factor analysis. The anti-image correlation matrix is a partial correlation matrix between variables after factor analysis, showing the extent to which these factors explain each other in the results (Hair et al., 2014). Diagonals contain a measure of sampling adequacy for each variable, and off-diagonal values are a partial correlation between variables. The diagonal of the anti image matrix element is all item range 0.860-0.940 (all above 0.5). Scree plot shows the number of factors formed in exploratory factor analysis on the ABC scale, which is four factors as shown in Figure 1.

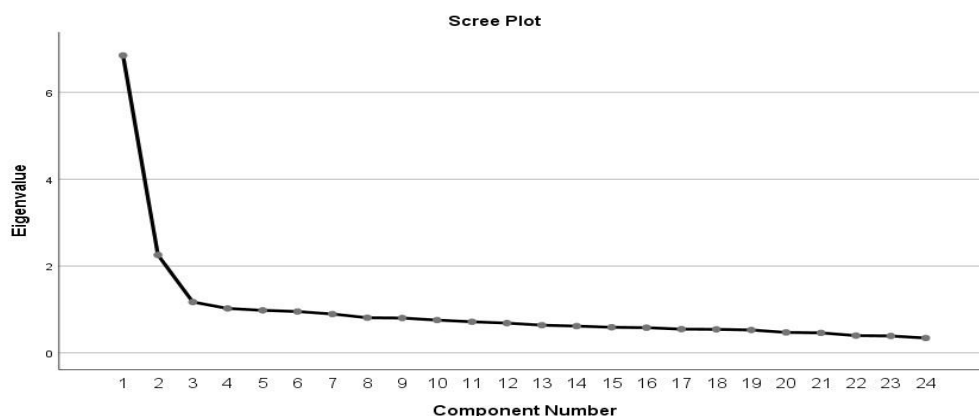


Figure 1: Scree Plot EFA ABC Scale

The results of exploratory factor analysis with Oblimin rotation produced four factors. The first factor has eigenvalues of 6.850 and can explain 28.541% of the data variance. The second factor has eigenvalues 2.256 and can provide an increase of 9.399% to the data variance. The third factor has eigenvalues 1.171 and can provide an increase of 4.877% to the data variance. The fourth factor has eigenvalues 1.023 and can add an additional 4.263% to the data variance. After the four factors of the Academic Behavioral Confidence scale are formed, the next step is to give names to four factors based on the items collected on each factor.

Table 1: Pattern Matrices of The ABC Scale of EFA

Item	Verbalisin		Understandin
	Grades	g	
1 Learn effectively and independently	0.662		
2 Able to work on exam questions with the best results	0.653		
7 Achieve good academic performance in each lecture assignment	0.639		
4 Manage the workload of the lecturer so that they meet the deadline for collection	0.555		
20 Pass the exam without revision (remedial)	0.554		
19 Take advantage of all study opportunities to get a degree at university	0.516		
21 Plan the schedule revision appropriately	0.503		
18 Come to college on time	0.454		
10 Ask the lecturer about the material described during a lecture		0.690	
11 Understand the course material outline and discuss with the lecturer		0.655	
8 Engage in academic discussions with college friends in their spare time		0.643	

12	Follow the themes and discussions in the lecture		0.623
9	Ask for an explanation of course material delivered by the lecturer in person		0.617
5	Give presentations in small group discussions on my initiative		0.609
3	Answering or responding to questions raised by lecturers during lectures		0.591
6	Always attend scientific discussion activities (seminars, workshops, conferences and FGD)		0.425
17	Ask for help (friends/seniors/lecturers) to explain if I do not understand the course material		0.689
16	Write assignments according to the required writing style		0.646
22	Keep the spirit of completing all college assignments	0.430	0.596
24	Attend tutorial activities		0.538
23	Produce the best paper in college assignments	0.452	0.504
15	Produce college assignments following specified standards	0.413	0.441
13	Prepare myself well in tutorial activities (study first)		0.679
14	Read the material recommended by the lecturer		0.629

Item numbers 1, 2, 7, 4, 20, 19, 21, and 18 form the first factor which is grades, having a factor loading load ranging from 0.454-0.662. Item number 10, 11, 8, 12, 9, 5, 3, and 6 form the second factor, which is verbalizing, having a loading factor loading ranging from 0.425 to 0.690. Item numbers 17, 16, 22, 24, 23, and 15 form the third factor which is studying, having a factor loading load ranging from 0.441-0.689. Item number 13 and 14 form the fourth factor, understanding, which has a loading factor load ranging from 0.629 to 0.629 (see table 1). The determination of the loading factor criteria depends on the number of study samples for the study sample above 350 loading factor criteria used ≥ 0.30 (Hair et al., 2014). The results of this study differ from previous studies that used 17 items divided into four domains: achievement (grades), engaging in independent learning (attending), attending lectures and other teaching sessions (attendance), and discussing or presenting course material with peers and teaching staff (verbalizing), with the internal consistency of each domain range 0.71-0.82 (D. W. Putwain & Sander, 2016).

Like previous research, there are four factors formed, but there are differences in the naming of each factor due to differences in the composition of items that make up each factor. Previous research also formed four factors

but with different label components namely: grade, verbalizing, studying, and attendance (Sander et al., 2011). While the original scale formed from six factors, namely grade, studying, verbalizing, attendance, understanding, and requesting (Sander & Sanders, 2009).

IV. CONCLUSION

This study concludes that four factors are formed from the results of exploratory factor analysis, namely grades, verbalising, studying and understanding. The scale of academic behavioural confidence which is translated in Indonesian has proven to have good validity so that it can be used. The development of academic behavioural confidence scale in the future can use the basis of this research with a different analysis model. In the future, the scale that has been adapted into Indonesian can be used to measure student confidence in an academic context.

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