

Self-Estimated Multiple Intelligences of Urban & Rural Students

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A survey was conducted on a randomly selected sample of 905 secondary school students in seven southern districts of Khyber Pakhtunkhwa, Pakistan. The main focus of the study was to investigate the differences between self-estimated multiple intelligences of urban and rural students. Data were collected through Armstrong's MI inventory. Mean, SD and Independent sample t-test were used as statistical tests for data analysis. A significant difference was found between self-estimated verbal/linguistic, logical/mathematical, bodily/kinesthetic, naturalistic, existential, and overall intelligence of urban and rural students. Researchers suggested that parents, teachers, school, and community as a whole should make efforts to create an environment that enhances all types of intelligence. Teachers should know students' needs, interests and most of all their intelligences. Multiple intelligences based teaching may be practiced in schools keeping in view different types of intelligences and individuals differences. The findings of the present study give insights to instructors, administrators, curriculum developers and even families to detect the type of intelligence the students have and try to promote and strengthen it. So it may prove beneficial for the student himself and for the society as a whole.

Key words: *Self-estimated, multiple intelligences, urban, rural, difference.*

Introduction

A group of 52 scholars of intelligence and the related fields in 1994 agreed upon on the following explanation of intelligence (Gottfredson, 1997).

"Intelligence is a general intellectual ability that enables a person to think logically, plan accordingly, deal problem appropriately, process intricate ideas psychologically, understand different ideas, learn rapidly and swiftly something from experience. It is not just to obtain high marks in paper pencil test or a particular academic ability or book learning. Rather it is a full and wider ability to control and interact with environment properly. It reflects a broader and deeper capability for comprehending our surroundings—"figuring out," "making sense of things," "catching on," or what to do."

According to the definition of intelligence it is the ability to solve problems of speculation or

action. Intelligence is considered possessing a hierarchy of numerous particular abilities that correspond to each other (Caroll, 1993). Because of the so-called positive many fold the concept of general intelligence "g" in psychology was first cultivated. The tendency for performance on all intellectual tests to be positively correlated, irrespective of their content (Jensen, 1998; Spearman, 1904). Intelligence is postulated as the general ability that causes for the co-variation of the many specific abilities. Hence these certain abilities co-vary to different levels, and "g" cannot account for all of the shared variance among them. So in the hierarchy of intelligence there are many distinct abilities but still fairly general abilities; and below these there are numerous heterogeneous instances or measure of these specific abilities (Carroll, 1993; Johnson & Bouchard, 2005).

On self-estimation of intelligence a numbers of studies have been conducted. (Petrides & Furnham, 2000; Furnham & Rawles, 1995; Furnham, Hosoe, & Tang, 2002; Furnham, Fong, & Martin,

1999; Furnham & Fong, 2000; Furnham, Clark, & Bailey, 1999; Furnham & Baguma, 1999; Furnham, 2000; Byrd & Stacey, 1993). Researchers analyzed self-estimate of overall intelligence as the only dependent variable in many of the above studies (Beloff, 1992). Byrd & Stacey, 1992; Furnham & Gasson, 1998). Furnham & Fong 2000; Furnham & Rawles, (1999) found in their studies the correlation between psychometric intelligence and self-estimated intelligence about $r = .30$. Some researchers have investigated difference in self-estimated intelligence in cross cultural studies (Furnham & Baguma, 1999; Furnham, Hosoe, et al., 2002). Many of the earlier studies were restricted estimating the overall intelligence 'g' till the appearance of Howard Gardner's Multiple Intelligences Theory (1983, 1999), which opened new vista for the researchers.

Theory of Multiple Intelligences

Gardner's theory of Multiple Intelligences, discusses eight different types of intelligences. He also predicts the existence of the 9th type of intelligence, existential intelligence.

Logical/Mathematical (Logic smart): It is the capability to think or reason inductively or deductively, understand cause and effect system and do well with numbers and mathematical operations. It enables a person to comprehend the underlying principle or patterns of things (Gardner, 1999).

Verbal/linguistic intelligence (Word Smart): It is the capability to use language properly and to obtain some specific goals through language successfully (Gardner, 1999). This intelligence enables a person to manipulate words and communicate adroitly and get mastery of the written as well as spoken words (Mbuva, 2003). It is the conspicuous and outstanding use of language (Christion and Kennedy, 1999).

Musical intelligence (Music Smart): It is the capability to create, compose and appreciate the pattern of music. To use different types of musical instruments. It is the sensitivity to pitch, rhythm and sound (Gardner, 1999).

Visual/Spatial intelligence (Picture smart): It enables a person to visualize things with her mind's eye and to know the technicalities of space properly (1999). This potential enables to produce visual

spatial representation and to move and manipulate that representation either mentally or concretely.

Bodily/Kinesthetic intelligence (Body smart): It is the capability to control and use different organs of the body adroitly to convey ideas and feelings and to use various apparatuses and equipments competently. Examples of this type of intelligence are dancing, sports, body acting, drawing, medical operations, carving, and calligraphy. Gardner (2001) says that American dancer, choreographer and teacher Marta Graham is the outstanding achievers in the bodily/kinesthetic intelligence.

Interpersonal intelligence (People smart): It is the capability to interact with people effectively and understand their wishes, desires ideas, intentions, feelings, motivation, and needs diligently. People endowed with this type of intelligence learn quickly through discussion, debate, and peer learning method (Gardner, 1999). Religious leaders, teachers, political leaders, counselors, Psychologist demonstrate high level of this of intelligence. Hazrat Abu Bakkar and Hazrat Ali (R.A) are the best examples of this type of intelligence.

Intrapersonal intelligence (Self-smart): It is the potential to have deep understanding of the self. It enables a person to know his/her strengths and weaknesses, thoughts, imagination, interests, and innermost feelings and to manage and use them effectively Gardner (1999). A person having this type of intelligence opts for self-actualization.

Naturalistic intelligence (Nature smart): It is the potential to classify and recognize different things living or non living according to their common attributes and characteristics. People having this type of intelligence take interest in animals, plants and different phenomena of nature Gardner (1999).

Existential intelligence (Life smart): It can be defined as the ability to be sensitive to, or have the capacity for, conceptualizing or tackling deeper or larger questions about human existence, such as the meaning of life, why are we born, why do we die, what is consciousness, or how did we get here. What is the relationship of creature with Creator?

Gardner's multiple intelligences theory is based on the multiple perspectives of intelligence, but this theory is different from other theories which

are based on multiple perspectives of intelligence. The main difference is that Gardner's Multiple Intelligences Theory has collected facts from the number of different resources. Results of this theory based on evidences gathered through different research studies at Project Zero. These researches were carried out on the development of various cognitive skills in normal children, studies conducted on patient of stroke or brain damaged individuals, researches carried out on exceptional individuals, savants, idiots and other unusual populations, evidences collected from the analysis and synthesis of literature on psychological testing, test score on performance on different tasks (Armstrong, 1994).

The Multiple Intelligences Theory emerged as a revolt against the classical outlook of human intelligence. This novel theory appeared simultaneously when other theories were gaining grounds to expound human intellectual capabilities.

According to people are different from one another in their intellectual and cognitive abilities, which prove that they have diverse types of intelligences. For instance, an individual can have low musical intelligence but outstanding linguistics intelligence (Eid & Alizh, 2004) and (Shearer, 2004). It shows that an individual may have all the multiple intelligences or some of them with varying degrees. For example if a student participation is below than average in classroom activities, we cannot label him unintelligent on the basis of his less participation in the classroom. The student may have other intelligences that make possible to surpass people and to be more creative in other areas.

Besides biological structure, Gardner (1983) claims that culture influences a person's development of the intelligences. Different societies give importance to different types of intelligences. The culture provides opportunities to certain abilities to nourish and develop and people become skillful in those areas. Therefore, specific intelligences may be greatly developed in many people of one culture; the same intelligences may not be nourished in the persons of another culture.

The unfavorable effects of environmental deprivation and positive favourable affects of environmental enrichment upon the children's cognitive development have been noted in many

studies. In a study, Gottfried (1984) concluded that if the children are subjected to certain forms of environmental discouragement earlier in life, their intellectual development gets adversely affected. Similar conclusions were drawn in another study conducted by Sherman and Key (1932) in a poor remote hilly area of U.S.A to the effect that lack of language training and schooling accounted for the very poor scores of the children in the standardized intelligence tests. However, when the children were provided with favourable environmental situations in the form of appropriate adopted homes such as better schooling and learning experiences etc., the results were better and encouraging in terms of intellectual development. A well known adoption study (Schiff et al., 1978) conducted in France is a good example. The researcher has compared in this study the IQ scores of the children who were adopted by parents belonging to higher socio-economic class with those of their siblings who were not adopted. The average score of the adopted children was 111 in comparison to the average score of 95 of their siblings reared by their true parents. The privileged environment may thus be said to be responsible for raising the average IQ score by 16 points. Family environment like education of the parents, economic and social status of the family, nutrition, physical and social surroundings of the home etc. are also found to add significantly to the intellectual growth of the children. Geneticists and environmentalists, to support their respective viewpoints, have put enough experimental evidence forward.

According to Chauhan (1991), Pasricha has made a very exciting observation in respect of these experiments. She says that, "It is quite customary for the psychologists wedded to either side namely genetics and environment, to carry out experiments and refer to findings in favour of either of the factors". It has also been found that the results of these experiments can be interpreted either way and can be easily made to support the opposite view. When analyzed in an objective way, it indicated clearly that the two are so closely interwoven that it is impossible to separate the cause of one from that of the other.

Statement of the Problem

The problem understudy was to find out the difference between self-estimated multiple

intelligences (verbal/linguistic, logical/mathematical, visual/spatial, musical, bodily/kinesthetic, interpersonal, intrapersonal, natural) of urban and rural secondary students in southern districts of Khyber Pakhtunkhwa, Pakistan.

Objectives of the Study

1. To determine multiple intelligences of the students as estimated by them.
2. To investigate the differences between self-estimated multiple intelligences of urban and rural students.

Significance of the study

The result of the study is important because it helps and provides the educators to recognize and better understanding of individual differences and the different types of intelligence among students. Accordingly, they might be able to modify their pedagogy to suit students' different types of intelligences as to help them to be autonomous learners. Understanding of the students' multiple intelligences and their level may provide opportunities to parents, teachers, and curriculum developers to look differently at the students, students' instruction, curriculum and assessment.

Delimitation of the study

- This study was delimited to the public secondary school students.

Research Questions

1. What is the level of self-estimated multiple intelligence of the students?
2. What are the differences of self-estimated multiple intelligences between urban and rural students.

Methodological Frame work

Research Design

This study was descriptive and survey research design was used.

Population

Pakistan comprised of five provinces Punjab, Sindh, Pakhtunkhwa, Balochistan, and Gilgit Baltistan, The provinces are divided into divisions and divisions are further divided into districts and Tehsils (County). Khyber Pakhtunkhwa formerly known as North West Frontier Province (N.W.F.P) is one of five provinces of Pakistan,

consisted of seven divisions and 25 districts. 18104 students are studying in 521 public secondary schools.

Sample

According to the secondary result gazette books (2012) issued by BISE Kohat, Bannu, and Dikhan 521 schools were functional in the 7 southern districts which were categorized into two clusters as 290 urban schools and 231 rural schools from these two clusters 44 and 30 schools and then from urban schools 486 students, and from rural schools 419 students, 905 students were selected as a sample using simple random method followed by proportion allocation technique.

Instrument Data Collection

A short form of multiple intelligences inventory consisted of 45 items based on Howard Gardner's Multiple Intelligences Theory, developed by Thomas Armstrong (1994), was used as data collection instrument. This is already standardized inventory provides very useful information regarding students' multiple intelligence and can be easily analyzed and interpreted.

It measures eight dimensions of Gardner's MI theory: (1) verbal/Linguistic, (2) Logical/mathematical, (3) Visual/spatial (4) Musical (5) Bodily-kinesthetic (6) Interpersonal (7) Intrapersonal, (8) Naturalistic. Each intelligence was measured by 5 items, on 5 point Likert scale of response varied from Never, Seldom, Occasionally, Usually to always. It is important to say that Armstrong inventory describes 8 intelligences of Gardner's theory. In order to measure the Gardner's 9th intelligence (Existential intelligence) McKenzie (1999) scale was used.

The inventory was slightly modified and translated into Urdu with the help of language and research experts with permission of the author Mr. Thomas Armstrong, in order to make it easier and understandable to the students in local context.

For validity of the instrument initially 72 statements were identified by the researcher, compiled them in a logical sequence, and were distributed among 20 experts and 30 secondary school students for content validation. These experts included working experienced university psychology teachers, teachers of Institute of Education and

Research and language teachers. Participants were requested to provide feedback. After receiving the feedback the adopted criteria for an item to be acceptable was, if it had to attain the census by 80% of the respondents. Twenty seven items were dropped because majority of the expert considered them that they did not best fit in our existing education set up, some were repeating the concept and some did not receive 80% consensus of the respondents.

After incorporating the suggestions the inventory was distributed among 70 students randomly selected for pilot testing. The data was analyzed through SPSS 19. The Cronbach Alpha obtained for the inventory was .96 which is highly reasonable.

Students' academic achievement scores were obtained from their DMC's (detailed marks certificate) recently issued by the respective Boards

The following range was assigned to the scale.

Very low extent	1.00-1.99
Low extent	2.00-2.99

Results:

The results of the study were tabulated and illustrated in two tables. Mean and SD were applied to answer research question no 1 and t-test was used to answer research question no 2.

Table-1 shows that the mean scores of students' self-estimated linguistic intelligence, logical/mathematical, visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal, and naturalistic intelligence are 3.32, 3.54, 3.52, 3.05, 3.63, 3.51, 3.41, with their SD .98, .86, .75, .70, .70, .61, .80, respectively, the means scores of the above intelligences fall in the range 3.00-3.99 which indicate that students' possess these self-estimated intelligences up to the moderate extent. The mean scores of existential intelligence is 4.36, with SD.57 the mean of this intelligence falls in the range 4.00-4.99 and the mean score of the students' self-estimated musical intelligence is 2.02, with SD .80 the mean score of this intelligence falls in the range 2.00-2.99, means that students possess existential intelligence up to high extent and musical intelligence up to low extent as estimated by the students.

of Intermediate and Secondary Education, Khyber Pakhtunkhwa.

Data Collection & Data Analysis

Total 1200 inventories were distributed, among the respondents, 905 useable questionnaires were returned with an overall response rate of 75%. Data collected through inventories were analyzed by using the statistical package for social sciences (SPSS) version 19 for Windows 2007.

The following 5-point Likert rating scale was applied to this study. The scale was adopted from Ann Joe (1999). Mean & SD were applied as descriptive and Independent sample t- test was used as an inferential statistics for this study as they are appropriate for the analysis of Likert scale data as per recommendation of Boone & Boone (2012), Associate Professors, West Virginia University Morgantown, West Virginia.

Moderate extent	3.00-3.99
High extent	4.00-4.99
Very high extent	5.00

Results of the table 2 show that the p values of the self-estimated verbal/linguistic, logical/mathematical, bodily/kinesthetic, naturalistic, existential, overall intelligences are .00, .00, .00, .00, .02, .00, respectively, the which reveal that there are significant difference between urban and rural students verbal/linguistic, logical/mathematical, bodily/kinesthetic, naturalistic, existential, and overall intelligence. The rural students rated themselves higher than the urban students in term of the above intelligence.

Discussion and Implication

According to the results of the study students possess self-estimated existential intelligence up to high extent. Verbal/linguistic, logical/mathematical, visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal and naturalist intelligence up to moderate extent and musical intelligence up to a low extent.

Howard Gardner (1983) assumes that there exist different adaptive abilities (intelligence) for different faculties like verbal/linguistic, logical/mathematical, visual/spatial, musical, bodily/kinesthetic, interpersonal, intrapersonal, naturalist and existential. A person might excel in

one or few kinds and be below average in others. In extreme cases, we have autistic savants- superb in one intelligence, but null in others.

According to Armstrong (1994) each person possesses all eight intelligences. In each person, the eight intelligences function together in unique ways. Some people have high levels of functioning in all or most of the eight intelligences; a few people lack most of the rudimentary aspects of intelligence. Most people are somewhere in the middle, with a few intelligences highly developed, most modestly developed, and one or two underdeveloped.

According to (Al- Faoury, et. al, 2011) students are heterogeneous in their dominant types of intelligences. Loori (2005), Yuen and Furnham (2005) and Netoa, Ruiza and Furnham (2008) have also found the similar results. Results of this approve Gardner assertion of multiple intelligences and finding of the previous researches regarding multiple intelligences.

According to the results of this study that existential intelligence is the students most dominant and musical intelligence is the students' least dominant self-estimated intelligences may be due to the opportunities, activities and environment available for the development of these intelligences. As a result existential intelligence of the students seems to have been strengthened where as other types appear to have been ignored. There can be hardly a person who can do well at every intelligence. Some people are good at one intelligence and other at intelligences. Students some times use multiple intelligence altogether. The Southern districts of Khyber Pakhtunkhwa are undeveloped and mostly situated in hard areas where teachers and students have fewer opportunities to develop their multiple intelligences. Mostly of the teacher don't know about the application and practice of the theory of multiple intelligences. Curriculum is set nor the students are taught according to the Multiple Intelligences Theory, therefore the students have highly developed only one intelligence the existential intelligence, moderately developed verbal/linguistic, logical/mathematical, visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal, naturalistic intelligences and lowly developed musical intelligence.

Result of the study revealed that rural students rated themselves higher than urban students in term of their verbal/linguistic, logical/mathematical, bodily/kinesthetic, naturalistic, existential, and overall intelligence. As for as the result of the bodily/kinesthetic and naturalistic intelligences is concerned it is not striking because in rural areas the students are involved in many manual tasks such as ploughing and harvesting, cutting trees, and many other tasks of the house hold. They play different games because they have much time and enough space. In rural areas students remained close to the nature, so they have many opportunities to enjoy and interact with nature, have much information about nature. All these activities, tasks and opportunities are beneficial for the improvement of bodily/kinesthetic and naturalistic intelligences. Therefore the students of rural areas have strengthened these two intelligences, and rated themselves higher than their urban counterparts in term of these intelligences, while the higher results of the rest of the intelligences may be due to the rural students over confidence or flawed estimation of the intelligences, because the results are surprising and unexpected. An extensive qualitative study can be conducted in order to find the actual difference between the self-estimated verbal/linguistic, logical/mathematical, existential, and overall intelligences of urban and rural students.

Conclusion

Results of the revealed that students' possess linguistic intelligence, logical/mathematical, visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal, naturalistic intelligences up to moderate extent, existential intelligence up to high extent and musical intelligence up to low extent as estimated by them. The existential intelligence is the most dominant and musical intelligence is the least dominant self-estimated intelligence of the students.

This study also provided evidence that there exists a significant difference between urban and rural students in term of self-estimated verbal/linguistic, logical/mathematical, bodily/kinesthetic, naturalistic, existential and over all intelligence. The rural students believed that they are more intelligent than their urban counterparts in term of the above intelligences.

Recommendations and Implication

1. All types of intelligences should be equally celebrated by the parents of the students, teachers of the students and by the students themselves. No intelligence should be ignored because some individuals can do wonders in the field of specific intelligences. The students' strongest intelligences may be encouraged and celebrated.
2. Students should be trained in a way where they may have equal opportunities and chance for the development of different intelligences. Encouraging environment may be provided for urban students so they may develop their bodily/kinesthetic, naturalistic, and existential intelligences along with other intelligences as well.
3. Theory of multiple intelligences may be formally introduced and practiced in the schools. Teacher may plan and design strategies around the theory of multiple intelligences, which can involve as many of the intelligences as possible because every intelligence contributes to the students personality and achievements. Teacher may teach in way to help students gain the knowledge of lesson using many different ways of knowing. Problem solving and students-centered approach should be used in teaching because it allows students actively use their varied forms of intelligence.
4. Further research studies quantitative and qualitative can be conducted in different context, on different age group students in order to find out whether there exist actual differences between the multiple intelligences of urban and rural students.

Limitations of the Study

1. The findings of this study are limited to the accuracy and the self-estimation of multiple intelligence of the secondary school students who completed the questionnaires, they were considered as objective and honest in their responses.
2. The collection of data was limited to only secondary schools students, so the generalization of results of this study should only be done with extensive care.

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