Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.6, No.36, 2015

Rationing of Raven's Matrices Scale for Emotional Intelligence to Students at Al al-Bayt University

Dr. Mohammad Olimat[1]
[1]Al al-Bayt University, Mafraq, Jordan

Abstract
The purpose of this study is to modify "Raven's Matrices" scale of emotional intelligence to the students of Al al-Bayt University in Jordan, as this scale has some features such as the deliverance of the influence of culture and language.

The scale was applied to a sample of (526) students at Al al-Bayt University in Al Mafraq.

To researcher used statistical analysis to answer the questions of the study in order to check the effectiveness of the items of the scale through the extraction of difficulty and differentiation factors of the different levels of the general point average and total sample. The researcher extracted the reliability using Kr20 equation to calculate the internal consistency between the items, the validity of the scale also was measured using formative validity through differentiation rates by tracking the increase in the means and standard deviations of the thirteen categories of the general point average (GPA).

The results of the study showed the effectiveness of the scale paragraphs has been proven in terms of difficulty and differentiation coefficients, and Raven's Matrices scale has got high psychometric characteristics (reliability, validity) In a sign that the scale is suitable for application with a university education students in Jordan.

Key words: Raven's Matrices scale, emotional intelligence

Introduction

Intelligence tests are divided into individual tests, which are performed by a psychologist and performed by a specialist. The specialists introduce the tested individual some tasks face to face and the individual responds by pointing to a particular stimuli. While group tests usually include items that require a paper and pen to answer it; so it can be applied to a large group of individuals at one time; thus saving effort and cost (Allam, 2006). Among the collective IQ tests the nonverbal intelligence tests that have spread widely used in the world (Raven) test for successive matrices, the normal level of IQ (Van der Ven & Ellis, 2000; Raven, Raven & Court, 1998).

Raven (first edition (1938)) and the revised version (1956) it has three versions, :Raven test for successive matrices of normal, colored, and advanced level (Brouwers, Van de Vijver & Van Hemert, 2009; Kunda, McGregor & Goel, 2009). These tests are valuable and have practical applications as an indicator of intelligence, and are suitable for use in the educational, professional, clinical, and scientific domains (Kunda, McGregor & Goel, 2009).

The test consists of (60) items divided into groups of: (A, B, C, D, E), each group contains 12 items (Rushton, Skuy & Fridjhon (2002) It is a test that measures general intelligence which consists of a matrix of geometric shapes that require a pattern or an incomplete space, (Kunda, McGregor & Goel, 2009).

Matrixes depend on the ability of the individual to arrive at a rule that can determine the characteristics of the form that must fit the missing space, complementing the logic of the entire matrix. The correct shape is chosen from the six or eight provided below the matrix, the incorrect alternatives in the multivariate selection tests are called Multi-dispersants (Ghamari, 2010)

That is, the test (Raven) designed in England is non-verbal, and differs from the previous tests where it consists of a single image consisting of (60) items suitable for different age levels (Faraj, 1989). Raven was influenced by the theory of (Spearman) for Intelligence which measures the component of the cognitive capacity (Educative ability) and Reproductive ability (Ability to infer and solve problems that require the generation of new information (Raven, 2000). It is one of the leading tests in the field of abstract thinking or nonverbal ability, and is considered the best widely used to measure the general factor of intelligence (Lynn, 1983; Court, 2002). The test is one of the most popular and most widely diffused tests of cultural impact(Prabhakaran, Smith, Desmond,

Glover, & Gabrieli,(1997), where it has been widely used and interesting in various countries, and for long periods of time more than sixty years (Brouwers, Van de Vijver & Van Hemert, 2009).

The importance of intelligence tests in identifying individual differences, to provide decision makers, and those in charge of the educational process with accurate information for diagnosis and evaluation for students in the academic stages from elementary to university education. In spite of the activity of the movement of measurement and standardization, Arab and world and early attention in those countries; however, the Jordanian environment lacks the standardization of intelligence tests; therefore, the researcher considered standardization of the matrices test to meet the needs of specialists in different fields. The legalization of the Raven test of intelligence in Jordanian society will be of great benefit, especially since it is free from the impact of culture; it is based on abstract geometric shapes, its ability to measure general intelligence, and covers a wide range of mental abilities, suitability for different ages, On the individual or group, and the clarity of its instructions, and its validity to diagnose cases of mental weakness, mental excellence, and the success of the experience of codification in many Arab countries.

Purpose of the Study

This research aimed at modifying "Raven's Matrices" scale of emotional intelligence to Al al-Bayt University students in Jordan, as this scale has particular topographies such as the deliverance of the impact of language and culture.

The Study Questions

The focus here will be to modify Raven's Matrices scale to answer the following questions:

1- What is the efficiency of the items of Raven's Matrices scale which applied in Jordan on the students of Al al-Bayt University?
-Difficulty measurement.
- Discrimination measurement.
- The correlation between the item and the total score.
- Contrast item

2- Does Raven's Matrices scale reliability consistent with the features of a good test?
   - What is the reliability degree using re-application?
   - What is the reliability degree using midterm?
   - What is the reliability degree between subdivisions and total degree and between the way that the interior consistency of items and each other using equation (Kr20)?

3- What is Raven's Matrices scale reliability and its agreement extent with the features of a good test?

4- What are the ideals of Raven's Matrices test on Al al-Bayt university students?

Definition of Terms

Intelligence

The ability of a person to deal with a problem of a theoretical or abstract nature by identifying their elements and arranging them in a hierarchical form in order to reach a solution using his previous experience (Jaber and Omar, 1991)

The researchers define it procedurally as a measure of Raven's regular matrices by the total score obtained by his or her correct answer to the test paragraphs, which is an indicator of the general mental capacity of the subjects.

Raven's Standard Progressive Matrices

This test is the basic image of the matrices of John Raven and consists of (5) sections: (A, B, C, D, E), each consisting of (12) individual, each composed of a graphic or engineering design or a formal pattern of deleting part of it; the examinee should choose the missing part of between (6 or 8) are given alternatives, and each of the five groups requires a different pattern of the response, and group arrangement is done according to levels of difficulty or complication of cognitive processes of knowledge; while the first and most convenient groups require precision in comparison, discrimination, and symmetry, the latter groups require the most difficult to recognize logical relationships (Abu Hatab, 1979)

Limitations of the Study

The results of this research are limited to students of Al al-Bayt university in the academic year 2014/2015

Literature review

And the relationship between emotional intelligence and sentimental, emotional, and cognitive features, a study by (Murensk,2000) that there is no significant relationship between the emotional intelligence and critical thinking. Batastini (2001) study found a significant correlation between emotional intelligence and all of the innovative and leadership ability.

The study Mayer, al et (2001) have found a significant correlation between emotional intelligence and social and verbal intelligence. The study of Badr (2002) found a positive significant correlation between the parental compassionate as perceived by the children and their emotional intelligence.

Radi (2002) found in his study significant differences between the average grades for children who are most vulnerable to abuse and parental neglect and average grades of children who are less vulnerable to abuse and neglect in cognitive, emotional, and social intelligence, and in favor of children who are less vulnerable to abuse and parental neglect.

The study of Zidane and Imam (2003) has found a relationship between emotional intelligence and methods of learning, and the highest correlation coefficient is the sensory- kinesthetic learning style.

Dedy (2005) study concluded that the high emotional intelligence rates lead to lower personality disorders rate. Finally, the results of Buhairi study (2007) indicated that the training program was not effective in the development of emotional intelligence, but also was effective in reducing behavioral problems) Aggression - introversion - lying among the experimental group of primary school children who are behaviorally disturbed.

In Libya Shahomee-Al (2012) standardized the testing of Raven's successive matrices on 600 adults, and the results showed that there were significant differences in intelligence between the urban and rural sample for the urban benefit with a difference of three points of intelligence and differences between the total and rural sample And not urban males and females, where males scored higher than females (8.4) points of intelligence The results also indicated that there are differences in intelligence between levels University education and less university, for the benefit of the university by a difference of (5.5) points of intelligence, and the results of the analysis indicate that there is evidence of four factors, and that there is a general factor of a high degree of saturation, where the percentage of variation was 7.58%

Ijaz, Kazmi & Nazir (2013) conducted a study aimed at exploring cultural differences in intelligence using the Raven standard matrices test. The sample of the study included (440) students of the school students, 220 of them are urban students, and 220 of them of rural schools students are aged (12-15) years in the Abbott region of Pakistan. The results indicated that school students in urban areas were better than rural schools and that female students had a higher level of nonverbal intelligence than male students.

Methodology

Population of the Study

This study population comprised of all students enrolling at Al al-Bayt University during the Academic year 2014/2015

Sample of the Study

The study members included Measuring and Evaluating students during the first semester in the academic year 2014/2015

Instrument of the Study

The research instrument is Raven's Matrices scale for emotional intelligence, and the researcher modified this scale to suit the Jordanian environment after translating it.

Validity and Reliability of the Instrument

Raven's Matrices scale has tested reliability and reliability through reviewing previous studies, these studies inveterate that using diverse approaches and this shows that this scale is a perfect measurement instrument, as the circumstances that must be provided in the test even be valid for the application and use of the obtainability of validity and reliability.

The researcher counted the correlation coefficients between the sub-sections and the total score; results are presented in Table (1)

Table (1): Correlation coefficients between total score and sub-sections (n = 152)

	First application	Second application
Between (B) and total score	0.85	0.88
Between total score and (AB)	0.86	0.91
Between total score and (A)	0.67	0.75
Between (A) and (B)	0.34	0.46
Between (AB) and (B)	0.6	0.71
Between section (A) and (AB)	0.42	0.56

All correlation coefficients are statistically significant at the level of (0.01)

After reading the previous results relating reliability, the researcher discovered that Raven's Matrices scale enjoys a high reliability level.

The researcher measured validity using the following:

1- Factorial Validity
2- Concurrent Validity
3- Construct Validity

Results of the Study

This study was designed to modify Raven's Matrices scale to university students seeking of extracting means and standard deviations for this portion from the whole community in Jordan, and confirmation of the psychometric aspects of the scale in order to offer suitable educational facility to them.

Since this mechanical procedure does not need assumptions that need to be evidenced or repudiated, a number of inquiries concerning the mechanical intelligence testing procedure have been recognized. The study tried to answer these inquiries by directing a number of statistical analyzes on the efficiency of the items on the size and features of the emotional test and the efficiency of the items , So the total sample level and age groups, the following results will be showed according to the following sequence:

1- The efficiency of the items of the scale

In order to guarantee the efficiency and validity of the items of the scale, some statistical analyzes were needed to measure the sum of the sample paragraphs as follows: A thorough demonstration of these analyzes and the gained results

Questions difficulty factor

It is acknowledged in the building of tests that a good test should include a steady group of difficulty levels and difficulty of the inquiries so that through this test to differentiate between the topics and to specify that we resort to an account, the difficulty of the coefficient of the inquiries that used the proportion of correct responses means between the total replies of each item In order to measure the whole sample.

Table (2) difficulty factors for total sample

Item	Difficulty factor	Item	Difficulty factor	Item	Difficulty factor
1 A	0.86	AB1	0.44	B1	0.32
2A	0.24	AB2	0.45	B2	0.22
3A	0.31	AB3	0.40	B3	0.16
4A	0.51	AB4	0.24	B4	0.32
5A	0.60	AB5	0.44	B5	0.24
6A	0.58	AB6	0.52	B6	0.27
7A	0.53	AB7	0.36	B7	0.55
8A	0.80	AB8	0.76	B8	0.45
9A	0.79	AB9	0.53	B9	0.39
10A	1	AB10	0.56	B10	0.83
11A	0.93	AB11	0.85	B11	0.64
12A	0.86	AB12	0.79	B12	0.61
Mean	0.67	mean	0.52	mean	0.41
	Mean	**average**	**0.53**		

By reviewing Table (2) of the total sample we conclude that:

-In the whole sample, the level array between (1-0.16) with the median (0.53)

- The difficulty aspects involved in each of the three groups (A, B, B) were categorized as easy to difficult

- The difficulty progression between the three groups is similar to the first group (a) the easier group, then the second group, then the third, and also the total sample level, and this relates to what Daniel adopts in his experimentations that each group contains a simpler psychological process than the next one.

- The maximum coefficient of ease gained by the first item and the minimum coefficient gained in the last item and this relates to the results of some previous research that proved this.

- At the total sample level, the scale with a wide gradient (27%) of the scales on the top of the scale attained more than (0.75). (52%) of the scale items have a influence between (0.25 - 0.75). (21%) of the scale paragraphs are less than (0.25).

b. Paragraph differentiation factor

The discrimination coefficient and the concepts test and depending on out groups which were identified (27%) compared to the lower group (27%). The correct answers were presented in the bottom range of the correct answers at the top (526) students, and their data are shown in Table 3):

Table (3): item discrimination factor for the whole sample

Item	Differentiation factor	Item	Differentiation factor	Item	Differentiation factor
A1	0.67	AB1	0.67	B1	0.58
A2	0.51	AB2	0.61	B2	0.46
A3	0.30	AB3	0.28	B3	0.30
A4	0.70	AB4	0.84	B4	0.53
A5	0.59	AB5	0.69	B5	.58
A6	0.71	AB6	0.75	B6	0.57
A7	0.21	AB7	0.83	B7	0.79
A8	0.54	AB8	0.79	B8	0.81
A9	0.51	AB9	0.85	B9	0.71
A10	0.04	AB10	0.43	B10	0.47
A11	0.21	AB11	0.58	B11	0.72
A12	0.40	AB12	0.58	B12	0.77

By revising the distinction that described the coefficients in the preceding table, note that it ranged between (0.04 - 0.85) where the first paragraph (A1) gained the lowest coefficient so that the example of the training was solved by the inspector and thus the paragraph did not distinguish between the two groups. The remaining coefficient (28%) of the coefficient of discrimination of the test elements was higher than (0.70) and (55%). and the value of discrimination coefficient were between (0.40-0.70)

The rest items represent (14%) of the whole items of the scale were less than (0.40). Generally, the values of the calculated coefficient of discrimination of the total sample factor values confirm that the test elements have a good discrimination coefficient and that these same coefficients give us Evidence of the validity of the items of the scale where this item is a distinction or ability to distinguish between the significance of the coefficient on the validity of this article, especially if it contains associating the power ends measured in the item.

C. item correlation with the total score

As the second variable data, an item on the basis of the real binary classification, namely (1, 0), the coefficient of the item was calculated with the total score by a special binary correlation coefficient (link point). This was done for a complete sample of (526) students. The data are presented in table (4)

Table (4) : item connection with the whole score

Item	Connection coefficient	Item	Connection coefficient	Item	Connection coefficient
A1	0.54	AB1	0.53	B1	0.51
A2	0. 43	AB2	0.51	B2	0.51
A3	0.29	AB3	0.29	B3	0.44
A4	0.55	AB4	0.68	B4	0.34
A5	0.45	AB5	0.43	B5	0.68
A6	0. 57	AB6	0.60	B6	0.58
A7	0.46	AB7	0.67	B7	0.47
A8	0.51	AB8	0.65	B8	0.57
A9	0.50	AB9	0.71	B9	0.48
A10	0.15	AB10	0.48	B10	0.58
A11	0.34	AB11	0.55	B11	0.64
A12	0.45	AB12	0.54	B12	0.64

The mean correlation coefficient was (0.51) and the length ranged from (0.15 to 0.71). Precisely item (22) the value of the coefficient of correlation with the highest overall score of (0.50), which represents 61% of the scale items.

The correlation coefficient values ranged between (0.30 - 0.49) this form about (31%) of the items of the scale, and the other (3) items. The correlation coefficient values were less than (0.30) representing 8% , So that the correlation coefficients of the items with the total degree of worthy coefficients show that the test elements have a good correlation factor with the whole score.

Reliability was measured using internal consistency, and the equivalent Richardson equation (20) were used by the researcher to calculate the reliability coefficient of this type of modification. The measurement scientists confirm that the production of this equation embodies the average of all relations between the different questions. Different age groups, table (5) demonstrates the last analysis results.

Table (5): Coder and Richard son 20 equation to calculate reliability coefficient

GPA	N	Reliability coefficient
3.7- 3.6	46	0.91
3.5-3.4	46	0.91
3.3- 3.2	59	0.91
3.1-3.0	38	0.91
2.9-2.8	43	0.91
2.7-2.6	49	0.90
2.5-2.4	35	0.91
2.3-2.2	35	0.91
2.1-2.0	37	0.91
1.9-1.8	25	0.80
1.7-1.6	36	0.80
1.5	42	0.87
1.4	35	0.87
Total sample	526	0.90

Looking at the above table, we find that the coefficients resulting from the stability we have in the various GPA groups are high reliability of the parameters and this gives us an sign - and we cogitate the college that ranged between (0.80 - 0.92) that the items of the scale has high similarity and highlights the pleasure of the exam on a great amount of Reliability.

Conclusion

The study was conducted in order to identify the psychometric characteristics of Raven's regular matrices to the students of Al-Bayt University in Jordan and to prepare tables of criteria in order to explain the raw grade obtained by the students. The results showed that the test was characterized by high indicators of honesty and consistency. These results were consistent with the results of the previous studies. The results were appropriate for the nature of the test regarding the normal distribution and performance correlation on the IQ test. This confirms its validity for use in the Jordanian university environment because it provides the basis for the extraction of standards, but the generalization of these results is limited to Al-Bayt University and it did not include the rest of the Jordanian universities

References

Abu Hatab et al, (1979) Regulating the Raven of successive matrices on the Saudi environment "Western Region" instruction manual, Mecca Publications, Educational and Psychological Research Center, King Abdel -Aziz university

Al-Shahomee, A. (2012). A standardization of the Standard Progressive Matrices for Adults in Libya. Personality and Individual Differences. 53 (2), 142-146.

Batastini, S.D. (2001). The relationship among students' emotional intelligence, creativity and leadership. Unpublished Ph.D. Thesis, University of Drexel. Available: www.lib.umi.com/ dissertations.

Becker, T. (2003). Is emotional intelligence a viable concept? Academy of Management Review, April, 192-195.

Brouwers, S. A., Van de Vijver, F. J., & Van Hemert, D. A .(2009) Variation in Raven's Progressive Matrices Scores across Time and Place. Learning and Individual Differences. 19 (3), 330-338.

Buhairi, M. (2007) Development of emotional intelligence to reduce the severity of some problems in a sample of behaviorally disturbed children. Journal of psychological studies, vol. 17, issue. 3, pp. 585 - 641.

Court, J. (1983). Sex differences in Performance on Raven's Progressive Matrices. Alberta Journal of Educational Research. 29, 54-74.

Dedy, R. (2005) Emotional intelligence and its relationship with personal disorders in a sample of students of psychology, Journal of contemporary psychology vol. 1, issue. 1, pp. 69 -112

Epstein, S. (1998). Constructive Thinking: The Key to Emotional Intelligence. Westport, CT: Praeger/Greenwood.

Faraj, Safwat. (1989) Psychometric Measurement, I 2, Cairo, Anglo The Egyptian.

Flynn, James R. (1987). "Massive IQ Gains in 14 Nations: What IQ Tests Really Measure" (PDF). Psychological Bulletin. 101 (2): 171–191. doi:10.1037/0033-2909.101.2.171. Retrieved 13 May 2016

Ghamari, S. (2011) Reliability and validity coefficients for testing Standard Spatial Matrices SPM for Libyan Sample Age Group (38-50) Year, Al-Mukhtar Journal of Human Sciences University, Omar Al-Mukhtar University, No. 12

Hedlund, J. & Sternberg, R.J. (2000). Too many intelligence's? Integrating social, emotional, and practical intelligence. In R. Bar-On &J. Parker (Ed's.), The Handbook of Emotional Intelligence.San Francisco: Jossey-Bass.

Ijaz, S., Kazmi, F. & Nazir, F. (2013). Culture as A Factor of Intelligence Among Secondary Level Students. Journal of Research & Method in Education. 1 (4), 40- 45.

Jaber, J. & Omar, M. (1991) standardization of the IQ test of the secondary and university level. Yearbook of the College of Education - Qatar, vol.8, pp.218. 247

Kunda, M., McGreggor, K., & Goel, A. (2009). Addressing the Raven's Progressive Matrices Test of "General" Intelligence, Multire presentational Architectures for Human-Level Intelligence: Papers from the AAAI Fall Symposium (FS-09-05).

Luthans, F. (2002). Positive organizational behavior: developing and managing psychological strengths for performance improvement. Academy of Management Executive, 16 (1), 57-76.

Lynn, R. (2002). Sex Differences on the Progressive Matrices among15–16 Year Olds: Some Data from South Africa. Personality and Individual Differences. 33 (4), 669-673.

Mayer, J.D., Salovey, P., & Caruso, D. (2000). Models of emotional intelligence. In J.R

Mayer, J., Ciarrochi, J., & Forgas, J. (2001). Emotional intelligence and eve life: An introduction. In J.D. Mayer, J. Ciarrochi, & J.P. Forgas (Eds.). Emotional intelligence and ever

Murensk, C. (2000). The relationships between emotional intelligence, personality, critical thinking ability and organizational leadership performance at upper levels of management. Unpublished PhD. Thesis, University of George Mason. Downloaded from www.lib.umi.com/ dissertations

Prabhakaran, V., Smith, J., Desmond, J., Gary, H., Glover, G., & Gabrieli, J. (1997). Neural Substrates of Fluid Reasoning: An fMRI Study of Neocortical Activation during Performance of the Raven's Progressive Matrices Test. Cognitive Psychology. 33, 43-63.

Radi, F. (2002) The impact of abuse and neglect of parents to cognitive intelligence and emotional and social development of children. The Egyptian Journal of Psychological Studies vol. 12, issue. 36, pp. 27-87.

Raven, J. (1981) Manual for Raven's Progressive Matrices and Vocabulary Scales. Research Supplement No.1: The 1979 British Standardisation of the Standard Progressive Matrices and Mill Hill Vocabulary Scales, Together With Comparative Data From Earlier Studies in the UK, US, Canada, Germany and Ireland. San Antonio, TX: Harcourt Assessment

Raven, J., Raven, J. C., & Court, J. H. (1998). Raven Manual: Standard Progressive Matrices. Oxford, England: Oxford Psychologists Press.

Roberts, R.D., Zeidner, M., and Matthews, G.(2002). Does emotional intelligence meet traditional standards for an intelligence? Some new data and conclusions, Emotion, 1, 196-231.

Rushton, P., Skuy, M., & Fridjhonb, P. (2002). Jensen Effects among African, Indian, and White engineering Students in South Africa on Raven's Standard Progressive Matrices. Intelligence. 30 (5), 409-423.

Steiner, C. (1997) Achieving Emotional Literacy. London: Bloomsbury Publishing.
Sternburg (Ed.), Handbook of Intelligence (pp. 396-420). Cambridge, UK: Cambridge University Press.

Van der Ven, A.H., & Ellis, J.L. (2000). A Rasch analysis of Raven's Standard Progressive Matrices. Personality and Individual Differences. 29 (1), 45-64.

Woodruffe, C. (2001) Promotional Intelligence. People Management, 11, 26-29.
http://www.highiqsociety.org/submit-qualifying-score.php

Zidane, E. and Imam, A. (2003) Emotional intelligence and its relationship to some learning styles and personal dimensions. Journal of Arab Studies in psychology, 2 (1) 0.62 to 11