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Scientific Study, Validity, Reliability and Norming of Spiritual Intelligence Test in University Students

Aida Hadad Momeni^{a*}, Hamidreza Vatankhah^b^a MA student of Azad University of Tonekabon, Iran^b Lecturer of Azad University of Tonekabon, Iran**Abstract**

The general purpose of this investigation is scientific study, validity, reliability and norming of spiritual intelligence test in Rasht city. To gain this purpose a sample group including 451 people (190 boys & 261 girls) were selected randomly. Afterward a questionnaire including 83 items applied to assess their spiritual intelligence. This was measured on a six-point likert scale with categories from never to almost always. To obtain the correlation of each item with total score of the group, Cronbach's alpha was used. For the group concluding 82 items, the coefficient of Cronbach alpha was 0.875. Whenever a question of the assessment is omitted, validity coefficient (homogenous) of the test which is equal to 0.875 in normal condition, decreases but if the questions number 5,6,9,11,22,23,31,33,34,44,53,55,60,68,74,75,76,79 are omitted, the validity coefficient increases. The maximum increase of validity is 0.877 which is related to the questions 9,11,22,23,34,75,76. Question 61 was omitted from the questionnaire due to weak correlation. To survey about the reliability of the concept and to know that this measurement is satiated with what factors, we used factor analysis. As the amount of Kaiser-Meyer-Olkin (KMO) was 0.77 and as Croit Bartlet's particular is meaningful, there is a proper condition to perform factor analysis. By analyzing principal components and Varimax Rotation and with regard to factor Matrix, 14 factors were extracted. Average scores of boys and girls in factors 2,3,4,5 have meaningful differences at level of 0.01 and 0.05. In every four factors average scores of girls are more than boys; however there were not significant differences between the other 10 factors. Generally there are significant differences between average scores of girls and boys.

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Spirituality is one of inner requirements by human which exists in hearts, minds and customs especially religious customs. As Tillich has said spirituality is the final concern; as all humans have a final concern so all are spiritual (Akins et al, 1988). In the recent decades, the theories of multiple-intelligence have increased our general perception about intelligence beside traditional perception (linguistic and logical abilities related to Intelligent Quotient (IQ) including spiritual, existential, social intelligence and talent which change to creative and emotional practices) (Bar,

Corresponding author name: * Hamidreza Vatankhah. Tel.: +98-912-351-1146

E-mail address: d.daryabari@yahoo.com

2000; Gardner, 1983, 2000; Emmons, 1999; Halama & Stridence, 2004; Goleman, 2001; Mayer & Salovey, 1993; Sternberg, 1997).

For each form of intelligence, a model of theory and a measurement tool is developed so that functionally measure the structure of similar new intelligence (Bar, 2000; Boyatziz & Goleman & Rhee, 2000; Mayer & Salovey & Caruo & Sitarenios, 2003; Sternberg, 1997). Sternberg (1997) defines intelligence as necessary mental abilities for being compatible, selecting and forming each environmental context. A more advanced and richer model for multiple intelligence which has been mentioned, is Gerdener Model (1983, 1999). Gardner defines intelligence as a series of abilities which are applied to remove problems and it creates products which are valuable in a cultural or social context. Lining up structural development of emotional intelligence and spiritual intelligence includes a series of abilities which are relate to spiritual resources. SI merges structures of spirituality and talent together. While spirituality is refer to search for experiencing holy and spiritual elements, meaning, more consciousness and eminency, spiritual intelligence includes abilities which are related to spiritual issues so that predicate performance and ability to compromise and present valuable and considerable results (Emmons, 1999). In a short look at spiritual, from intelligence point of view, Emmons (1999) says “SI is a framework for identifying and organizing skills and abilities needed for the adaptive use of spirituality”. In this questionnaire, SI has identified as an ability to apply, reveal and depict values and spiritual resources and how to increase fitness, health and daily functioning. Despite previous researches which conducted about SI (Emmons, 2000, B; Nasl, 2004; Vagen, 2002; Volma, 2001), there have been some developments towards this world measurement tool of SI and it has been legally known as reliable. The purpose of the researcher is normalization spiritual intelligence inventory. With regard to standard stages in related operation to test standardization in the present research, researcher seeks to respond the following questions:

1. If there is enough inner coordination between set of questions which are provided for evaluation of SI?
2. If there is enough reliability in spiritual intelligence test?
3. What factors are saturated in content of spiritual intelligence inventory?.

2. Method

Statistical society of the present research includes all male and female university students engaged in education in academic year of 2008-2009 in governmental, Azad and Payame-noor universities with age between 20 to 30 years old in all courses of studying. As the subject of the research is SI test standardization, therefore, sample group shall be large so that required factor analysis could be conducted. For this purpose, a sample group with 500 people was selected from the society under study through random stratified sampling based on common methods to standard tests.

The research tool is SI test which has been created by Emrem & Derir (2007). This inventory included 83 items so that students study each item and rank their agreement based on their status during recent 6 to 12 months by six-point likert scale which is degreed from “never to always”. This inventory could be done individually or in group. In order to conduct the plan and collect data, more than 451 people were selected. Scale performed by the researcher. The test conducted individually for students (male and female). The maximum time for the test was 30 to 40 minutes.

Data were analyzed based on purposes of the research and using descriptive and deductive statistic methods as follow: To determine statistical feature of groups common descriptive methods such as frequency distribution, central tendency indexes and dispersion indexes were used based on collected variables (sex). To determine inner coordination and validity of inventory, Chronbach alpha was used. To survey reliability of inventory principal components analysis was used. In order to find that the test is saturated with how many factors, Varimax rotation was used after analyzing principal components. And finally to determine significant difference between male and female groups, independent t-test was used.

Q64	.346	Q50	.301										
		Q59	.369										

Item	factor 8	Item	factor 9	Item	factor 10	Item	factor 11	Item	factor 12	Item	factor 13	Item	factor 14
Q74	.681	Q22	.523	Q60	.586	Q79	.510	Q32	.536	Q35	.565	Q5	.544
Q73	.657	Q48	.482	Q8	.581	Q75	.503	Q3	.507	Q25	.492	Q71	.377
Q78	.356	Q68	.460	Q11	.558	Q63	.422	Q9	-.479	Q7	.467	Q34	.356
Q46	.333	Q24	.421			Q62	.325			Q55	.364	Q43	-.345
		Q65	.345			Q21	.312						
		Q69	.340										
		Q47	.315										

Based on structure matrix of factors, questions which was correlated with the same factor created a Pare Test which are obtained as follow:

1. The 1st factor has a strong correlation with 9 questions (54-42-45-51-49-70-72-67-56) which shows consciousness
2. The 2nd question has a strong correlation with 10 questions (15 - 50-38-58-14-1-4-12-19-28-) which shows self-consciousness
3. The 3rd factor has a strong correlation with 5 questions (13- 27-37- 18- 26) which shows existential inquiry
4. The 4th factor has a strong correlation with 8 questions (10- 39-53-29-16- 66- 52- 40) which shows attendance
5. The 5th factor has a strong correlation with 8 questions (20- 41-57-30-6- 64- 59- 17) which shows divinity
6. The 6th factor has a strong correlation with 7 questions (82- 23-31-33-44- 76- 36) which shows inner supervision
7. The 7th factor has a strong correlation with 4 questions (77- 81-80-2) which shows meaning.
8. The 8th factor has a strong correlation with 4 questions (74- 73-78-46) which shows separation from sensuality
9. The 9th factor has a strong correlation with 7 questions (22- 48-68-24-65-69-47) which shows holistic view
10. The 10th factor has a strong correlation with 3 questions (60- 8-11) which shows problem solving
11. The 11th factor has a strong correlation with 5 questions (79- 75-63-62-21) which shows evidences
12. The 12th factor has a strong correlation with 3 questions (32- 3-9) which shows truth
13. The 13th factor has a strong correlation with 4 questions (35, 25, 7, 55) which shows virtuous behavior
14. The 14th factor has a strong correlation with 4 questions (5, 71, 34, 43) which shows intellectuality.

In order to obtain certainty about this issue that there is fundamental and significant difference between two groups of male and female so that understand that this difference is not due to sampling error, data obtained from SI scale on 261 females and 190 males analyzed through independent t-test for mean homology. The difference is significant between average scores of males and females in factors 2, 3, 4, 5 in level of 0.01 and 0.05. Average scores of girls in factors 2, 3, 4, 5 and total score are respectively 43.56, 22.00, 30.61, 30.01, 318.06 and average scores of boys in mentioned factors are respectively 41.70, 20.85, 21.51, 28.06 and 308.98 and t score in mentioned factors are respectively -2.76, -2.83, -2.07, -3.10 and -3.064 with freedom degree of 459. In all the 4 factors girls' score are more than boys'. Average scores were not meaningful in 10 other factors. Totally, there was significant differences between average scores of boys and girls.

In order to interpret scores of each person, his/her raw scores should be expressed in a scale which gives a general framework for comparing scores. The purpose of this scale which is called norm is to express relative status and rank of a person in a suitable reference group. A suitable reference group is the group that a person could be compared with it logically (Hooman, 2002). To obtain these purposes, in this research, scores obtained as percent norms in 14 factors so that relative status of each person could be determined by having his/her raw score. Generally, with regard to average scores, median and standard deviation we find that distribution and shape of diagrams of factors 1 to 14 is likely normal and 8th factor is skewed.

4. Discussion

The present study conducted to survey scientific study, validity, reliability and norming of spiritual intelligence

test in university students (Girls and Boys) of Guilan University, Islamic Azad University and Payame-noor University of Rasht city. After conducting spiritual intelligence test on 451 male and female student, data were collected and analyzed. Results of the research say that whenever a question of the test is omitted, validity coefficient (homogenous) of the test which is equal to 0.875 in normal condition, decreases but if the questions number 5,6,9,11,22,23,31,33,34,44,53,55,60,68,74,75,76,79 are omitted, the validity coefficient increases. The maximum increase of validity is 0.877 which is related to the questions 9,11,22,23,34,75,76. Regarding that the maximum increase in validity of test is from 0.875 to 0.877 and as it is not considerable, it is better to preserve length of the test and no question omitted. Question 61 was omitted from the questionnaire due to weak correlation. This validity coefficient shows that we could be certain of later results and computations. Also, in previous researches, Emrem & Derir (2007) obtained validity coefficient (0.97) for 83-item questionnaire of IS. With regard to the data along factor analysis, 14 factors were extracted and distribution and shape of diagrams for factors 1 to 14 is relatively normal and factor 8 is skewed. In order to survey structure reliability of the questionnaire and to understand that how many factors has the questionnaire, factor analyzing were used. Amount of KMO was approximately 0.77 and feature of Bartlett test of dphericity was meaningful, therefore, it represent a proper condition to conduct factor analysis. Based on principal components analysis and Varimax rotation, 14 factors were extracted from 82-item questionnaire regarding to factor matrix, seep digram and percentage of explained variance. This 14 factors totally cover 32.9% of total variance of variabls which shows that this questionnaire enjoys reliability to some extent. In order to simplification extracting factors, inclined rotation was used. There is significant difference between average scores of girls and boys in factors 2, 3, 4, 5 at level of 0.01 and 0.05. In every four factors, average scores of girls are more than boys; however there were not significant differences between the other 10 factors. Generally there are significant differences between average scores of girls and boys.

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