

Relationship of Creativity and Intelligence of Senior Secondary Students

Dr.Suman Dalal¹ & Ms Geeta Rani²

¹Chairperson, BPSITTR, BPSMV, Khanpurkalan

² Research Scholar, BPSITTR, BPSMV Khanpur kalan

ABSTRACT: This study aimed at finding out relationship between Creativity and Intelligence of Senior Secondary Students. A sample of 640 students was selected randomly from the various schools of Haryana State. For the study, Thinking Creatively by Words (TCW) developed by Dr. Bager Mehndi and Intelligence Group Test of Mental Ability developed by Dr. S.S. Jalota were used for data collection. The result revealed that there is significant relationship between Creativity and Intelligence of Senior Secondary Students. The result also revealed that intelligence of high creative students and low creative students of Govt. Senior secondary schools differ significantly.

KEYWORDS: Creativity, Intelligence

Creative children are assets to the society. Development and progress in various fields depend on these children. Our educational institutions should aim at the development of creativity in children to prepare them for different walks of life. No nation whether big or small can afford to overlook the importance of creativity in this age of competition. Who survives this competition largely depends upon its creative minds. The creative acts affect enormously not only scientific and technological progress, but society in general. Nations who learn best how to identify, encourage and develop the creative potential in their people may find themselves in a very advantageous position as compared to the nations that are failed to identify and develop the talented mind. Creativity is a basic tool for progress in any society or community. It is so important that any society that wants to make headway in any area of development must not lose sight of it. The conditions of modern day living, characterized by complexity and interdependence, technological and communication advances and rising expectations call for increased levels of creativity (Mars, 1981). The creative talents have the responsibility of transforming the economy so that the populace would benefit from the products of their creative genius. In India the need to develop creativity in the classroom is in a nascent stage and yet to be emphasized in any major educational policy or planning document. The education in India is portrayed as comprising of dull routines, unmotivated teachers, bored students and rote systems of learning. The Indian education system in policy makes no overt recommendations for creativity education to be adopted as an integral part of the schooling experience for a child in India. Therefore, any such initiative can happen only at an individual level and must stem from an ideology or philosophy that believes in creating the space for children to learn creatively. The role that a teacher plays in fostering creativity in her classroom is unquestionable, it is important that her teaching should be added with appropriate teaching mechanisms. Creating a sense of informality to encourage free expression through informal seating arrangements, flexible class timings, group activities, proximity to nature, a vivacious campus and the freedom to express without the fear of being judged are some of the factors which effect the environment of the school and enhance the creative learning.

I. CREATIVITY

In educational research, the word “creativity” which is only sixty years old, has shifted its source from divine to psychic functioning of human beings. Of course, human beings are endowed with unique powers. Of all their powers, creativity is the most unique. In each of us are little-used powers of creativity, which may be termed as “spark of genius”, waiting to be freed. Even a computer, which can work at an amazing pace, cannot match it as it can only repeat the mechanical orientations but cannot produce original ideas, which the human mind is capable of the work of creation. Therefore, it is necessary to be careful in defining creativity and distinguishing it from other similar intellectual functions. The brain is believed to have a significant role in the creative ability of individuals. According to Craft (2000), each of the two hemispheres of the brain appears to have its own area of specialization and processes information in its own way; and of course, in the normal brain, the hemispheres communicate with each other through the corpus callosum, the mass nerve fiber which bridges the hemispheres. For the great majority of the population, it is the left hemisphere that controls logical and linear thinking. This is the side that can compute mathematics, remember names, learn to read and memorize. By contrast, the other hemisphere is the part of the brain where metaphors are understood, where emotions are felt and where dreams, imageries and fantasy occur. The left hemisphere of the brain is dominant for the following

tasks: analytical, mathematical, verbal, linear and literal. The left hemisphere may, then, be particularly good at 'convergent' thinking. By contrast, the right brain appears to be dominant for the following activities; metaphoric, imaginative, non-verbal, holistic (non-linear), spatial, musical, artistic, emotional, sexual, spiritual, and dreams. The right hemisphere may be particularly good at supporting 'divergent' thinking—and creativity more widely. In general, the hemispheres work together in harmony, although often the right hemisphere is under-utilization. And really it is this hemisphere that is important for education and for fostering creativity. The challenge for teachers is how to find ways of fostering creativity that feeds the right brain as well as the left, for all children. Creativity is the process of developing original novel and yet appropriate response to a problem. An original response is one that is not usually given. A novel response is one that is new or has no precedent. However, unless an original and novel solution is also appropriate, it can't be termed as creative. An appropriate response is one that is deemed reasonable in the situation. Building a house of toothpicks is probably an original and novel idea, but is clearly not appropriate because such a house could be structurally weak. Creativity is the ability to produce work that is both novel (i.e. original, unexpected) and appropriate. **"To create" means "to make or bring into existence some- thing new".** **Torrance (1962)** on the basis of an analysis of the diverse ways of defining creativity and requirements of a dependable definitions for keeping a programme of research focused on factors affecting creative growth in context, defined creativity as "a process of becoming sensitive to problems deficiencies, gaps in knowledge, missing elements, disharmonies, making guesses or formulating hypotheses about the deficiencies testing and re-testing them and finally communicating the results."

II. INTELLIGENCE

Intelligence is the aggregate capacity of individual to act purposefully, to think rationally and to deal effectively with his/her environment. It can be called as the capacity to acquire knowledge. In order to solve any problem, knowledge should be applied in the right manner with the help of intelligence. Educationists consider intelligence as the mental ability which helps the individual to think about minute, complex and abstract matters, to adjust with changing situations by solving various problems as quickly as possible, to acquire with ease knowledge, proficiency and aptitude in different subjects, to explain new situations with the help of prior experience, to arrive at conclusions by determining the exact relations between various elements, to utilize our energy by keeping the emotions and impulse under control whenever necessary in achieving the goal. Man, however, has surpassed other creatures in the development of brain and this development has made him superior to other species in his behaviour and in control of his environment. But it is well-known fact to us all, that the individuals have different capabilities to adapt and change this environment. One thinks differently from the other. He solves the problems concerning to his environment and to overcome the hurdles in the way of his progress, and in paving new paths of his progress quickly than this fellows. One feels it very difficult to adjust with his peers while the others are very efficient in doing .So thus it can be said that a person's intelligence manifests itself through different activities and not through a particular activity (Gupta and Basu, 2006.)

Intelligence and Creativity:

The relationship between creativity and intelligence has been matter of considerable of the two is done critically, one must reach at the conclusion that the two are both originating from the same domain and have almost similar explanation in their theories and hence should have a close relationship. In this regard many researches had been done on school children and others. Many research findings and observations have demonstrated that there is no positive correlation between creativity and intelligence. One is not the essential or necessary prerequisite of the other. Those found scoring high on intelligence tests might demonstrate no signs of creativity where as individuals performing poorly in intelligence tests may sometimes create something very original. Therefore, no clear relationship has been seen to exist between intelligence and creativity.

There has been debate in the psychological literature about whether intelligence and creativity are part of the same process (the conjoint hypothesis) or represent distinct mental processes (the disjoint hypothesis). Evidence from attempts to look at correlations between intelligence and creativity from the 1950s onwards, by authors such as Barron, Guilford or Wallach and Kogan, regularly suggested that correlations between these concepts were low enough to justify treating them as distinct concepts. Some researchers believe that creativity is the outcome of the same cognitive processes as intelligence, and is only judged as creativity in terms of its consequences, i.e. when the outcome of cognitive processes happens to produce something novel, a view which Perkins has termed the "nothing special" hypothesis.

Need of the study

Creativity is defined as the ability to bring something with existence, creativity is distinguished by novelty, originality and it's usually inventive .creativity was believed to be human gift, a rare quality of distinguished individuals with inborn talent. Individual who is flexible in thought and action who can produce

novel ideas, express his ideas fluently and long with certain personality traits is said to be creativity. Intelligence is closely related to intellect. Intellect includes observing, understanding, thinking, remembering and all ways of knowing. Both intelligent and creativity are the important cognitive aspects of the individual. The bewildering or puzzling rapid change in the present nuclear and space age has increasingly enhanced the important of the creative talent and alerted the educationists and psychologists from their slumberous state work on searching our new methods, strategies and techniques for its identification and development .Creativity is the ultimate answer to man's problems, innovation of new idea, things and ultimately the civilization of life. The value and work of this potential is unlimited. In terms of education and related areas creativity and intelligence are very much essential elements which are necessary for learning. If education strives to prepare children for a productive life in society, the educational system must accept responsibility for supporting and developing creativity by motivating them. Creativity is recognized for its role in generating innovations to address the challenges of an evolving world. This study will explore the conditions for facilitating the creativity prevailing in government schools of Haryana state. The main focus of this research will be to explore the relation between creative thinking and cognitive abilities.

Objectives of the study

The study was carried out with the following objectives:

- 1) To assess the creativity of senior secondary students of Govt. Schools.
- 2) To compare the creativity of male and female senior secondary students of Govt. Schools.
- 3) To find the relationship between intelligence and creativity of the senior secondary students of Govt. Schools.
- 4) To find out the significant difference between intelligence of low creative and high creative senior secondary students of Govt. Schools.

Hypothesis of the study

- 1) There is no significant difference between the creativity scores of male and female senior secondary students of Govt. Schools.
- 2) There is no significant relationship between creativity and intelligence of senior secondary students of Govt. Schools.
- 3) There is no significant difference between intelligence level of low creative and high creative senior secondary students of Govt. Schools.

Methodology of the study

The study employed descriptive survey method of research. It is commonly used in educational research to study existing conditions and phenomenon. The terms descriptive survey is generally used for the type of research which purposes to certain what are the normal or typical conditions of practice of present time.

Sample:

The sample for this study consisted of 640 students who are studying in the Senior Secondary Schools of the Haryana State. Haryana state is divided into the four divisions on the bases of direction and areas i.e .Ambala division, Hisar division, Rohtak Division, Gurgaon Division, firstly the researcher had selected all the four divisions for the study. Then two districts were selected randomly from each of the four divisions of Haryana. The selected districts were Panipat and Karnal (Ambala Division), Rewari and Mahendergarh (Gurgoan Division), Jind and Bhiwani (Hisar Division) and Sonipat and Jhajjar (Rohtak Division).

Tool Used:

For the study Thinking Creatively by Words (TCW) Dr. Bager Mehndi and Intelligence Group Test of Mental Ability Dr. S.S. Jalota were used for data collection.

Analysis and interpretation of data: To assess the creativity of Senior Secondary Students of Govt. schools.

Students of Govt. Senior Secondary Schools according to their level of creativity are shown in the table 1 below.

Table 1: Level of Creativity Scores of Students of Govt. Senior Secondary Schools

Sr. No.	Score	No. of Students	level Creativity
1	169 and above	97	Highly Creative
2	131-169	454	Moderately Creative
3	131 and below	89	Low Creative

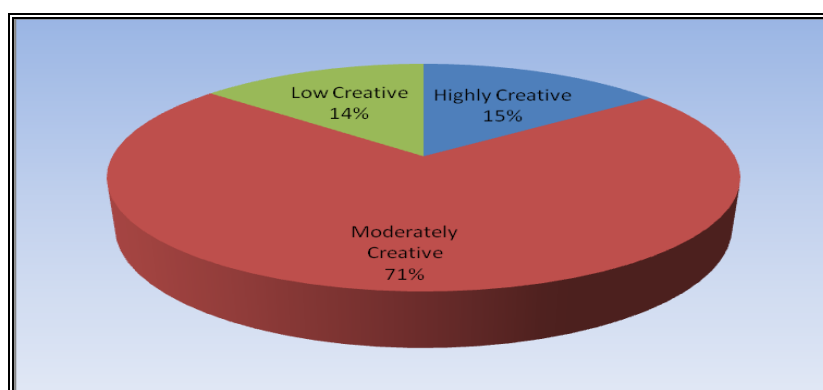


Figure: Percentage of total number of students with degree of Creativity

III. TERPRETATION OF RESULTS

From table 1 and figure 1 it is apparent that out of 100, 15 percent Students of Govt. Senior Secondary Schools are highly creative, while 71 per cent are moderately creative and 14 per cent are less creative. The percentage of moderately creative students is highest.

To compare the creativity of male and female Senior Secondary students of Govt. Schools

Gender wise creativity scores of students of Govt. Senior Secondary Schools are shown in the table 2 below.

Table 2: Genderwise Mean, S.D., N, SE_D and Z-value of Creativity scores of students of Govt. Senior Secondary Schools

Gender	Mean	SD	N	SE_D	Z-Value
Male	148	20.40	320	1.44	2.78*
Female	152	17.6	320		

* Significant at 0.01 level of significance

From table 2 it is evident that the z-value of Creativity scores of male and female students of Govt. Senior Secondary Schools is 2.78 which is significant at 0.01 level of significance with df 638. It indicates that the mean scores of Creativity of male and female students of Govt. Senior Secondary Schools differ significantly.

Thus the null hypothesis that “There will be no significant difference between the creativity scores of male and female students of Govt. Senior Secondary Schools” is **Rejected**.

Furthermore it indicates that the mean score of creativity of female students of Govt. senior secondary schools (152) is higher than the mean score of male students of Govt. senior secondary schools (148) .It may therefore be concluded that female students of Govt. senior secondary schools are more creative than the male students of Govt. senior secondary schools.

To find the relationship between intelligence and creativity of Senior Secondary students of Govt. Schools

Here we are calculating correlation co-efficient between intelligence and creativity of the Govt. senior secondary students. For this purpose Pearson’s correlation co-efficient is used as shown in table 3.

Table 3: Correlation Coefficient (r-value) between intelligence and creativity of the Govt. senior secondary students

Variables	No. of students	‘r’ value	Remark
Intelligence	640	0.43 *	Positive Moderate correlation
Creativity	640		

* Value of Correlation Coefficient is 0.43

* Significant at 0.01 level of significance with df 638

From the table 3 it is clearly evident that the co-efficient of correlation between intelligence and creativity of the senior secondary students is 0.43 and which is significant at 0.01 level of significance with 638 degree of freedom. The critical ‘r’ value is 0.081 at 0.01 level of significance with 638 degree of freedom. So the calculated ‘r’ value is higher than the critical value. So the hypothesis that, “There will be no significant relationship between intelligence and creativity of the Govt. senior secondary students” is rejected.

So it can be interpreted that intelligence and creativity of the senior secondary students is positively correlated. This positive correlation shows that with increase in Intelligence of students, the creativity increases and vice-versa.

To find out the significant difference between intelligence level of low creative and high creative Senior Secondary students of Govt. Schools

Here we are finding difference between intelligence level of low creative and high creative Senior Secondary students of Govt. Schools. For this purpose z-value is calculated. The Intelligence scores of low creative and high creative of the students of Govt. Senior secondary schools are shown in table 4 below.

Table 4: Mean, S.D., N and Z-value of Intelligence scores of low creative and high creative students of Govt. Senior secondary schools

Creativity Groups	Mean	SD	N	SE_p	Z-Value
High Creative Students	126.75	16.89	97	3.56	6.877*
Low creative Students	101.32	26.3	89		

* Significant at 0.01 level of significance

From table 8 it is evident that the z-value of Intelligence scores of low creative and high creative students of Govt. Senior secondary schools is 6.877 which is significant at 0.01 level of significance with df 184. It indicates that the mean scores of intelligence of high creative students and low creative students of Govt. Senior secondary schools differ significantly. Thus the null hypothesis that “There will be no significant difference between intelligence level of low creative and high creative students of Govt. Senior secondary schools” is **Rejected**.

Furthermore it indicates that the mean score of intelligence of high creative students (126.75) is higher than mean score of intelligence of low creative students (101.32). It may therefore be concluded that high creative students are more intelligent than low creative students of Govt. senior secondary schools.

III. CONCLUSION

The study in hand examined the strength of creativity among Government senior secondary school students in relation to intelligence. It shows that creativity is universally widespread and each and every child has some degree of creativity. It is the duty of parents and teachers to provide support for creative development and help the child to understand the divergent thought and to communicate his ideas freely. They should provide conducive experiences and guidance and should recognize the individual’s creative talent. It shows that creativity is universally widespread and each and every child has some degree of creativity. It is the duty of parents and teachers to provide support for creative development and help the child to understand the divergent thought and to communicate his ideas freely. They should provide conducive experiences and guidance and should recognize the individual’s creative talent. Thinking always influenced by creativity and intellectual abilities of a person, when a student is considered to be creative, he has minimum levels of intelligence. So it was found that there is relationship between those two parameters that is creativity and intelligence. The creativity level of girls is much higher than that of boys. So the creativity differs significantly on the bases of gender.

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