

A CORRELATIONAL STUDY OF MULTIPLE INTELLIGENCE AND COGNITIVE STYLE AMONG SECONDARY SCHOOL STUDENTS

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ABSTRACT: The present study is aimed to investigate the relationship between multiple intelligence and cognitive styles of secondary school students. Descriptive survey method was used to conduct this study. It adopted random sampling technique and selected 80 secondary school students (39 male & 41 female) of class IX from Yamuna Nagar district of Haryana. Multiple intelligence scale developed & standardized by Surbhi Aggarwal and Suraksha Pal and cognitive style inventory developed & standardized by P.K. Jha were used by the investigator to collect the data. Pearson Co-Efficient of correlation and t-test were used for data analysis in the present study. Finding revealed that a positive and significant relationship between multiple intelligence and cognitive style was found. The present study will help the educationists to adopt new methods, techniques, strategies and making more effective curriculum for secondary school students to develop their outlook, attitude and skills. Variety of study strategies, and monitoring exercises should be provided by the teachers in the class to develop the cognitive skills among secondary school students.

KEY WORDS: Multiple Intelligence, Cognitive style and Secondary school students

INTRODUCTION: In educational fields, there are different fields where we need some changes. For this purpose, research is done to solve problems and for new changes. Today students have to face many problems and they have to manage different types of information in their minds. Further, they must have intelligence in every field so that they can compete in this competitive era. They should develop their cognitive field as well as they have to seek out their problems with ease. They must be enough efficient to solve their problems by using their meta-cognitive skills and multiple intelligence. So there is a need for this study because it will find the ways that how students can improve their efficiencies with the help of variables to be studied in this investigation. The ability or capacity of an individual to acquire, understand, process and apply knowledge and skills effectively is called Intelligence. It involves various cognitive functions such as reasoning, problem-solving, learning, memory, creativity and the ability to adopt and respond to new situations. Education is one of the most powerful mechanisms for developing intellectual prowess; that meaningful interaction with adults, peers, and the environment is essential in mediating the learner's intellectual development; that learning is a continual transformation of inner perceptions, knowledge and experiences; and that all human beings have the potential to continually develop their intellectual powers throughout their lives.

MULTIPLE INTELLIGENCE: Intelligence can be understanding and measured in different ways, leading to various theories and perspectives. Intelligence can be assessed through various standardized tests, such as IQ (Intelligent Quotient) tests, which measure cognitive abilities relative to a population or sample. However, it is important to note that

intelligence is a complex trait which is influenced by multiple factors, including genetic and environmental factors and can't be fully captured. Schools have often sought to help students develop a sense of accomplishment and self-confidence. Furthermore, if we want our schools to prepare students for the challenges they will face after they leave, we must constantly pose challenges in school that force them to invoke a variety of intelligences. These challenges should have different kinds of solutions, they should involve a variety of intelligences, they should encourage collaboration and they should provide opportunities for reflection. This is made possible by incorporating Howard Gardner's theory of Multiple Intelligences which has had a wide audience among educators. It has been interpreted and adapted in many different ways.

Multiple Intelligence Theory focuses humans to real life circumstances, and emphasizes the training of students to solve problems. This connects to the real world, rather than abstract class room learning, places it close to the true reason humans learn, for this reason, it has caught wide spread attention from various international circles when Gardner brought up the theory in America in 1983. The theory of multiple intelligence, developed by psychologist Howard Gardner in 1983, challenges the traditional notion of intelligence as a single, general ability. According to Gardner, individual possess different types of intelligence and each person has a unique combination and distribution of these intelligences. Gardner initially proposed seven intelligences and later expanded the list to include additional forms. The intelligences identified in Gardner's theory are linguistic intelligence, Logical intelligence, spatial intelligence, musical intelligence, bodily kinesthetic intelligence, interpersonal intelligence and intrapersonal intelligence.

COGNITIVE STYLES: Cognitive Psychology is concerned with how organisms organize or gain knowledge about the world and how they use that language to guide decisions and perform effective actions. Knowledge enables us to survive in a hostile environment to satisfy our social and biological needs, and to plan our own and our children's future. Thus to begin with Cognitive Psychology focuses on the storage, retrieval and utilization of information. Subsequently, investigation of individual differences in Cognitive Functioning gained importance. Contemporary Cognitive Psychologists continue this trend in their way on handling the information at their disposal which comes to be related to their more general personality differences.

Cognitive styles are habitual ways or modes of dealing with information about oneself and one's environment which are to a larger degree independent of the context of the information being handled. Much work has been done on personality, thought etc., with what a person thinks or wants. But it is also possible to inquire about the way in which he thinks or wants or perceive. The activities which are involved in the higher cognitive process are conceptualizing, symbolizing, schematizing, analyzing, abstracting and forming concepts about the world to which a person must make his adjustment. In general, we can say that cognitive ability is an index of how well a person can think, whereas cognitive style is an indication of how he habitually does think.

JUSTIFICATION OF THE STUDY

Study of multiple intelligence and cognitive style can help the educator in many ways. First of all, by studying multiple intelligence and cognitive style helps the educator in recognizing diverse talents. Every individual possess different talents, studying them allows for a more holistic and inclusive approach to education and personal development. Study of multiple intelligence can help in tailoring education to individual strengths. As researcher already know traditional system of education only focuses on a narrow range of intelligences. By studying multiple intelligences, educator can identify and nurture a broader range of talents in students. This study also promotes self-esteem and motivation. When the unique talents and intelligences of an individual are recognized, it boosts their self-esteem and also

motivates them. By studying multiple intelligences, one can create environments that foster positive self- perception and encourage individuals to explore and develop their strengths. All types of intelligences complement each other. By studying them, the educator can foster interdisciplinary collaboration. In today's world success often relies on the ability to navigate complex social, cultural and professional context. By studying Multiple Intelligences individual gain a broader set of skills and perspectives that helps them to adopt different situations and engage effectively with every kind of people. Different Multiple Intelligences and cognitive styles influence how individual process and retain information. By studying them, educators can adopt teaching methods and materials to align student's preferred style. By studying Multiple Intelligences and cognitive styles, we gain insight into different problem-solving strategies. As we know different occupations and roles may require different cognitive strengths and preferences and intelligences.

Overall, by studying Multiple Intelligences and cognitive styles one can understand individual differences, can improve problem-solving and decision making ability, foster self-awareness and personal growth. It also allows us to recognize and appreciate talents, promotes self-esteem and motivation, encourages interdisciplinary collaboration and prepare individual for a diverse world.

OBJECTIVES OF THE STUDY

1. To study the significant relationship between multiple intelligence and cognitive style among secondary school students.
2. To study the significant difference of multiple intelligence among secondary school students in relation to their gender.
3. To study the significant difference of cognitive style among secondary school students in relation to their gender.
4. To study the significant difference of multiple intelligence among secondary school students in relation to their residential background.
5. To study the significant difference of cognitive style among secondary school students in relation to their residential background.

HYPOTHESES OF THE STUDY

1. There exists no significant relationship between multiple intelligence and cognitive style among the secondary school students.
2. There exists no significant difference of multiple intelligence among secondary school students in relation to their gender.
3. There exists no significant difference of cognitive style among secondary school students in relation to their gender.
4. There exists no significant difference of multiple intelligence among secondary school students in relation to their residential background.
5. There exists no significant difference of cognitive style among secondary school students in relation to their residential backgrounds.

DELIMITATIONS OF THE STUDY

1. The present study was delimited to 80 secondary school students only.
2. The present study was delimited to district Yamuna Nagar of Haryana only.
3. The study was delimited to class 9th students only.
4. The present study was delimited to 04 secondary schools only (Two Government & Two Private).

RESEARCH METHOD USED

Researcher used descriptive survey method for the present study.

POPULATION AND SAMPLE:

All the secondary school Students studying in class IX of district Yamuna Nagar of Haryana (India) were selected as population in the present study. From this population 80 students of class IX were selected by random sampling technique.

TOOLS USED:

1. **Multiple Intelligence** developed and standardized by Surbhi Aggarwal and Suraksha Pal.
2. **Cognitive style inventory** developed and standardized by P.K. Jha.

STATISTICAL TECHNIQUES USED:

For analysis of any data researcher used different methods and techniques here:

1. Pearson's coefficient of correlation was used.
2. t-test was used by researcher for making the comparison.

ANALYSIS AND INTERPRETATION**TABLE-1****COEFFICIENT OF CORRELATION BETWEEN MULTIPLE INTELLIGENCE AND COGNITIVE STYLE**

Variables	DF	Coefficient of relation 'r'	Level of significance
Multiple Intelligence	78	0.082	Significant
Cognitive Style			

***significant at 0.01 level of significance with df/78**

Table- 1 reveals that the calculated 'r' value (0.082) between attitude towards Multiple Intelligence and Cognitive style is significant at 0.01 level of significance. The table value at 0.05 level is 0.217 and at 0.01 levels is 0.283. This shows that obtain value (0.082) is less than the table value, thus we can say that there is significant negative relationship between the multiple intelligence and cognitive style.

Hence, the null hypothesis No.1 which is stated earlier that there exists no significant relationship between multiple intelligence and cognitive style among the secondary school students is rejected.

Table- 2**SIGNIFICANCE DIFFERENCE IN THE MEAN SCORE OF MALE AND FEMALE TOWARDS MULTIPLE INTELLIGENCE**

Gender	N	Mean	SD	t- ratio	Significant level
Male	39	291.51	31.84	0.978	Not significant
Female	41	297.70	31.75		

****Not Significant at 0.01 level of significance with df/ 78.**

In the above table- 2 reveals that the Mean scores of the male & female attitudes are 291.51 & 297.70 and SD scores are 31.84 & 31.75 respectively. The calculated t-ratio of male & female of Multiple Intelligence is 0.978. The table value at 0.01 level is 2.64. It shows that the calculated value of t-test is less than the table value and there is no significant difference of multiple intelligence among secondary school students in relation to their gender.

So, the hypothesis which is stated earlier that there exists no significant difference of multiple intelligence among secondary school students in relation to their gender is accepted.

Table- 3

SIGNIFICANCE DIFFERENCE IN THE MEAN SCORE OF MALE AND FEMALE COGNITIVE STYLE

Gender	N	Mean	S.D	t- ratio	Significant level
Male	39	128.82	14.76	0.170	Not significant
Female	41	140.16	10.87		

****Not Significant at 0.05 level of significance with df/ 78**

In the above table-3, reveals that the Mean scores of the male & female personality are 128.82 & 140.16 and scores SD scores are 14.76 & 10.87 respectively. The calculated t-ratio of male & female of cognitive style is 0.170. The table value level at 0.05 level is 1.99 and we have obtained value of t-ratio is 0.170. It shows that the calculated value is less than the table value so we can say that there is no significant difference of cognitive style among secondary school students in relation to their gender.

So the null hypothesis which is stated earlier that there exists no significant difference of cognitive style among secondary school students in relation to their gender is accepted.

Table- 4

SIGNIFICANCE DIFFERENCE IN THE MEAN SCORE OF RURAL AND URBAN ATTITUDE OF MULTIPLE INTELLIGENCE

Residential background	N	Mean	S.D	t- ratio	Significant level
Rural	38	315.10	20.15	1.90	Not significant
Urban	42	280.97	31.67		

***Significant at 0.01 level of significance with df/ 78**

In the above table-4 reveals that the Mean scores of the rural & urban attitude towards multiple intelligence are 315.10 & 280.97 and SD scores are 20.15 & 31.67 respectively. The calculated t-ratio of rural & urban attitude towards multiple intelligence is 1.90. The table value at 0.01 levels is 2.64. It shows that the calculated value is less than the table value and there is no significant difference between the attitude towards multiple intelligence of rural and urban.

So, the hypothesis which is stated earlier that there exists no significant difference of multiple intelligence among secondary school students in relation to their residential background is accepted.

Table- 5
SIGNIFICANCE DIFFERENCE IN THE MEAN SCORE OF RURAL AND URBAN PERSONALITY TOWARDS COGNITIVE STYLE

Locality	N	Mean	S.D	t- ratio	Significant level
Rural	38	133.31	7.98	0.396	Not significant
Urban	42	136	18.41		

****No Significant 0.05 level of significance with df/78**

In the above table-5 reveal that the Mean scores of the rural & urban personality are 133.31 & 136 and SD scores are 7.98 & 18.41 respectively. The calculated t-ratio of rural & urban personality is 0.396. The table value at 0.05 levels is 1.99. It shows that the calculated value is less than the table value and there is no significant difference between the rural and urban personality of multiple intelligence.

So, the hypothesis which is stated earlier that there exists no significant difference of cognitive style among secondary school students in relation to their residential backgrounds is accepted.

MAIN FINDINGS OF THE STUDY

The present study is aimed to study of Meta cognitive skills among secondary school students in relation to their Emotional Intelligence. The data was collected for analysing and interpreting in order to reach the main findings. For clear view, presentation of findings is made as follows:

1. A negative and significant correlation between variables Emotional intelligence and Meta cognitive skills was found. Hence study of multiple intelligence strongly affects cognitive style.
2. No significant difference between the mean scores of multiple intelligence of secondary school students was found. Hence gender does not influence the study of multiple intelligence.
3. No significant difference in cognitive style in relation to their gender was found. Hence the gender does not influence the cognitive style of secondary school students.
4. No significant difference in study of multiple intelligence in relation to their residential background was found. Hence the residential background of secondary school students does not influence multiple intelligence.
5. No significant difference in cognitive style of secondary school students in relation to their residential background was found. Hence the residential background does not influence the cognitive style of secondary school students.

EDUCATIONAL IMPLICATIONS: -

The most outstanding characteristics of any research is that it must contribute something new to the development of an area concerned. Finding of present study have sample educational implication for teachers, parents and administrations and also for pre-service teachers. The study of multiple intelligence proposed by Howard Gardner has significant education implications. This theory suggests that intelligence is not a single, monolithic ability but rather a set of diverse cognitive abilities. The study of cognitive style which assesses individuals' preferred way of processing information also has significant education implications. The study indicates that there is negative significant correlation

between studies of multiple intelligences among secondary school students in relation to their cognitive style.

In the teaching- Learning process these skills must be developed with conditional approach. The present study shows that there exists a positive and significant relationship between multiple intelligences among secondary school students in relation to their cognitive style. The result of the present study will help the educationists to adopt new methods, techniques, strategies and making more good curriculum for secondary school students to develop their outlook, attitude and skills. Understanding student's cognitive style can help the educators tailor their teaching methods to meet the needs of diverse learners.

On the basis of findings of the present study will help the educational planner, administration, education colleges and lecturer in the following ways:

1. It enforces the personalised learning through tailored instructions and strength based approaches.
2. It helps the teacher to include the diverse teaching strategies by incorporating varied instructional methods and multi-modal learning.
3. It also helps in designing the curriculum to make the learning integrated.
4. It can help the teacher to maintain the classroom environment and also encourages the collaborative learning.
5. This study also helps in the professional development of the educators as it provides training and collaboration.
6. Through this study teacher can improve student engagement and motivation by proving more relevant learning.

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