COMPARISON OF VERBAL AND NONVERBAL INTELLIGENCE AMONG HAFIZ AND NON-HAFIZ FEMALE ADOLESCENTS

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ABSTRACT

The present research was conducted to compare verbal and non-verbal intelligence among hafiz-e-Quran (the person who commits the entire Qur'an to memory) and non-hafiz female adolescents. The sample consisted of 200 females including hafiz-e-Quran females (N = 100), and non-hafiz females (N = 100). The two groups were matched on age, education level, medium of education, and elementary subjects and socioeconomic status. The Hafiz female sample was taken from madrasahs (religious institutions) of Islamabad and Karachi. The non hafiz female sample was recruited from Government colleges of the same cities. Two indigenously developed intelligence tests were used. Indigenous non-verbal test of intelligence (INTI) and Sajjad Verbal intelligence test in Urdu (SVITU) were used to assess non-verbal and verbal intelligence respectively. The INTI has five subtests including series, matrices, analogies, odd one out and similarities. SVITU include 4 subtests including words meaning, oral reasoning, numerical reasoning and information. t-test was used to analyse the data. Results indicated significant mean differences between hafiz and non-hafiz female adolescents on total score of INTI(non-verbal

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intelligence test) and its subscales including series, analogies, and odd one out, whereas non-significant differences were found on subscales of matrices and similarities. On verbal intelligence test, significant differences were found between hafiz and non-hafiz females adolescents on subscales of words meaning, numerical reasoning and information, while oral reasoning subscale and total score of SVITU showed non-significant difference. It is concluded that Non-hafiz females studying in educational institutions performed better on numerical ability, information, series, analogies and odd one out and also showed significantly better performance on total score of INTI. However, Hafiz females studying in madrasahs out performed only on vocabulary.

Key words: Hafiz and Non-Hafiz females, Verbal intelligence test, Non-verbal intelligence test, Adolescents.

INTRODUCTION

Scientists have attempted to define Intelligence in various ways. Some consider it as a problem solving skills and the ability of human beings to learn from their environment and adapt themselves to their every day's life experiences (Santrock, 2006). Others view it as intellectual skills, attitudes, and values practiced in life and community which are learned through social participation and appropriation (Resnick & Nelson-Legall, 1998). Theories of intelligence have gone through various phases (Binet, 1910; Wechsler, 1958; Terman, 1916; Spearman, 1927; Guilford, 1961, and Cattell, 1987), and stages of developments. Spearman's Two Factor theory (1927), Sternberg's Triarchic Theory (2002), and Gardener's Eight Frames of Mind (1993) deal with intelligence within the Information Processing Approach.

In short, scientists have proposed two major 'consensus' definitions of intelligence: A very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning or a narrow academic skill. Rather, it reflects a broader and deeper capability for comprehending our surroundings, 'making sense' of things, or 'figuring out' what to do.

The present research deals with two aspects of intelligence; verbal and nonverbal intelligence, and the terms are interchangeably used with Fluid and Crystallized intelligence respectively. Fluid intelligence refers to the information processing capabilities, reasoning ability, and memory. It helps us to remember things (Feldman, 2006; Kane & Engle, 2002). Whereas crystallized intelligence refers to the skills, information, and strategies that are learned through experience and are applied in problem solving situations (Feldman, 2006).

On the basis of these theoretical foundations various tests have been developed to measure different aspects of intelligence. Amongst them Wechsler's (1958) Intelligence Scale for Adults and Children is prominent as it gave the concept of deviation IQ for the first time. He introduced two types of scales; Verbal scale and Performance (non-verbal) scale. Verbal tasks include vocabulary, comprehension, and various concepts. In contrast, performance (non-verbal) part includes arrangement of pictures and assembly of objects in logical order. In the present study two indigenous tests of intelligence were used to assess the verbal and non-verbal intellectual abilities of the two groups of adolescents.

For Muslims Qur'an is the Holy book that has revelation send by God for the guidance of mankind. Many Muslims believe that memorization of the holy book by heart is a sacred act, and it helps people to stay on the right track and avoid committing sins. This rote memorization of Holy Qur'an is technically called "Hifz". The Muslim families who want their children to hifz/memorize Qur'an, send their children to religious institutions called Madrasahs. Madrasahs are usually the non-Governmental organizations (NGO) which bear all the expenses of children studying there.

It is interesting to note that in the Arabic language, the word "Madrasah" simply means the same as *school* does in the English language, whether that is private, public, primary or secondary, or a university. History informs us that in the beginning of Islam and Muslim Empires, first Education Centre was established in the courtyard of the mosques. This was a common practice till the era of Ottoman Empire. Formal Madrasahs were established throughout the Islamic world, the most famous of these is the 10th century Al-Azhar University (Mahmood, 2009). It is also known that during the Ottoman Empire, Madrasahs along with religious teachings also taught writing, grammar, syntax, poetry, composition, natural sciences, political sciences, and etiquette (Inalcik, 1973). The curriculum included mathematics, astronomy, astrology, geography,

alchemy, chemistry, philosophy, magic, and occultism, depending on the curriculum of the specific institution in question (Brentjes, 2003). It is clear that those Ottoman Madrasahs were very similar to present day schools except that the studies, in its ultimate objective, aimed to further solidify and consolidate Islamic practices, and theories.

Pakistan is an Islamic state having approximately 130.6 million population with 96.7% Muslims. Qur'an is in Arabic language which is a foreign language for Pakistani Children. Children normally spent 4-5 years in Madrasahs to completely memorize/hifz the holy book. Hafiz children (those who commits the entire Qur'an to memory) learn it through rote memorization without understanding its meaning. A typical Madrasah in Pakistan usually offers two courses of study: a *hifz* course; that is memorisation of the Qur'an and an ''Alim' course leading the candidate to become an accepted scholar in religious community. A regular curriculum includes courses in Arabic, Tafsir (Qur'anic interpretation), shari'ah (Islamic law), Hadith (recorded sayings and deeds of Prophet Muhammad), Mantiq (logic), and Muslim history.

In the context of a religious culture, hafiz children are considered more intelligent having outstanding learning abilities compared to non-hafiz children. In contrast the research has shown that rote memorization does not contribute to enhance other memory skills (Wagner, 1978). It suggests that rote memorization without understanding the material could be counterproductive in terms of the development of children's abilities of logical thinking, exploration, and creativity. This can have a negative impact on their intellectual abilities in the long run.

According to Ceci's bioecological theory, human intelligence comprises of multiple cognitive potentials and their emergence is shaped by the challenges and opportunities of the individual's context and environment (Ceci, 1990, 1996). According to the author the 'context' refers to the knowledge domains and other factors including personality, motivation, and education.

Evidence also indicates that home environment and socioeconomic characteristics play important role in the development of intelligence (Zhou, Baghurst, Gibson, & Makrides, 2007). According to White (2009), widespread changes occur during adolescence in the brain. The development shifts from emotional processing regions such as amgydala to frontal lobe which involves

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making future plans, suppressing impulses, weighing options, and other critical cognitive skills necessary to function in the adult world.

Keeping in view the importance of the adolescent's age and increasing trend of sending children to Madrasahs at this age in Pakistan, we were interested in exploring the differences among hafiz and non-hafiz adolescents in terms of their verbal and non- verbal intelligence. As being female researchers it was not easy to get access to the male adolescent and post-adolescents in Madrasahs, it was decided to limit this research on the female sample only. The objective of the present research was to explore if there are any differences in verbal and non-verbal intelligence of hafiz Qur'an and non-hafiz female adolescents.

METHOD

Participants

The sample included 200 Pakistani girls, 100 of them were hafiz-e-Qur'an who were taken from Madrasahs of two major cities of Pakistan, Islamabad and Karachi. For the comparable group, 100 non-hafiz females were taken from the colleges of Islamabad and Karachi. The age range of the sample was 16 to 18 years. Only those hafiz adolescents were included who completed their education till 10th grade and after that they were enrolled in the religious institutions in what is called 'Alim (for males) 'and 'Alima's (for females) course. Inclusion criteria for hafiz group involved 2 years residence in the Madrasahs during hifz/memorization of holly Qur'an. It was understood that hafiz students could not study in the regular schools, and continue their formal education at the Madrasahs along with memorization of the holly Qur'an. Care was taken to form a comparable group that was matched on age, education, medium of instructions in their institutions, and the courses they were studying e.g. humanities and arts. The system of education in Pakistan does not allow students to have science subjects when they are appearing as 'private students' i.e. those who can study at home and write the exam at the end of the term with the rest of the group. For science courses there is a compulsion of attending classes under supervision to conduct scientific experiments. Since all the female students at Madrasahs were compelled to appear as private students for their formal education as they were residing at Madrasahs for memorizing the Qur'an, we included non-hafiz students from the humanities group as well in order to have a matched sample.

Measures

Two indigenously developed instruments were used to assess verbal and non-verbal Intelligence of hafiz and non-hafiz females:

Sajjad Verbal Intelligence Test in Urdu (SVITU)

The test was developed by Syed Sajjad Hussain in 2001. It measures the general intelligence of adolescents within the age range of 17 to 20 years. It comprised of four subtests i.e. Vocabulary, Verbal Reasoning, Numerical Reasoning, and information. This test consists of 128 items. The reliability of the SVITU was determined by Kuder Richardson method, split-half method, and test-retest method. The results suggest high reliability of the test both in terms of internal consistency and temporal stability of the results. The validity of the test was determined by four procedures. The construct validity of the test was studied by correlating it with Army Intelligence Test. The concurrent validity was determined by correlating it with students' performance on their regular assessment/ exams. Other techniques were internal consistency of the sub-tests and grade differentiation. All the four indices established the evidence of high validity of the test.

Indigenous Nonverbal Test of Intelligence

This scale was developed by Ashfaq Hussain Gardezi in 2001. It was constructed for the assessment of general intelligence of Pakistani youth. The test comprised of five subtests i.e. Series, Matrices, Analogies, Odd One Out and similarities. It was planned in a manner so as to measure various aspects of intelligence including abstract reasoning, spatial relations, conceptual ability, accuracy of discrimination, education of relations and correlates. It is comprised of 90 items; the first three subtests consist of 20 items each and the last two 15 items each. Three methods were used to establish reliability of the original test viz., KR-20, split half and test-retest. The estimated indices of reliability were .89, .85 and .90 respectively. To find out convergent validity, the test was correlated with Intelligence Test Battery (ITB) and adopted version of Raven's Standard Progressive Matrices (RSPM). The results demonstrate significant correlations between all these tests ($P < .001$). The discriminant validity was determined by correlating the test with Individual Obstacles Test, which was insignificant. Criterion-related validity of the test is also high (.74; $P < .001$). No significant differences emerged between urban and rural groups. Three types of

norms viz., Percentiles, T scores and the Deviation IQ were developed by administrating the test on a sample of 1000 subjects' representative of Pakistani Youth.

Procedure

Madrasahs and school/colleges were contacted and permission was taken from the authorities after briefing the research plan. They were also assured of the confidentiality of the information collected from their students. Both the tests were administered in groups. Instructions were given and illustrations were briefed to the participants in the beginning. Participants were briefed about the time management during the test, and were told that time spent on each scale was very important. The instructions were also written on top of each scale. Researcher answered the participants' question before handing over the scales. Tests were administered in a classroom that was provided by the authorities of the colleges. In Madrasahs a separate room was provided to the researcher to administer the tests.

RESULTS

As a first step the reliability of the scales was checked. SVITU has Alpha reliability value of .71 and Alpha reliability of INTI was found to be .75. Descriptive analysis was done to analyse demographic variables like age, education etc. T-test was computed to analyse the verbal and non-verbal difference of intelligence among hafiz and non-hafiz girls.

Table 1
Mean Difference between hafiz & non-hafiz female adolescents (N = 200) on Sajjad Verbal Intelligence test in Urdu (SVITU)

Subscales of SVITU	Hafiz (n = 100)		Non Hafiz(n = 100)		t	p
	M	SD	M	SD		
VOC	21.32	7.06	15.78	3.90	6.86	.000
OREA	6.36	2.32	5.82	2.31	1.64	.101
NREA	13.40	4.26	16.00	4.73	-4.08	.000
INFO	14.60	4.41	17.74	4.14	-5.19	.000
TSVITU	55.68	14.28	55.38	10.89	.167	.868

Note. VOC=Vocabulary, OREA=Oral Reasoning, NREA=Numerical Reasoning, INFO=Information, TSVITU= Total score of *Sajjad Verbal Intelligence test in Urdu*

Results show that there was a difference in the performance of hafiz and non-hafiz groups on three subscales. Non hafiz group performed better on the subscales of Numerical Reasoning [t (198) = -4.08, p < .05], and on Information Subscale [t (198) = -5.19, p < .05]. On the other hand, hafiz females have high score on Word Meaning [t (198) = 6.86, p < .05] than non-hafiz females. However, mean values indicate that hafiz group score higher than the non hafiz group on Verbal Intelligence Scale (M= 55.68 and M= 55.38 respectively)

Table 2
Mean Difference between hafiz & non-hafiz female adolescents (N = 200)
on Indigenous Non-verbal test of Intelligence (INTI)

Subscales of INTI	Hafiz (*n* = 100)		Non Hafiz (*n* = 100)		*t*	*p*
	M	*SD*	*M*	*SD*		
SER	3.48	0.90	4.86	2.95	-4.46	.000
MAT	5.56	1.93	5.52	2.53	0.13	.900
ANAL	3.64	1.99	5.66	2.54	-6.26	.000
OOO	6.04	2.64	7.00	1.38	-3.22	.001
SIMIL	6.96	2.28	7.24	1.19	-1.08	.279
TINTI	25.68	5.19	30.28	7.63	-4.98	.000

Note. SER=Series, MAT= Matrices, ANAL=Analogies, OOO=Odd one out, SIMIL=Similarities, TINTI=Total score of Indigenous Non-verbal test of Intelligence

These results show that there are significant differences between the two groups on the subscale of Series [t (198) = -4.46, p < .05], indicating that non hafiz group performed better on Series than the hafiz group. Similarly, the difference is also significant on Analogies subscale [t (198) = -6.26, p < .05], non-hafiz group scored more than the hafiz group. On the subscale of Odd One Out the difference between hafiz and non-hafiz group is significant [t (198) = -3.22, p < .05] and non-hafiz group scored higher than the hafiz group. It is noted that the difference between hafiz and non-hafiz group on the total score of INTI is significant [t (198) = -4.98, p < .05], indicating that overall on this scale the non-hafiz group scored higher than the hafiz group.

DISCUSSION

This research was aimed at comparing the verbal and non-verbal intelligence of hafiz-e-Qur'an and non-hafiz female adolescents in Pakistan. In Pakistani society, there is a common assumption that rote memorization of holy Qur'an is extremely beneficial for children and is a sign of being a steadfast Muslim. The holly book has 30 long chapters in Arabic language (foreign language for the people of Pakistan), and memorizing its verbatim is a very hard job. Because of that reason parents who want their children to become hafiz, start it from a very early age. Those who are capable of completing it within a few years are considered very intelligent and hard working. This exploratory study was conducted to observe if there is a relationship between rote memorization of the Holly book and the intellectual abilities of female adolescents with reference to the theories of intelligence in psychology.

Sajjad Verbal intelligence test in Urdu (SVITU) was used to assess verbal intelligence of children. This test comprised of four subtests; Vocabulary test, Verbal Reasoning, Numerical Reasoning, and Information test. Results indicate significant mean differences on vocabulary, numerical reasoning, and information. Hafiz females performed better on vocabulary subtest whereas non-hafiz females scored significantly higher on numerical reasoning and information subtests of verbal intelligence test as compared to non-hafiz females. We found non-significant mean differences on oral reasoning subtest and total score on Sajjad Verbal Intelligence test-Urdu (SVITU). Better performance of hafiz females on the Vocabulary subscales might be attributed to their memorization practice which helps them store and remember words more than the non-hafiz group. However the poor performance of hafiz females on numerical reasoning and information suggests the difference of education system. Non hafiz group was going through the regular education system whereas hafiz group was residing in the Madrasahs and were preparing for the school exams privately. As a result, they did not have the opportunities and other educational facilities that non-hafiz group had in the learning environment of formal schools. Also, both Information and Numerical Reasoning require knowledge and logical reasoning, which is not required in rote memorization. This can create conflict for the hafiz females as they are encouraged to rote memorize day and night; they might find it difficult to switch this mindset towards something that needs logic and understanding.

Non-verbal intelligence was measured by Indigenous Non-Verbal Test of Intelligence (INTI). This test contains five subtests including serial, matrices, analog, odd-one-out, and similarities. Hafiz females showed poor performance on serial, analog, odd-one-out, and similarities as compared to non-hafiz females. However, non-hafiz females not only show better performance on these subscales but also had significantly higher mean on total score on non-verbal intelligence test as compared to hafiz females. We found non-significant differences on matrices between the two groups.

Overall results of the present study suggest that hafiz females were high on non-verbal intelligence as compared to their counterparts, indicating that adolescents who study in schools and colleges have higher IQ than those who spend most of their time in madrassas encouraged to rote memorize the Holly book. These results are in the line with some previous findings (Flynn, 1999, 2000; Cattell, 1971) that assert the significance of environment/surrounding in the development of IQ and suggest that crystallized intelligence does depend on individuals' socioeconomic status, cultural, social, experiential and educational environments.

Results of the present research are also in line with Ceci's bioecological theory which hold that human intelligence has multiple cognitive potentials and their emergence is shaped by the challenges and opportunities of their context and surroundings (Ceci, 1990, 1996). We feel that adolescents who study in schools and colleges have better learning environment, face various challenges which are intellectually stimulating, and have the opportunities to be exposed to the modern technological facilities. A stimulating and challenging environment can be helpful in facilitating the development of the intellectual abilities of the youngsters. On the other hand, those who have restricted learning environment of Madrasahs during their early years of life are deprived of such opportunities. This can have a detrimental effect on their intelligence and cognitive abilities. It is also concluded that rote memorization of Qur'an does not enhance individual's intelligence which is in line with the theories of intelligence and human behaviour.

Many scholars believe that in this day and age, the true spirit of the message in the holy book is not being followed by most of the Madrasahs. For example Dr. Bucaille (1979) in his book 'The Bible, The Qur'an and Science' states that subjects mentioned in the Qur'an are of a scientific nature which encourage to reach truth through analysis, research, observation, measurement

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and verification by performing physical experimentation. In this respect the general principle given in the Holy Qur'an is, "Say, bring out clear evidence if you are right" (26 (11), Al-Quran). Scholars have also suggested that the holy book lays great stress on acquiring knowledge, so that people may develop insight of the unknown based on what is known, and regards wisdom as the greatest asset of humans. As a result of these and other such commands in the holy book, Muslim scientists founded their science on the basis of sound knowledge, physical verification, research and experimentation, the basis of the scientific methods (Mahmood, 2009).

The findings of our study highlights the limitations of the present curriculum of the Madrasahs having no beneficial effects on enhancing adolescents/children's crystallized intelligence. Rather, it deprives them of the other advantages that modern educational challenges offer. It is suggested that religious understanding coupled with the knowledge and understanding of the world around us through modern means of education can be extremely beneficial than excluding one or the other from the learning process of the younger generation. It is also recommended that Curriculum of the Madrasahs should include subjects of natural and social sciences, modern languages, and art to enhance intellectual capabilities of adolescents to help them develop into well-rounded productive individuals and compete with the challenges of the world.

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