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Construction and Standardization of Successful Intelligence Test in Elementary Students

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The aim of this study was to construct and standardize a successful intelligence test for elementary students.
The method of the present study was correlational descriptive research in terms of method of data collection and mixed research in terms of method and applied research in terms of purpose. The population of the present study included all elementary school students in the fifth and sixth years of primary schools in Tehran's District 5 who were selected using stepwise cluster sampling. In the tools development phase, the theoretical content of successful intelligence was first extracted and analyzed from Sternberg theory using content analysis method and approved by cognitive experts using Delphi Moore method. Then, based on the extracted content, the basic items of the above tool were prepared. After completing the questionnaires, 384 questionnaires were coded after removing the incomplete questionnaires, and their data were analyzed using SPSS software. The results of statistical analysis showed that the successful intelligence test had 18 items and four skills (memory-based, creative, analytical, practical skills) that the validity and reliability of the above tool was confirmed using heuristic and confirmatory factor analysis. The results showed that according to the unique environmental conditions and context of Iran, the above tools in terms of subcomponents had appropriate validity and reliability for elementary students and in addition to increasing the educational status of students, their study is purposeful. Be meaningful and help students draw a broader plan and a stronger meaning of life for themselves so that they can evaluate the value of ideas and plans in relation to their real life and, in addition to personal interests, the interests of others. Pursues and pursues his life goals only in the field of education and plans for his whole life.

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Introduction

At one time or another, even the T-car was a major innovation. Innovations do not last forever, and today if you see someone using a T-machine, you think of that machine as something out of the ordinary, old-fashioned, or words like that. But you should never think of it as an innovation or even something useful except to remember the past and make it memorable. About a century ago, pioneers of the intelligence test introduced technological ideas and innovations that were revolutionary at the time. Relatively little change has taken place since pioneers such as Bine and Simon took tests to identify cognitive skills as a prerequisite for academic achievement and other forms (Bine and Simon 1916) compared to other technologies such as tests. Telecommunications medicine and computing have changed dramatically. No one wants to be tested for cancer with early twentieth-century technologies, or wait for a telecommuter to pay for a telecommunications connection, or wait for the future to be helped by one of the earliest computers, Uniuk, to analyze data. If a technology can last for 100 years, people will be amazed. However, this backward and underdeveloped world is one in which we are in the realm of testing the abilities of gifted people, not overly intelligent people (Saadati Shamir, Musazadeh, 2018)

The Improved Theory of Successful Blue Intelligence provides the theoretical basis for measuring the many skills needed to succeed in college (and elsewhere). Measurements were derived from the theory that having the predictive power to have the practical and creative skills necessary for success in life, the predictive power of a successful intelligence test can increase it. The apparent changes in measurement during the twentieth century have made little difference in the "construct validity" of measurement methods in societies and their application. Due to the improved intelligence of Gole, it can provide a new opportunity to increase the validity of the structure and at the same time reduce the difference between the groups and other groups in the performance of tests. It is even possible to achieve the goals of "appropriate admission" by using tests such as rainbow measurements as a complement to traditional alternative programs or as an alternative to them (Stoycheva, 2013).

Other new theories of intelligence, such as those mentioned earlier in this article, can also be used to improve prediction and diversify these acceptances. In addition, other approaches can be used in completing college admissions assessments, and rainbow tests, for example, according to Smith Panel et al. (2009) from biography data and situational judgment tests (Which we also used the second case) as well as achieving the validity of the structure of the entrance exam of the colleges. William Serlask (2004) also developed new non-cognitive tools that appear to have been successful in enhancing and improving the student admissions process (Rudowicz, Yue, 2008).

The theories and principles described in this article about measurement can be extended to other parts of the world (Sternberg, 2007). Assessments based on the enhanced theory of successful intelligence were used on five continents, and it was found that its general principles were validated, although the content used to assess competencies should vary from place to place. The only question that remains is that the methods used in the Rainbow Project, the Farang City Project, the Panorama Project, and other related projects are still in the early stages of development. These projects do not have hundreds of years of experience like traditional methods. However, our results showed that tests that measure memory and analytical skills show that they are incomplete. In order to complete these tests, it is necessary to perform creative practical skills and tests based on wisdom. But these skills are the only skills that are important and should not be limited to them (Sternberg 2008, Sternberg, Jarvin, Grigorenko, 2011).

In short, intelligence can be defined as the capacity to acquire knowledge and understanding that is used in various new situations. Intelligence is the

ability or capacity that enables a person to deal with real situations and to benefit from sensory experiences mentally. The intelligence test is formally designed, under experimental conditions, to be able to assess a person's success in adapting to a particular situation. There are several methods for measuring intelligence, the most famous of which is IQ or IQ test. In shaping such tests, many psychologists saw intelligence as a general ability that acts as a common factor in a wide range of abilities (Houghton, 2008)

Hamedian, Rahbar Nia (2011) investigated the effectiveness of Gardner's multiple intelligences on the performance of mathematical problem solving based on Bloom's modified classification in second grade middle school students in Quchan. In this study, the relationship between each of Gardner's multiple intelligences and mathematical problem-solving performance based on Bloom's modified classification was investigated. The statistical sample was 206 people. The results showed that logical-mathematical, spatial, existential, intrapersonal and naturalistic intelligences have a positive correlation with students' mathematical problem-solving performance based on Bloom's classification (Gardner, 2011).

Sharifi, Rezakhani, Davari Bina (2012) conducted a study entitled "Construction and evaluation of psychometric properties of Gardner multiple intelligence test on high school students in Tehran in the academic year 2012-13 with a sample size of 374 people." and obtained the validity of a questionnaire of 180 questions in each multiple intelligence scale. In summary, the upgraded theory of successful blue intelligence provides a theoretical basis for measuring the many skills needed to succeed in college (and elsewhere). Measurements were derived from the theory that having the predictive power to have the practical and creative skills necessary for success in life, the predictive power of a successful intelligence test can increase it. The apparent changes in measurement during the twentieth century have made little difference in the "construct validity" of measurement methods in societies and their application. Given the improved intelligence of Gole, it can provide a new opportunity to increase the validity of the structure and at the same time reduce the difference between groups and other groups in the performance of tests. It is even possible to achieve the goals of "appropriate admission" by using tests such as rainbow measurements as a complement to traditional alternative programs or as an alternative.

Materials and methods

The present study was a descriptive correlational study in terms of data collection and was an applied research in terms of purpose. In terms of method, the present study according to this part of data collection is related to qualitative research and content analysis method has been used. The statistical population of this study includes all female students in the fifth and sixth grades of primary school in Tehran, District 5, and education in the first half of the 2018-19 academic years, whose number is about 2,000 according to the report of the District 5 Education Department. The sample obtained from this population according to Krejcie and Morgan table was 384 people, which in this study was considered 400 people. For sampling using multi-stage cluster sampling method, among all public girls' primary schools in Tehran, District 5, 6 schools were randomly selected. In the second step, 2 classes from each primary school and in the next stage, after each class, all volunteers were selected.

After attending each class, the researcher asked the selected students to stay in the class and explained the objectives of the research to them and asked them to complete the questionnaires as carefully as possible. During the coordination with the management of the selected primary schools, two free 4-hour workshops on intelligence were first held for the parents of the selected students, and in return, they were asked to do extracurricular activities for 4 hours a day for two days. Stay in school and complete intelligence tests. In order to

avoid interference between tests and the effects of fatigue on the test result is not effective on the first day, which was determined on Saturday, the interpersonal test and verbal intelligence was held, and on Monday as the second day successful intelligence test and naturalistic intelligence held. Students were also asked not to discuss the test with each other until the end of the second day when the test is completed, so that the results are close to reality and the effects of synchronization and the principle of publication are controlled. To encourage the subjects, gifts and receptions were also considered to encourage them to cooperate. After completing the questionnaires, 384 questionnaires were coded after removing the incomplete questionnaires and their data were analyzed using SPSS software.

Results

The information collected from the sample is presented in two sections: descriptive and inferential statistics. The data of this study were collected using the questionnaires of spiritual intelligence, organizational transformation, self-awareness, organizational threat and spiritual capital. Tables and graphs containing statistical indicators such as frequency, mean and standard deviation have been used to describe the data. To deduce the data, first the normality of the distribution of scores was checked by Kolmogorov-Smirnov test and then Pearson correlation test and multivariate regression were used to deduce the data by observing the defaults. Mean, standard deviation, highest and lowest mean of sample members are presented in Table 1.

Table1. Mean standard deviation and reliability of successful intelligence sub-variables

Variables	Average	Lowest	Maximum	The standard deviation	Reliability of questionnaires
Memory-based intelligence	39.08	22	79	6.9	0.82
Analytical intelligence	42.91	23	82	7.59	0.91
Creative intelligence	50.50	25	80	11.09	0.90
Practical intelligence	48.9	20	81	10.22	0.89
Successful intelligence	77.09	22	90	20.22	0.90

As shown in Table 1, the average memory-based intelligence in the sample was 39.08, with a standard deviation of 6.9. The average analytical intelligence in these people is 42.91, with a standard deviation of 7.59. Also, the average variable of creative intelligence in them is 50.50 with standard deviation of 11.09 and the average of practical intelligence in the sample is 48.9 with standard deviation of 13.22. Also, the mean of successful intelligence in the sample is 77.09 with a standard deviation of 20.22. Cronbach's alpha results related to the implemented questionnaires indicate the desired and acceptable reliability coefficient of these questionnaires. The study of the normality of the distribution of research variables and the study of the homogeneity of regression slopes are presented in Table 2.

Table2. Investigating the normality of research variables and investigating the homogeneity of regression slopes

Variables	Statistics Z Kolmogorov - Smirnov	The probability value of K-S	F	Significance level
Memory-based intelligence	1.15	0.118	0.785	0.472
Analytical intelligence	1.03	0.239	2.73	0.06
Creative intelligence	1.125	0.159	0.74	0.306
Practical intelligence	1.122	0.259	0.70	0.201
Successful intelligence	1.115	0.161	0.70	0.301

As Table 2 shows, the probability values of Kolmogorov-Smirnov test for all studied variables show that the distribution of these variables is normal in the study sample, so parametric tests can be used to analyze the results for these variables., Also, checking the homogeneity of regression slopes shows that this precondition has been observed in the case of regression test, so performing regression test is allowed.

Also, VIF tests were used to check the defaults of the regression analysis test to identify the alignment of the variables, and the results show that this default has been observed for this analysis. The Watson camera test was also used to check for error independence. According to the score table obtained in the Drobbin-Watson test, it shows that this score is between 1.5 and 2.5, and therefore the default of error independence is observed.

Figure 1 shows the indicators of factor analysis related to the successful intelligence model. These indicators, which are presented graphically, are factor loads (one-way arrow from ellipse to rectangle) and the significance of the factor load of each question on its respective variable (red means insignificance), residual or error (one-way arrow), (From rectangle to oval).

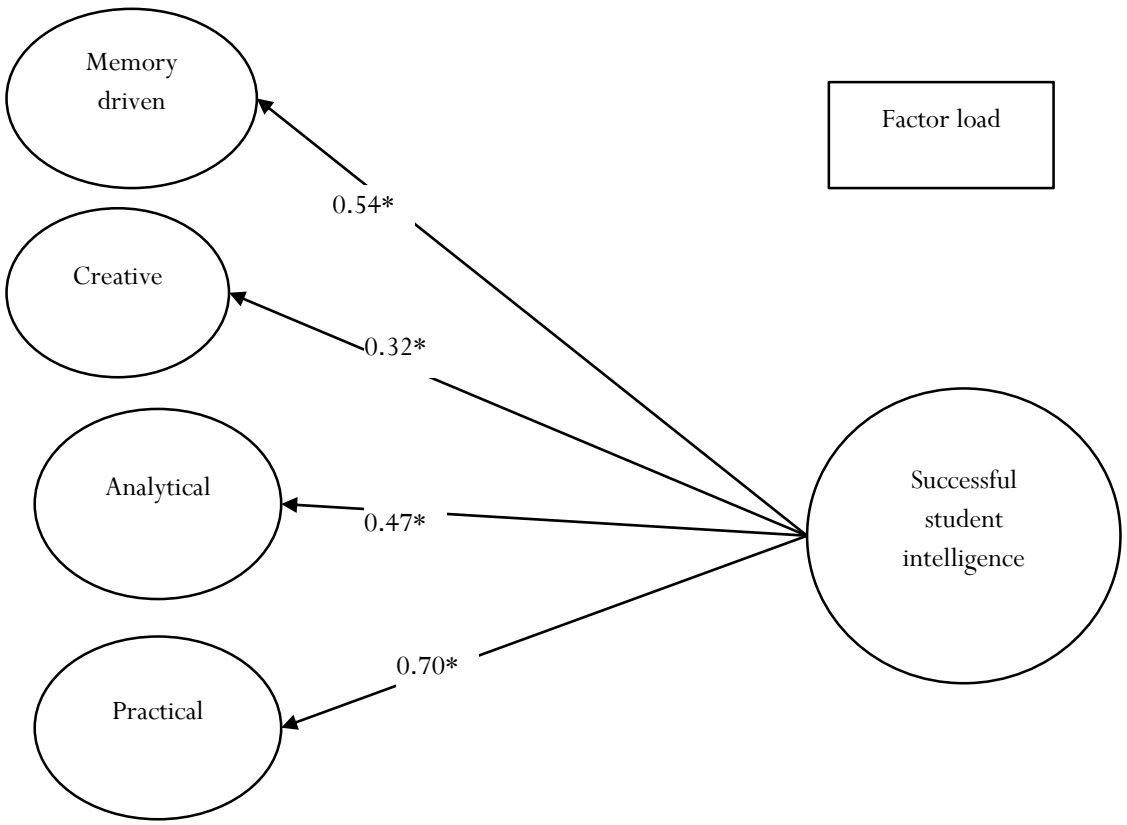

Figure1. Indicators of factor analysis related to the successful intelligence model

As the results of the model show, all four measures of successful intelligence with significant factor clouds are suitable measures for measuring the successful intelligence of students.

Conclusion

Successful students who have high intelligence during school and at school are students who trade emotionally with their classmates and teachers.

They have the skill of making friends and quickly expand the range of their friends and can form intimate relationships. They tend to do homework in groups. Such as joint projects, mass production of a wall newspaper, arranging a party and party at school for different occasions. Theater theater groups at school can also be an interesting environment for students with high IQ. There is also a choir, and in-school and out-of-school group camps (Ebrahimi, Abedi, 2015)

Another interest and ability of students with high successful intelligence from the perspective of researchers is the preparation for the exam with one or more partners and both discussion and lessons that they can study together. Because studying alone is boring and tedious for them. And they prefer to teach their classmates. They do not like solo study, as they often prefer group work. Attending public libraries may also be unpleasant and often avoided due to silence and lack of communication and conversation with others. (Delavari, Delgoshaei, 2012)

Devices that help them in social interaction and interpersonal relationships; Such as video conferencing and in general conferences, e-mails, telephones and mass media, People with high intelligence are more likely to communicate easily with others. These people easily understand the feelings and emotions of others. They often help others solve problems and can work together to provide solutions. They are very good organizers, although sometimes they may intervene. These people usually try to calm down the group and encourage people to cooperate. Their managerial ability helps others to work at a higher level. They use both verbal skills (such as speaking) and non-verbal skills (such as eye contact, body language) to establish channels of communication with others. In fact, they can look at the world around them through the eyes of others (Musek, 2017).

Many studies in line with the findings of the present study have recommendations for parents to enhance successful intelligence in their children, as follows: 1. Provide the opportunity for your child to play in a group. (Such as group play with family members or playing with family children) 2. Talk to your child for at least 15 minutes each day and raise a topic and ask him or her to comment (for example, ask him or her to comment on Explain why we should follow traffic rules or why we should respect our elders. 3. Give your child the opportunity to spend hours in the club doing group activities and group activities. Encourage your child to attend mosques and religious services regularly. 5. Watch different movies with your child and ask him or her how each of the characters in the movie is feeling. This will deepen the sense of belonging in him. 6. Have regular family outings. 7. If you want to help others (for example, helping a poor person or a person whose shopping bag is torn and the contents Spill it on the floor.) Share this with your child, or if it only takes one person to do it, if your child can, ask him or her to do it. Be sure to set rules for how long your child will use cyberspace and devices such as mobile phones, tablets, computers and game consoles. 9. When family members are together, do not use mass media yourself at all, and your child and other members. Strictly forbid the family to do this. 10. Ask your child to take the lead in greeting others (friends, relatives and acquaintances). 11. Introduce digital games that enhance successful intelligence to your child. 12. Conditions make sure your child can provide content for a relatively large group of people. (For example, reciting the Qur'an at the head of the school queue, or reciting a word at a party, mosque or school, or performing a play for family members (Gigras, Gupta, 2011).

Among the limitations of the research can be mentioned the following:

1. The first limitation that can be mentioned is that when answering questions, people express their opinion or an opinion that is embedded in the prevailing culture in society. This issue was raised by a number of participants, which the researcher thinks is due to the way the question is asked. According to the cultural and religious conditions prevailing in Iranian society, the questions should be avoided from invading the privacy of individuals and use general terms, which resulted in creating ambiguity.

2. Due to the limited time of convergent and divergent validity of the questionnaires, no more tests were performed.

3. There was a lot of difficulty in conducting the questionnaire on the elementary school student.

Other researchers are also advised to: 1. Develop questionnaires based on actual performance and skills in real situations 2. Compare different age courses in elementary and high school in the field of successful intelligence 3. Use more accurate, more complete tools and in accordance with the

culture of the community and the native, it can achieve more credible results.

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