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Investigation of simple and multiple relationship of student's performance in Wechsler intelligence test (Wise_IV) with Gardner's multiple intelligenceon Iran

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ABSTRACT

Some people consider the intelligence as a unique essence and some other people consider it with unlimited category. As soon as the intelligence matter has been transferred from experimental studies and crux examination into the balance of society with other people and materials, the categories like social, interpersonal and emotional intelligence have been placed in scientist's minds. Intelligence, according to its traditional definition, was the most important factor in educational progress and success. The aim of current research is to investigate the simple and multiple Relationship of student's performance in Wechsler intelligence scale for children (Wisc_IV) based on Gardner's multiple intelligence in Isfahan. Research method was descriptive. The sample was included 30 students, who were selected by multi –stage sampling method. The statistical population is the fifth grade students of Isfahan primary schools. Study instrument was Gardner's multiple intelligence questionnaires and Wechsler intelligence scale for children Fourth edition (Wisc_IV, 2010). To analysis data, were used correlation coefficient. Results show that there are significant *relationship between Gardner's verbal –language subscale and Gardner's visual concept ,Gardner's space-visual subscale and Wechsler's encoding and processing speed ,Gardner's interpersonal intelligence with number span and Wechsler's visual concept and between Gardner's interpersonal intelligence and Wechsler's number span(p<0/05), But there is no significant relationship among other subscales.*

Key words: Gardner's multiple intelligence, Wechsler intelligence, student's performance

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INTRODUCTION

Some people consider the intelligence as a unique essence and some other people consider it with unlimited category (Klenowski.V, 2002) [1]. As soon as the intelligence matter has been transferred from experimental studies and crux examination into the balance of society with other people and materials, the categories like social, interpersonal and emotional intelligence have been placed in scientist's minds. Intelligence, according to its traditional definition, was the most important factor in educational progress and success (Marnat.G, 2005) [2]. Traditional intelligence examinations measure the verbal ability, the relationships between verbal concept and logical-mathematical thinking and they don't deliberate the skills like: analysis the new information, solving the new matters, creativity and

criticism thinking and as Vigotsky has mentioned they won't give the new info about spread of human growth (Gardner. H, 2004) [3]. In 1983, Gardner has declared that every person has 7 kinds of intelligence, but then some other theorists and he have suggested other kinds of intelligence include naturalist intelligence, existential intelligence, and spiritual intelligence. 1) Linguistic intelligence: this kind of intelligence is in lawyers, authoress, poets, and journalists. 2) logical-mathematical intelligence: this exists in scientists, mathematicians, and dialecticians. 3) Musical intelligence: this exists in musician.4) spatial intelligence: this appears in painters, architects, pilots, sailors and surges. 5) Kinesthetic intelligence: exists in dancers, athletics, and actors. 6) Interpersonal intelligence: This is in teachers, sale persons, and politicians. 7) Intrapersonal intelligence which means the ability of someone to know himself, and the person who has this kind of intelligence will be able to contact with him) [3]. Chan (2001, 2003) in response to the distinction of different talents of students in the frame of Gardner's multiple intelligence, has created SMIP[1], self-report is related to multiple intelligence) [4 , 5]. The rate of self-report is important to value the biological –psychological factor (Chen & Gardner, 1997) [6]. According to a research which has been done by Avila et al (1999) about the students who had disability in learning the linguistic skills, by using the Gardner's theory it is possible to increase their education progress [7]. The researches confirm about hemispheric dominance (West, 2001) the Gardner multiple intelligence theory [8]. The conclusions of the researches show that process of the sequential info and verbal –mathematic have relation with control left hemispheres with cognizable, visual-spatial, nonverbal and mathematical-logical activities, so that the students who have hemispheric dominance in their right area of the brain almost get into learning troubles. Murphy and Davidshufer (2001), which has been done in their research on Wechsler and Stanford-Binet, tests, have found out that don't measure the final intelligence amplitudes (lesser than 40 and higher than 160) the Wechsler's rates in compare to Stanford-Binet examinations. This matter is right specially about the person who in lack or high level of intelligence [9]. The lowest rate of intelligence quotient in a child between 0 -6 from the Wechsler's examination is 46 and the highest mark for a teenager between 8-16 is 154 .so that ,the Stanford-Binet and Wechsler intelligence rates about evaluation of children and adults in middle rates of intelligence have a high correlation coefficient ,but the correlation about children is low (Sipersttein & et al,1997) [10]. By considering the conclusion of the researches, a question might be asked that is there any relation between the performances of the students in Wechsler's intelligence test (Wise_IV) with multiple intelligence test of Gardner? On the other hand, could it be possible to use the multiple intelligence questionnaire of Gardner instead of Wechsler intelligence test?

MATERIALS AND METHODS

The method which has been used in the current research is descriptive. The statistical population is the fifth grade students of Isfahan primary schools. And the sample which has been used in the research is 30 male students which have been elected by multiple sampling methods. To do this sampling, the licenses has been taken from the education system of the area and then between 5 areas, the Third one has been selected and between its schools 3 schools were selected randomly, and in those school's 10 students of any class selected-participated multi –stage sampling random and have been tested. The research instrument are included the multiple intelligence questionnaire of Gardner and Wechsler's intelligence test.

Multiple intelligence questionnaire of Gardner contains 67 questions which evaluate 7 kinds of intelligence. These 7 intelligences are: linguistic intelligence, logical-mathematical, musical, bodily-kinesthetic, spatial–visual, interpersonal, and intrapersonal intelligence. Reliability coefficients of the scale in a sample of 182 secondary school students in Tehran who Cronbach's alpha was calculated using the results of which are presented in the table below[11].

Table 1: The validity subscales

Subscales	The coefficient alpha
linguistic intelligence	0/76
logical-mathematical	0/71
spatial–visual	0/74
bodily-kinesthetic	0/63
musical intelligence	0/76
interpersonal intelligence	0/6
intrapersonal intelligence	0/7

[1] . *student multiple intelligence profile*

Intelligence test of Wechsler: one of the most important tests in the world is Wechsler's test which has been provided for 3 groups (pre-school children, school children and adults). The revision on the examination that has been published in 1981, and it was revised by Abedi & et al in Iran. In 1991, Wechsler Intelligence Scale for children (Third Edition) and in 2003, Wechsler Intelligence Scale (Fourth Edition) were published. There are 3 intelligence quotient in all of Wechsler's scale; meanwhile from the Fourth Edition 5 IQ would be earned: verbal comprehension, perceptual reasoning, working memory, processing speed, full scale. This test's mean is 100, and standard deviation is 15, and 2 standard deviations will be the mean of handicapping (Bahrami, 2006) [11]. Wechsler intelligence scale for children, Fourth edition (Wechsler, 2003), had been done on the children between 6-16. The Fourth edition is alike to the second one, but the materials in the Fourth edition are more difficult in order to be suitable for adults. In addition, the Fourth edition contains the reasoning and memory examinations, which don't exist in Third edition. So the general mark of intelligence in Fourth edition would be earned by these factors: verbal comprehension, perceptual reasoning, processing speed and working memory. Reliability of the test depends on precious and stability of the test scores during the sages (Anastazi & Arbina, 1997) [11]. The classic theory of the examination mentions that a mark of the examination shows the real marks of the people if that the person would get the test to be valid. The difference between real mark and a mark which has been taken in test would be named, measurement error. A permanent examination has consonant measurement error with a different performance and different time management. Consonance of a test should be considered to analysis the marks and the differences between marks of individual examinations in multiple stages. Average reliability coefficients of the subscales of the WISC-IV 0.79 (Symbol issue the subscales and the woman) 0.90 (sub-scale sequencing of letters and numbers) is located. All reliability coefficients remain good. Between 0.80 (verbal reasoning) until 0.89 (words and visual reasoning) is[11].

RESULTS

The important hypothesis in this research was: there is kind of relationship between the student's performance in Wechsler's intelligence test and multiple intelligence test of Gardner. The descriptive indicators of the student's performance in Wechsler intelligence have been given like this. And as see in table 2, highest mean 98/73 is related to work memory, and lowest mean 1/03 is related to perceptual intelligence and processing speed. The highest rate of standard deviation (20/81) is related to perceptual reasoning and lowest standard deviation is related to digit span (2/06).

Table2: The descriptive indicators of the student's performance in Wechsler intelligence (WISC-IV)

Variables	Standardization scores	Standard deviation
Block	10.6	3.46
Similarities	12.26	3.1
digit span	9.0	2.06
Picture concepts	10.93	2.37
Coding	8.53	3.01
Vocabulary	12.76	2.56
Letter-number sequencing	10.26	2.49
Picture reasoning	11.03	3.17
Verbal comprehension	13.03	2.42
Symbol search	10.7	2.49
Verbal intelligence	1.17	11.1
Perceptual intelligence	1.03	20.81
Work memory intelligence	98.73	17.73
Processing speed intelligence	1.03	13.2
Total	1.06	9.88

As see in table 3, the highest mean (8/06) is related to kinesthetic intelligence and lowest mean (5/1) is related to musical intelligence. The highest standard deviation (2/35) is related to musical intelligence and lowest standard deviation (1/3) is related to kinesthetic intelligence.

As it shows in table 4, correlation between linguistic intelligence and visual categories was r=0/44 which has the meaning in 0/01surface, also correlation between visual intelligence is r=0/44 which has the meaning in 0/01 surface. And between visual-spatial and speed intelligence r is -0/39 which has the meaning in p<0/05 surface. Correlation between intrapersonal with visual categories is r=0/33 which has the meaning in p<0/05 surface. Also the correlation between intrapersonal and visual categories is r=0/59 which has the meaning in 0/001 surface. Correlation between interpersonal and digit span is r=0/49 which has the meaning in p<0/006.

Table 3: The descriptive indicators of the student's performance in Gardner's multiple intelligence (MI)

Variable	mean	Standard deviation
Linguistic intelligence	5.73	1.61
Logical-mathematical intelligence	6.23	2.02
Musical intelligence	5.1	2.35
Bodily-kinesthetic intelligence	8.06	1.2
Spatial-visual intelligence	6.3	1.62
Interpersonal intelligence	7.2	1.9
Intrapersonal intelligence	7.2	1.9

Table 4: the correlation coefficient of the student's performance in Wechsler intelligence (WISC-IV) and Gardner's multiple intelligence (MI)

variable		blocks	similarities	Digit span	Picture concepts	Coding	vocab	Letter-number sequencing	Matrix reasoning	Verbal comprehension	Symbol search	V IQ	P IQ	WM IQ	PS IQ	TOTAL
Linguistic intelligence	Correlation coefficient	-0.118	0.111	0.309	(0.435)*	0.129	0.300	0.164	0.116	-0.006	-0.132	0.181	0.087	0.080	0.010	0.196
	significant	0.534	0.560	0.096	0.016	0.496	0.107	0.387	0.542	0.973	0.488	0.338	0.647	0.673	0.959	0.300
Logical-mathematical	Correlation coefficient	-0.109	0.012	0.288	0.111	0.131	0.017	0.090	0.239	-0.156	0.185	-0.072	-0.57	-0.096	0.173	0.112
	sig	0.566	0.951	0.123	0.561	0.490	0.927	0.638	0.203	0.412	0.328	0.704	0.407	0.614	0.360	0.556
Musical	Correlation coefficient	-0.143	-0.075	0.198	0.020	0.114	-0.036	-0.011	-0.106	0.011	-0.709	-0.056	-0.042	0.044	0.032	-0.056
	sig	0.451	0.696	0.293	0.918	0.550	0.851	0.956	0.576	0.952	-0.189	0.771	0.824	0.819	0.867	0.771
Bodily-kinesthetic	Correlation coefficient	-0.151	0.069	0.361	0.122	-0.001	0.106	0.086	-0.290	0.058	0.318	0.088	-0.181	0.059	-0.101	0.076
	sig	0.426	0.717	0.050	0.520	0.997	0.578	0.651	0.121	0.760	-0.241	0.645	0.337	0.756	0.595	0.688
Spatial-visual	Correlation coefficient	-0.211	-0.181	-0.041	0.175	(-0.443)*	-0.049	-0.174	-0/022	-0.003	0.199	-0.125	0.194	0.192	(-0.393)*	-0.227
	sig	0.262	0.339	0.829	0.354	0.014	0.798	0.357	0.908	0.989	0.199	-0.510	0.304	0.309	0.032	0.228
Interpersonal	Correlation coefficient	0.007	0.195	(0.337)*	(0.591)*	0.276	0.285	0.017	0.079	0.028	0.180	0.220	0.108	0.076	0.264	0.330
	sig	0.969	0.302	0.040	0.001	0.140	0.126	0.927	0.679	0.882	0.340	0.242	0.568	0.689	0.158	0.075
intrapersonal	Correlation coefficient	0.191	0.125	(0.491)**	0.186	0.077	0.158	0.185	0.079	-0.031	-0.140	0.114	0.044	0.155	-0.023	0.226
	sig	0.312	0.511	0.006	0.325	0.686	0.404	0.328	0.679	0.869	0.462	0.548	0.818	0.413	0.905	0.230

DISCUSSION

The aim of current research is to investigate relationship of student's performance in Wechsler intelligence scale for children, Fourth edition (Wisc_IV) and multiple intelligence (MI) based on Gardner's theory. Findings contained this matter that there is a meaningful relation between linguistic intelligence subscales of Gardner with picture concepts of Wechsler and also between spatial-visual intelligence of Gardner with coding subscale and processing speed of Wechsler and interpersonal intelligence of Gardner with digit span subscale and picture concepts of Wechsler and between interpersonal intelligence of Gardner and digit span of Wechsler ($p<0/005$). Instead, Murphy and Davidshofer (2001) tests conclusion showed highest relation between Wechsler and Stanford-Binet tests[9]. Thus, according to the consequences of this research with the other researches, this will be clear; when intelligence's tests are related that there would be a high rate of mind and so far as self-report examinations have no ability in this field, they would have no relation in consequences too. From the other side, it will be possible to describe the conclusions on the other way, and that is nowadays the theories about the intelligence and its definition has been changed. since the time when Binet defined the intelligence as an ability to reason, imagine, think and judge, till then that the intelligence has been briefed in 3 abilities: abstract thinking, learning and solving the problems (Reber, 1999) [12], and finally till now that multiple intelligence theory of Gardner (1993, 1999) [13 , 14] and triarchic theory of Sternberg (1999) [15] have been mentioned, many new changes have made in psychologist's minds about intelligence. And if we want to investigate the previous evident of the subject it will be clear that there are some doubts about evaluating the intelligence by Wechsler's intelligence examinations.(Sian Siloo, Sternberg, 2004) [16], and the progresses which are used in shaping the intelligence examinations from 1930 are related to the Test Theory.
In general, with considering the consequences and limitations of the research, we can find out that it is necessary to be careful while using the intelligence examinations which are popular in our society and try not to persist on the pragmatism of the examinations to evaluate the ability of children's intelligence and other abilities and other ways of evaluating.

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