

Construct Validity and the Coefficient Reliability of Spiritual Attitude Scale to Measure Moslems' Spiritual Attitude for High School Students

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Abstract—Nowadays, researchers are interested to further investigate and look for the meaning and purpose in human lives and in spiritual experiences. Although it is hardly practical to discuss the definition, the measure of such attribute is another thing. This research aims to investigate the construct validity and the coefficient reliability of the spiritual attitude scale to measure Moslems' spiritual attitude for high school students. The spirituality as the attributes of psychology is continuously interested to further investigate and look for the meaning and purpose in human lives and in spiritual experiences. Although it is hardly practical to discuss the definition, the measure of such attribute is another thing. This research instrument is an inventory model of summated rating scale containing 23 items. Quantitative data analysis is used to test the evidence of the instrument's construct validity and the coefficient reliability. The results are revealing that there are eight factors extracted with eigenvalues over 1.0 from the total instruments questionnaire. The instrument reliability regarded as the coefficient of the construct reliability supported with the Cronbach's alpha values is 0.796.

Keywords—construct validity, reliability, spirituality.

I. INTRODUCTION

Spirituality as the psychometric properties has been variously defined. Declaring the exact meaning of spirituality somewhat becomes a difficult thing [1]. The most unclear discussion of the spiritual aspect emphasized on the issue of the transcendent element [2]. The present study implies that spirituality as a personal belief in God or a higher power in the religious adherents [3]. Another outstanding theory described spirituality as a complex construct including existential and religious dimensions [4]. It refers to the affective experiences of positive feelings from the person's ability to understand the purpose in life-related to personal, communal, and transcendental aspect [5]. Spirituality becomes one of the most prominent subjects in the media and various discipline [6] also in many salient factors especially in human health integrated with the internal forces [7].

Spirituality is an intrinsic component of human being, unpredictable and multidimensional spirituality is a personal search for the purpose and the meaning in life [8]. Piercy considers the term of spirituality has been a popular thing to be discussed in the field of academic behaviour to promote

the educational improvement [9]. The spirituality is related to the humanitarian aspect that refers to the personal methods used in searching the meaning of life [10]. spirituality is very influential on the increase of human good behavior towards the environment [11].

Although it is hardly practical to discuss on the definition of spirituality, which is a multidimensional concept [12][13]; including many domains involved such as personal, communal, environmental, and transcendental domain. The measure of this term is more popular in the research field of mental health, human existence, and social well-being. However, this major property of psychometric which related to the existential and religious dimensions is infrequently and less practiced in the scope of education particularly in student achievement and academic behaviour.

One of the most important and fundamental concepts in the social psychology is attitude competency [14]. Fishbein and Ajzen have defined attitude as a person's location on a bipolar evaluative of affective dimension with respect to some object, viewed as predisposing the individual to perform various overt behaviours [15]. In Relation to the spiritual term, the attitude can be explained as the person predisposition to designate their response to prevalent situation with an internalization of specific dimension correlating with their religious understanding and spiritual conception.

Spiritual attitudes are always defined as same as to the religious attitudes, Hill, *et al.* affirms that spiritual attitudes are separate from religious attitudes [12]. The level of spiritual circumstance can be a complement one's religious level. Spiritual is more popular with the human feelings, thoughts, and behaviours. Religious attitude also has a positive relationship with the belief and human's life satisfaction [16]. Zohar & Marshal argue that the spiritual has no connection with the religious doctrine or a certain belief. Religious doctrine must have a limitation to the essential meaning of a certain religious beliefs and ignoring others [17].

This paper intended to investigate the construct validity and the coefficient reliability of the spiritual attitude scale to measure Moslems' spiritual attitude for the high school students through the quantitative data analysis which has been obtained from the research sample.

The rest of this paper is organized as follow: Section II describes the proposed method. Section III presents the obtained results and following by discussion. Finally Section IV concludes this work.

II. PROPOSED METHOD

The method used in this paper was a survey research with a quantitative approach. This study aimed to test the construct validity and the coefficient reliability of an instrument which can be used to measure students' spirituality through spiritual attitude in senior high school.

A. Participants

This study involved 294 participants from High School student. Those students were chosen to use purposive cluster sampling with the status of study (2nd grade student), Moslem students, located at Yogyakarta, Indonesia. The sample of this study was composed mostly of female students, it was about two-thirds from the total participants. The whole respondents in this study are representing two major groups of living society which are coming from the urbanites and the rural students.

B. Instrument

The Spiritual Attitude Scale composed of four subscales, namely, resignation (to God), thank God, sincerity and righteousness. Every subscale has 5-7 items, (resignation to God: Q1-Q5; thank God: Q6-Q10; sincerity: Q11-Q16; righteousness: Q17-Q23). This instrument is divided into two parts: demographic information for the entire participants and the second consist of 23 items of Spiritual attitude drawn by the Islamic religious term which is used three-point of the summated rating scale. The concept of designing the instrument is depicted in Figure 1 below:

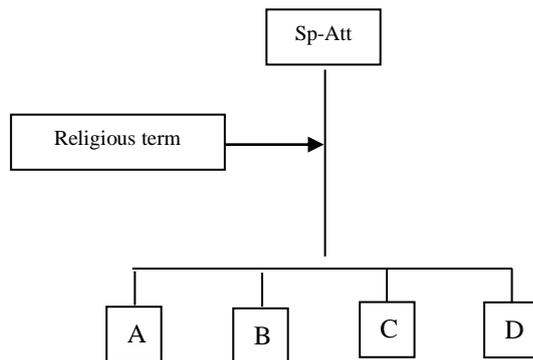


Fig. 1. Conceptual Diagram

Sp-Att → Spiritual Attitude

A → Resignation (to God)

B → Thank God

C → Sincerity

D → Righteousness

C. Construct validity

Construct validity needs a definition with the specified conceptual circumscription and more focused with the particular attributes of the variable rather than concerned

with the values or scores gained from the instrument [18]. Construct validity emphasizes on logical analysis and investigates the relationships of the data analysis based on theoretical consideration.

Construct validity explains the extent to which performance on the test is consistent with the constructs in a particular theory consideration. The present study was also concerned with investigating the construct validity for the research instrument.

D. Coefficient Reliability

Reliability refers to the consistency of measurement that is how consistent test score or other evaluation result are from one measurement to another [19]. A reliable instrument will give the same results on every measurement, although measurements are made at the different times. The instrument is considered as a reliable instrument when it used repeatedly to measure in the same symptoms and the results obtained are relatively stable and consistent.

E. Data Analysis

The primary data obtained from the instrument research were analyzed using SPSS 16.0 software program. To analyse the quantitative data, three statistical procedures were employed in order to answer the research question. First, descriptive analyses used to explain the distribution of respondents based on demographic variables. Second, the Exploratory Factor analysis (EFA) applied to obtain factor extracted and to investigate the construct validity of the items used in the instrument. And Third, Cronbach's alpha applied to estimate the coefficient reliability of the instrument.

III. RESULTS AND DISCUSSION

Basic information regarding to the demographic characteristics were obtained from each participants of research sample. The most widely respondent sample is from the female students (64.3%) while the Male gender fill up one third of the total respondent (35.7%). Those participants divided into two major living society which come from the urbanites (39.5%) and rural area (40.5%) while the left amount come from other living group (20%). All of the respondent were participated in this research by giving their demographic information and filling the instrument up by answering the questionnaire respectively.

TABLE I. THE RESEARCH'S SAMPLE DEMOGRAPHIC

		Freq	%	Valid %	Cumulative %
Sex	Male Students	105	35.7	35.7	35.9
	Female Students	189	64.3	64.3	100.0
Ethnicity	Javanese	294	100.0	100.0	100.0
	Other	-	-	-	100.0
Living Society	Urbanites	116	39.5	39.5	39.5
	District	57	19.3	58.8	58.8
	Rural Area	119	40.5	99.3	99.3
	Other	2	0.7	100.0	100.0

Table I above describes that this study involving 294 students with the two group sex distribution, 105 out of them were the male students while the remaining others were female. The proportion of the female students is about two-thirds from the total respondent sample entirely. All of them was taken by the purposive random sampling technique, but

the proportion arrangement for the total amount of the participants was another thing. The whole research participants were coming from the mono-ethnic, Javanese, with no including another ethnic representation at all.

The following information regard to the sample demographic was describing the respondent's living society. It was divided into three large groups and a small cluster which is less than 1% of the total number of the sample. Those three large groups consisting of 119 rural students, the slightly below these number were the urbanites which were 116 students, and the last group was the students who come from the district area, the place between the rustic and the urbanite, were just consisting less a half than the two previous group, and just accumulated of 57 students.

A. Factor Analysis

A principal component analysis with varimax rotation was performed to test the 23 questionnaires of the research instrument to investigate the unidimensional evidence. By employing this method, the raw data gained from the entire respondent were analysed through data reduction using SPSS 16.0. The use of the data reduction in factor analysis was to investigate the number of questionnaires that shaped into a new cluster dimension. The result of the exploratory factor analysis was explained that eight factors were extracted and shaped into a new factor group questionnaire. Every factor was indicated by the eigenvalues over 1.0. (4.353 – 1.079) as shown in Table II below:

TABLE II. TOTAL VARIANCE EXPLAINED

Com P	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.3**	18.9**	18.9**	4.3**	18.9**	18.9**	1.8**	7.8**	7.8**
2	1.4**	6.4**	25.4**	1.4**	6.4**	25.4**	1.7**	7.7**	15.6**
3	1.3**	6.0**	31.4**	1.3**	6.0**	31.4**	1.7**	7.5**	23.1**
4	1.3**	5.9**	37.3**	1.3**	5.9**	37.3**	1.7**	7.4**	30.5**
5	1.2**	5.4**	42.8**	1.2**	5.4**	42.8**	1.6**	7.3**	37.9**
6	1.2**	5.2**	48.1**	1.2**	5.2**	48.1**	1.6**	7.3**	45.2**
7	1.1**	4.8**	52.9**	1.1**	4.8**	52.9**	1.5**	6.5**	51.8**
8	1.0**	4.6**	57.6**	1.0**	4.6**	57.6**	1.3**	5.8**	57.6**
9	.9**	4.1**	61.7**						

Table II above was performing the total variance for the entire questionnaires to explain the implication of the spiritual attitude term for high school students. The first component has the great index of eigenvalues rather than the following numbers. It has the total cumulative for the extraction sums of squared loadings about 19 in percent while the other components were just about 5 to 6 percent. In such a case, it could be described that the spiritual attitude scale has the unidimensional due to the first component of eigenvalue index was above twice numbers than the subsequent number. In the other hand, the 23 questionnaires in this instrument could explain the spiritual attitude above 57.6 percent in the term for high school students.

All of these component factors and the unidimensional evidence are shown in Figure 2. The most dominant factor is displayed in the first factor which has multiple eigenvalue rather than the remaining factor.

Based on the result of the factor extraction in Table II above, there are eight factors shaped for the 23 questionnaires. In order to investigate the loading factor for

every partial questionnaire in the Spiritual attitude scale, it could be identified by the result of the factor analysis. The output of the rotated component matrix was performed a set of value index which was shown in Table II.

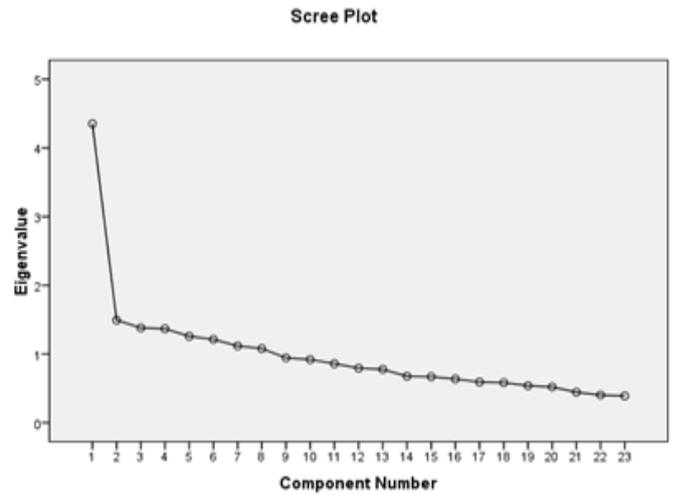


Fig. 2. Component Number of Factor eigenvalues

Figure 2 showed that the construct of spiritual attitude as the research instrument in this study has the unidimensional evidence. The slope line for the first component was higher and more inclined than the following components. Due to the previous explanation, the whole questionnaires in the spiritual attitude scale for this research was accepted to be used in measurement purpose.

TABLE III. ROTATED COMPONENT MATRIX

No. item	1	2	3	4	5	6	7	8
Q1								.785
Q2								.566
Q3						.728		
Q4						.606		
Q5						.523		
Q6			.756					
Q7			.687					
Q8			.511					
Q9								.796
Q10							.571	
Q11				.723				
Q12				.635				
Q13				.636				
Q14		.608						
Q15		.675						
Q16		.674						
Q17	.510							
Q18	.668							
Q19	.571							
Q20					.631			
Q21					.707			
Q22					.459			
Q23					.586			

Note. Extraction Method: Principal Component Analysis and 8 components extracted.

Based on the result of the data analysis in Table III above, it can be described that there are eight factors extracted from the data of the instrument questionnaires. The value index of loading factor for the entire questionnaire was above 0.40 (0.511–0.796). therefore, the whole questionnaire is acceptable to use in this research instruments. In Table III

above, the number of the questionnaire in every subscale were divided into two part and shaped into a new factor. Although it was split into two dimensions for every subscale, it was not interpreted another construct of measurement. Hence, every subscale has two specific indicators as described in Table IV, (Resignation to God: G1 – G2; Thank God: T1 – T2; Sincerity: S1 – S2; and Righteousness: R1 – R2).

TABLE IV. RESULT OF THE FACTOR EXTRACTED

Subscales	Indicator	Number of Questionnaire
Resignation (to God)	G1 being grateful for the result after maximum effort	2 (Q1 & Q2)
	G2 Recognizing human's limitation	3 (Q3 –Q5)
Thanks God	T1 Admit to all God best creatures	3 (Q6 – Q8)
	T2 Feeling happy to do God's order and to leave his prohibition	2 (Q9 & Q10)
Sincerity	S1 Being honest to do for favor	3 (Q11 – Q13)
	S2 Not to be hopeless at failure	3 (Q14 – Q16)
Righteousness	R1 Being consistent with God's order	3 (Q17 – Q19)
	R2 Being consistent with God's prohibition	4 (Q20N- Q24)
Sp-Att Scale (Total)		23

Table IV above shows that the four subscales as proposed in the first concept of the instrument construction were extended into eight dimensions. Based on table 4, every subscale has two derivative factors. Resignation (to God) as the first subscale which containing 5 questionnaires was divided into two number of indicators, the term of being grateful for the result after maximum effort with 2 items and the term of recognizing human's limitation with 3 questionnaires. The second subscale of Spiritual Attitude Scale, Thank God, was also divided into the dimension of admitting to the God best creatures with 3 representative questionnaires and the aspect of feeling happiness with God's order and his prohibition with 2 numbers of the questionnaire.

The next subscale for the spiritual attitude designation was the dimension of human sincerity. The six numbers of questionnaires in this subscale were separated into the two derivative factors. Being honest to do for a favour as the first section with 3 items and the second section of sincerity indicated by the feeling of not to be hopeless at failure with the same number of questionnaires as the section before. The following subscale in the research instrument was to indicate human righteousness in the way of their religious adherent.

The fourth subscale of the Spiritual Attitude Scale was also divided into two part, the first group number of questionnaires was constructed to indicate the consistency of human being with God's order with 3 questionnaires and to indicate human consistency to do with God's prohibition with 4 numbers of questionnaire as the second part of righteousness subscale. The total number of the questionnaire for the Spiritual Attitude Scale in this study has 23 questionnaires.

B. Instrument Reliability

Reliability is an essential characteristic of a good between the test and the obtained scores. Reliability is required to obtain the instrument validity and the investigation of both reliability and validity can be defined as complementary aspects of identifying, estimating and interpreting different sources of variance in the scores.

Coefficient reliability of the instrument was employed to test the consistency of the measurement and was used as an estimation of how much the instrument would give the same result under the same conditions. The estimation of reliability in this research was evaluated with internal consistency coefficients which reflect unidimensional concept. The index values of the Cronbach's alpha coefficients for the instrument measurement was shown in Table V.

The instrument to measure the Moslems' spiritual attitude for high school student has a moderate good reliability estimation and proofed by the Cronbach's alpha coefficient 0.796 (above 0.70) for the entire subscales in the Spiritual Attitude Scale with 23 questionnaires. The index of the alpha coefficients would decrease if one or more of the subscales are deleted. This instrument has the alpha coefficient 0,782 if the first subscale (Resignation to God) is deleted and it also has the same alpha coefficient (0.782) if the second subscale of the instrument (Thank God) is deleted. The Spiritual Attitude Scale without the measurement of the sincerity subscale has the alpha coefficient 0.779. The estimation of reliability decreased to 0.780 if the fourth subscale of the instrument, Righteousness, is described in Table V.

TABLE V. DESCRIPTIVE STATISTICS OF THE INSTRUMENT

Subscales	Number of Questionnaire	M	SD	Cronbach's α if items deleted
Resignation (to God)	5	13.18**	1.72***	0.782
Thank God	5	12.61**	1.64***	0.782
Sincerity	6	16.83**	1.63***	0.779
Righteousness	7	19.23**	2.01***	0.780
Sp-Att Scale (Total)	23	61.86**	5.12***	0.796

Table V above presents the result of the quantitative data analysis through descriptive statistical using SPSS 16.0 performed that resignation (to God), as the first subscale in this instrument, has the mean value of 13.18 and the score of standard deviation 1.72. The next Spiritual Attitude dimension, Thank God, has the smallest value of the mean index 12.61 and has the standard deviation 1.64. The Sincerity dimension which represented with six questionnaires performed the mean score about 16.83 and the smallest index of the standard deviation which just explained 1.63, a slight number under the previous subscale. Whereas the forth subscale has the highest index for the mean score and the standard deviation, it has 19.23 for the mean score and 2.01 for the standard deviation. The total questionnaires of the Spiritual Attitude Scale have the mean score 61.68 and 5.12 score for the standard deviation taken from 294 sample students.

C. Discussion

The aim of this research paper was to test the evidence of construct validity and the construct reliability of an instrument to measure Moslems' spiritual attitude as an inventory to assess the attitude competency in education. To achieve these goals, a number of respondents were involved in this research. Table I shows a fair information of the respondents, there is sixty-four percent of female respondents while only thirty-six percent is male, those participants are Muslim students which is met based on the purpose of collecting research sample.

The following table shows that using this research instrument to measure Moslems' spiritual attitude has pointed the total variance explained out about 57.66%. The first component is the dominant factor rather than the others, it can explain 18.9% out of the total variance and has the higher eigenvalues (4.353) which are more than twice from the second factor and it continuance. Number eight of the shape factor is the lowest of an acceptable factor which has a value of 1.079 (slightly above 1.0). A clearly visual appearance for these results is shown in Scree plot in Figure 1.

The spiritual attitude scale consists of four subscales named Resignation (to God), Thank God, Sincerity, and Righteousness. That subscale was derived from the Islamic religious term which containing 23 questionnaires (Resignation to God: Q1–Q5; Thank God: Q6–Q10; Sincerity: Q1 –Q16; and Righteousness: Q17–Q23). Resignation to God is performed to describe the student attitude towards their feeling of being grateful for every effort they have made and how they recognize their limitation to make such a thing if there is no God assistance. The second subscale is Thank God, this dimension represents the spiritual attitude of feeling happy to do God's order and to leave his prohibition, it also represents their attitude to admit all of God best creatures. Sincerity is addressed to explain how the students are being honest to do for a favor without expecting any rewards and will not despair and being hopeless at every failure for their effort to make. The last subscale is righteousness which has a purpose to present the students' attitude of being consistent with both God's order and his prohibition.

Table V shows the Cronbach's alpha coefficient of the research instruments to address the third research question and to indicate the reliability estimation of the spiritual attitude scale. In summary, the whole questionnaire in the spiritual attitude scale has a good coefficient index 0.796 (above 0.70). This index of the reliability coefficient will be declined if one or more subscales in the spiritual attitude scale are deleted, for the example, as pointed out in the Table V if the first subscale is deleted the index of Cronbach's alpha coefficient will be reduced to 0.782. this decrease value is slightly below the index reliability coefficient for the total scale.

IV. CONCLUSION

The recent study has shown that the construct validity of an instrument to measure spirituality through spiritual attitude for high school students were evaluated and investigated through quantitative data analysis. This instrument consists of four considered subscales that derive from the Islamic religious term to reveal the spiritual attitude especially for students named Spiritual Attitude Scale. This Instrument contains 23 questionnaires used three-point of the summated rating scale. The results present that the recent instrument has the qualification to be used and supported by the results of the data analysis employing exploratory factor analysis.

Spiritual attitude scale also has a high sufficient index of reliability estimation proofed by the computation of Cronbach's alpha. However, this research paper has limitations. The research sample was taken by the purposive

sampling technique, henceforth, it just represented the same population. In this case, the purpose of taking the sample determined by the particular characteristics, all the sample are Muslim and there is no significant value for the variance of their age. Therefore, the next research has to cover more general characteristics if possible, in order to get the more significant result and able to accomplish such scale.

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