



Administering Cognitive Abilities Test in Karaj and Tehran Provinces

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Abstract: The aim of this paper is to conduct a preliminary standardization of cognitive abilities test in a developing country. To do so, we have carried out cognitive abilities test in Karaj and Tehran provinces. The results from Ravens SPM+ test suggest that the mean score from a sample of 97 school children is 32.1

Keywords: Cognitive, Abilities, Developing, Country

1. INTRODUCTION

Over the past decade research shows that cognitive abilities are important determinants of wages (Zax and Rees, 2002), life satisfaction (Veenhoven& Choi, 2012), trust (Sturgis et al., 2010) and stability of happiness (Kanazawa, 2014). Therefore, the research on understanding and assessing the cognitive skills and their correlates mushroomed.

In this study, we conducted a small-scale test to administer Raven's Standard Progressive Matrices Plus (SPM+) in two provinces of Iran. The population of Iran is more than 81 million which makes it world's 18th-most-populous country. Its total area is more than 1.6 million sq. km, and it is one of the largest countries in the region. The country borders Armenia and the Republic of Azerbaijan, Turkmenistan, Afghanistan and others. Its GDP is 1.551 trillion in PPP international dollars making it one of the largest markets in the world. Iran also has a high human development index and good education system. Over the past three decades the government managed to dramatically increase the literacy rates from 36.5% in 1976 to 93% in 2017. Iran has increased its publication output nearly tenfold from 1996 through 2004 and has been ranked first in terms of output growth rate, followed by China. Therefore, one can consider Iran as one of the emerging leaders in the fields of science and education.

2. METHOD

In 2017 the Standard Progressive Matrices (SPM) Plus, a non-verbal test standardized in Britain (Raven, 2008), was standardized to a sample of 97 middle school students aged 12 through 15 years in Tehran and Karaj provinces.

The SPM is a nonverbal assessment tool aimed to determine an individual's ability to perceive and think clearly, make meaning out of confusion, and formulate new concepts when faced with novel information. As argued in Van der Elst et al. (2013 p. 48) '[i]n contrast to most other intelligence tests, the Raven SPM lacks a strong dependence on auditory perception, manipulative skills, or verbal output'. This makes the Raven SPM one of the best tools to measure cognitive abilities (intelligence). The SPM Plus test contains 60 items printed in 60 pages, and is arranged into five sets lettered A, B, C, D and E. Each set contains 12 items. Each page of the booklet contains a matrix with one missing part. Test takers are asked to choose the missing part from six or eight options given below each matrix, and to indicate its number on a separate answer sheet. Items are scored either right or wrong. A participant's score is the number of right answers. Thus, the scores may range from 0 (zero) to 60 (for detailed discussion see Raven, 1981).

The sample contained approximately equal number of boys (n=55) and girls (n=42). The test was carried out without time limits in the classrooms and the instructions were given in Farsi language.

3. RESULTS

The results are presented in Table 1.

Table1. Main results

Age	n	M	SD
15	3	35.3	3.1
14	14	33.9	4.2
13	37	32.7	5.6
12	43	30.7	5.1
Total	97	32.1	5.2

The rows display the ages of students, the numbers of participants at each age, and mean scores for each group 13 through 15 years. The final row displays the average score for Raven’s SPM+ test. As evident it is equal to 32.1 points. The gender differences in the scores were not statistically significant therefore; we do not report them in our paper.

4. CONCLUSION

In this study, we report the results from a small-scale Raven’s SPM+ test conducted in two provinces of Iran. The sample contains of 97 middle school students aged 12 through 15 years in Tehran and Karaj provinces. The mean score for the sample is 32.1 points.

There are a number of main points in this study. First, Iran is one of the economic leaders in the region and has a high human development index and good education system. The socio-economic progress over the past decades was dramatic as supported by the data.

Second, our results further suggest that the quality of education in Iran is improving and human capital should be an essential driver of economic growth. The literacy rate of Iran is very high.

Finally, the sample contains only 97 observations, therefore future studies should pursue attempt to conduct large-scale test in other provinces.

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