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Gender Difference In The Multiple Intelligence Of Higher Secondary Students

P.M. Vadivukarasi,
Ph.D. Research Scholar Department of Education Annamalai University

Dr.R.Gnanadevan
Professor Department of Education Annamalai University

Corresponding Author: - *P.M. Vadivukarasi*[1]

Abstract
The present study aimed to find out the gender difference in the multiple intelligence of higher secondary students. Survey method with stratified random sampling technique has been followed for the present study. Multiple intelligence scale standardized by Surbhi Agarwal and Suraksha Pall (2016) has been adapted for the present study to measure the multiple intelligence of higher secondary students. The total sample consists of 679 higher secondary students which include 382 male and 297 female higher secondary students. The present study indicated that there is no gender differences in the total multiple intelligence of higher secondary students and also various dimensions of multiple intelligence such as, linguistic intelligence, logical intelligence, bodily kinesthetic intelligence, spatial intelligence, musical intelligence, naturalistic intelligence, interpersonal intelligence and existential intelligence. It further indicated that the male and female higher secondary students differ significantly only in the level of intrapersonal intelligence and the intrapersonal intelligence is high for the female students than the male students.

KEYWORDS: students - gender difference – multiple intelligence

1. INTRODUCTION

Multiple intelligence refers to a theory describing the different ways a student learns and acquires information. These multiple intelligences range from the use of words, numbers, pictures and music to the importance of social interactions, introspection, physical movement and being in tune with nature. According to Gardner (1999), all human beings possess all different intelligences in varying degrees and each individual manifests varying levels of these different intelligences and thus each person has a unique 'cognitive profile'; that is, a) all human beings possess all different intelligences in varying amounts; b) each individual has a different composition; c) different intelligences are located in different areas of the brain and can either work independently or together; d) by applying multiple intelligence we can improve education; and e) these intelligences may define human species. Multiple intelligence is assessed on the basis of nine dimensions given by Howard Gardner (1983). These intelligences are:

Linguistic Intelligence ("word smart") is the ability to use words and language. It is the ability to think in words rather than pictures. It develops high auditory skills and elegant speaking.

Logical-Mathematical Intelligence ("number / reasoning smart") is the ability to use reason, logic and numbers. It is the ability to think conceptually in logical and numerical patterns making connections between pieces of information. It develops curiosity about the world around, asking lots

of questions and liking to do experiments.

Bodily-Kinesthetic Intelligence ("body smart") is the ability to control body movements and handle objects skillfully. It is the ability to express through movement. It develops a good sense of balance and eye-hand co-ordination (e.g., ball play, balancing beams). It is the ability to remember and process information through interacting with the space around.

Spatial Intelligence ("picture smart") is the ability to perceive the visual. It is the ability to think in pictures and need to create vivid mental images to retain information. It develops enjoyment in looking at maps, charts, pictures, videos and movies.

Musical Intelligence ("music smart") is the ability to produce and appreciate music. It is the ability to think in sounds, rhythms and patterns. It develops immediate response to music either appreciating or criticizing whatever is heard. It develops extremely sensitivity to environmental sounds (e.g., crickets, bells, dripping taps)

Naturalistic intelligence ("nature smart") is the ability to discriminate among living things as well as sensitivity to other features of the natural world namely clouds, rock configurations, insects, fossils, butterflies, feathers, shells or dinosaurs etc. It is the expertise in the observation, recognition, classification and collection of plants animals.

Interpersonal Intelligence ("people smart") is the ability to relate and understand others. It is the ability to see things from other people's point of view in order to understand how they think and feel. It is the ability to use both verbal (e.g., speaking) and non-verbal language (e.g., eye contact, body language) to open communication channels with others.It develops an uncanny ability to sense feelings, intentions and motivation. It develops great organizers, although they sometimes resort to manipulation. It develops to maintain peace in group setting and encourage co-operation.

Intrapersonal Intelligence ("self-smart") is 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 conscious, or how did we get here. It is called, "wondering smart", "cosmic smart", "spiritually smart" or "metaphysical intelligence".

Existential Intelligence ("Cosmic smart") is the ability to be sensitive to or have the capacity for conceptualizing or taking deeper or larger questions about human extents, such as the meaning of life, why are we born, why do we dye, what is consciousness or hove did we get here. It is called "wondering smart", 'cosmic smart", "spiritually smart", or "metaphysical intelligence".

2 NEED AND IMPORTANCE OF THE STUDY

All the multiple intelligence factors are considered to be of great importance in the achievement of the higher secondary students. The various researches conducted both in India and other countries indicated that the multiple intelligence factors are significantly correlated with the students' academic achievement. Through the implementation of the multiple intelligence teaching approach in the classroom, teachers will indirectly decentralize the classroom, encouraging students to take a proactive role in their learning as well as transforming the teachers' role function from director to facilitator. Both teachers and students share the opportunity to develop their multiple intelligences as they learn together (Campbell, 1992). The use of multiple intelligences in instruction and response options provides a platform for students to have diverse and natural ways of learning and joining in

the learning community in the classroom, in addition it effectively engages students in the learner-centered environment of the classroom and can foster personal autonomy, responsibility and empowerment (Gibson and Govendo, 1999).

Gender is a social construct that impacts attitudes, roles, responsibilities and behavior patterns of boys and girls, men and women in all societies. Gender relations vary from society to society. It is a women's issue shaped by power relations in multicultural societies like India. It deals with human concerns encompassing diversities and differences. It has been the most endemic form of discrimination operating across cultures in developed and developing societies. Education has the inbuilt potential of initiating social change in the context of gender relations. Meantime, the better balancing of male and female teachers from nursery through graduate school, would provide models of both sexes with whom students might identify. Proper efforts can be made for the desired care to develop multiple intelligence for the students.

The study conducted by Net, Ruiz and Turnham (2008) revealed that there is significant differences in accordance with gender; where the males far excelled the females in their logical-mathematical, spatial, spiritual, and naturalistic intelligences. Emmiyati et al.(2014) identified that the male students significantly possessed stronger logical-mathematic intelligence, bodily-kinesthetic intelligence, and intrapersonal intelligence, while, female students significantly possessed stronger musical intelligence, interpersonal intelligence, and existential intelligence. Kaur (2014) investigated that the boys of eighth grade rated themselves higher on visual-spatial intelligence when compared to girls of the same grade. In ninth grade significant gender differences were observed for musical, logical-math, bodily-kinesthetic and naturalist intelligences. An overview of the research undertaken by Raissi and Zainali (2016) revealed that moderate inter-correlation exists between verbal-linguistic and visual-spatial intelligences and academic achievement. The present study will be useful for students as well as teachers, because the knowledge about gender difference in multiple intelligence factors will enable the teachers and policymakers to plan teaching and learning process keeping in view of these factors. The present study will provide an insight to the parents to deal effectively with their children, so that they will be able to develop an understanding of the importance of multiple intelligence factors with respect to gender. Based on the above discussion the investigator intended to conduct the present study.

3. OBJECTIVE OF THE STUDY

The objective of the study is to find out the significant difference between male and female higher secondary students in the level of total multiple intelligence and following dimensions of multiple intelligences:

a. Linguistic Intelligence
b. Logical/Mathematical Intelligence
c. Bodily/Kinesthetic Intelligence
d. Spatial Intelligence
e. Musical Intelligence
f. Naturalistic Intelligence
g. Interpersonal Intelligence
h. Intrapersonal Intelligence and
i. Existential Intelligence.

4. METHOD OF STUDY

Survey method is a method for collecting and analysing data, obtained from large number of respondents respecting specific population collected through highly structured and detailed tool. This method is useful for development studies where the current problems and described at present. Hence,

survey method has been employed for the present study. Multiple intelligence scale standardized by Surbhi Agarwal and Suraksha Pall (2016) has been adapted for the present study to measure the multiple intelligence of higher secondary students. It includes nine dimensions of multiple intelligence such as, linguistic intelligence, logical intelligence, bodily/ kinesthetic intelligence, spatial intelligence, musical intelligence, naturalistic intelligence, interpersonal intelligence, intrapersonal intelligence and existential intelligence. For the present study eleven schools in the Vellore District of Tamilnadu have been selected randomly by lottery method to collect data. For the selection of the sample from the selected schools, the stratified random sampling technique has been followed. The sample consists of students studying higher secondary in selected schools. The higher secondary students refers to the students studying 2 years of 'Higher Secondary Education' provided in higher secondary schools affiliated by higher secondary board, Government of Tamilnadu. The total sample consists of 679 students which includes 382 male and 297 female higher secondary students.

5. RESULT AND DISCUSSION

The 't' test has been carried out to compare the male and female higher secondary students in the mean scores of different dimensions of multiple intelligence. The result of the analysis is presented in table 1.

Table- 1Mean Difference between Male andFemale Students in the Different Dimensions of Multiple Intelligence

Dimensions of Multiple Intelligence	Male(N=382)		Female(N=297)		't' Value
	M	SD	M	SD	
Linguistic	33.23	4.34	33.78	3.97	1.70
Logical	33.56	4.47	33.73	4.05	0.51
Bodily Kinesthetic	32.32	4.75	32.71	4.25	1.10
Spatial	31.99	4.86	32.47	4.59	1.30
Musical	31.52	5.91	31.70	5.84	0.39
Naturalistic	32.12	6.65	32.42	6.43	0.59
Interpersonal	36.06	4.64	36.59	4.29	1.45
Intrapersonal	35.91	3.97	36.52	4.03	1.96*
Existential	33.86	4.88	34.20	5.35	0.87
Total Multiple intelligence	300.59	38.72	304.12	36.84	1.21

Note: * indicates significant at 0.05 level,** indicates significant at 0.01 level

Gender Difference in the Mean Linguistic Intelligence Scores of Higher Secondary Students

Table-1 shows the mean difference between male and female higher secondary students in the level of linguistic intelligence and it is found to be 1.70, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of linguistic intelligence.

Gender Difference in the Mean Logical Intelligence Scores of Higher Secondary Students

Table-1 shows the mean difference between male and female higher secondary students in the level of logical intelligence and it is found to be 0.51, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of logical intelligence.

Gender Difference in the Mean Bodily/Kinesthetic Intelligence Scores of Higher Secondary Students

Table-1 shows the mean difference between male and female higher secondary students in the level of bodily/kinesthetic intelligence and it is found to be 1.10, which is not significant at 0.05 level.

Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of bodily/kinesthetic intelligence.

Gender Difference in the Mean Spatial Intelligence Scores of Higher Secondary Students
Table-1 shows the mean difference between male and female higher secondary students in the level of spatial intelligence and it is found to be 1.30, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of spatial intelligence.

Gender Difference in the Mean Musical Intelligence Scores of Higher Secondary Students
Table-1 shows the mean difference between male and female higher secondary students in the level of musical intelligence and it is found to be 0.39, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of musical intelligence.

Gender Difference in the Mean Naturalistic Intelligence Scores of Higher Secondary Students
Table-1 shows the mean difference between male and female higher secondary students in the level of naturalistic intelligence and it is found to be 0.59, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of naturalistic intelligence.

Gender Difference in the Mean Interpersonal Intelligence Scores of Higher Secondary Students
Table-1 shows the mean difference between male and female higher secondary students in the level of interpersonal intelligence and it is found to be 1.45, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of interpersonal intelligence.

Gender Difference in the Mean Intrapersonal Intelligence Scores of Higher Secondary Students
Table-1 shows the mean difference between male and female higher secondary students in the level of intrapersonal intelligence and it is found to be 1.96, which is significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students differ significantly in the level of intrapersonal intelligence. The mean value indicates that the female students have high level of intrapersonal intelligence than the male students.

Gender Difference in the Mean Existential Intelligence Scores of Higher Secondary Students
Table-1 shows the mean difference between male and female higher secondary students in the level of existential intelligence and it is found to be 0.87, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of existential intelligence.

Gender Difference in the Mean Total Multiple Intelligence Scores of Higher Secondary Students
Table-1 shows the mean difference between male and female higher secondary students in the level of total multiple intelligence and it is found to be 1.21, which is not significant at 0.05 level. Hence, it is concluded that the male and female higher secondary students do not differ significantly in the level of total multiple intelligence.

6. CONCLUSION

The gender plays specific role in recognizing ones talent and abilities. In case of multiple intelligence, it always requires special attention both by parents as well as teachers for adolescents of both sexes. Adolescents who have more potential in particular aspects, if they are encouraged and motivated, they can be able to recognize their potential and can reach the stage of maximum ability of their talent in particular field. The present study indicated that there is no gender difference in the total multiple intelligence of higher secondary students and also various dimensions of multiple intelligence such as, linguistic intelligence, logical intelligence, bodily kinesthetic intelligence, spatial intelligence, musical intelligence, naturalistic intelligence, interpersonal intelligence and existential intelligence. It further indicated that the male and female higher secondary students differ significantly only in intrapersonal intelligence, the female students have high level of intrapersonal intelligence than the male students, which revealed that the females students are more self smart than the male students**.** In view of the above discussion there is a desire need to educate the parents and teachers about the importance of various dimensions of multiple intelligence of adolescents irrespective of their gender.

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