



Relationship between Creativity and Achievement of Senior Secondary

Students

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ABSTRACT

The present investigation aimed to know the relationship between creativity and achievement of senior secondary science students. For the purpose a sample of 200 male and 200 students of science group was selected from various senior secondary schools of Hathras district, by using accidental technique of sample selection. In the present study the Descriptive survey method of research was used. Verbal test of creativity constructed by Baqer Mehdi was used to collect the data. For measuring achievement, percentage achieved by the students in the High School Board examination is considered as achievement score. Results revealed that there exists positive and significant relationship between achievement and creativity of senior secondary science students. The students higher on fluency, flexibility and originality measures of creativity tend to achieve high in the subjects.

Key Words – Creativity, Achievement, Senior Secondary and Science Students

INTRODUCTION

On the subject of creativity, numerous recent researches have been conducted (Charlton 2009; Heinze, Shapira, Rogers & Senker, 2009; Ivcevic, 2009; Miller, 2007; Runco, 2007a, Simonton & James, 2007) and in relation to achievement and other allied factors. Creativity is an ability that is most vital for shaping the future of man. The credit for opening the present era of research in creativity goes to Guilford (1950) who defined this term variously. Creativity as the key to education in its fullest sense and is a solution to mankind's various problems. Creativity is the process that can be characterized as originality, novelty, fluency, flexibility and appropriateness. Creativity has been subjected to many different definitions. On the one hand it

is defined as the academic achievement or academic ability and on the other hand it is relatively more easily defined, measured and interpreted (Palaniappan,2005). Other researchers namely Sternberg & Lubart (1996) describes creativity as the confluence of intellectual activity, knowledge, motivation, thinking style, personality and environment. Without creativity a person is not able to access the fullness of information and resources available but is locked in old habits, structures, patterns, concepts and perceptions (Akinboye 2003).

Researchers have been curious about the relationship between creativity and academic achievement for numerous year (Ai, 1999; Barrois & Hughes, 2008 and Naderi, 2009). There has been controversial debate on the relationship between creativity and academic achievement in school and later in vocational success. Some researchers have pointed out that creative thinking is important as a traditional measure of IQ. in educational setting. Mehdi (1977) supports the view that scholastic achievement which is usually based on convergent thinking is predicted better by intelligence test. He emphasizes that divergent thinking and convergent thinking do not operate separately but collectively interact for achievement. Several scientific investigations have reported a significant relationship between creativity and academic achievement (Preckel, Holling & Wiese, 2006; Ling, 2009; Chauhan; 2014). On the basis of this, it may be suggested that divergent thinking in the form of fluency, flexibility and originality might contribute and interact with convergent thinking in understanding academic achievement (Chauhan; 2014). The present study also attempts to examine the relationship between academic achievement and creativity.

Many previous studies have only given importance to intellectual factor in predicting academic achievement. Earlier studies have indicated that intelligence influencing the academic achievement (Douglas, 2006). It was believed that high IQ or strong scientific mind is the main measurement of academic success (Abi-Samra, 2000). Literature shows that for many years the study of intelligence as a predictor of success focused mainly on the adaptive use of cognition (Piaget,1972). In the present scenario, our classrooms tend to be dominated by approaches that emphasize principles, facts, theories, generalization and memorization associated with specialization at the expense of generic skills which promote originality and social skills such as creativity, self-concept and motivation. Thus, intelligence is not the sole factor in determining academic achievement. Individual differences in intelligence cannot be accounted for all the major differences in achievement. The present study attempts to suggest that there are certain other personality and motivational variables which may also play a significant role in determining student's academic achievement.

On the basis of above discussion, it may be inferred that creativity, might hold the key in examination system and success. Keeping these variables in view, the present study aims at investigating the relationship between academic achievement and creativity at school level in both the gender.

OBJECTIVE OF THE STUDY

To examine the relationship between Creativity and Achievement of senior secondary science students.

HYPOTHESES OF THE STUDY

1. There exists no significant difference in Creativity among high, average and low achievers senior secondary science students.
2. There exist no significant relationship between creativity and achievement of senior secondary science students.

METHODOLOGY

SAMPLE

A sample of 200 male and 200 female students of science group was selected from various senior secondary schools of Hathras district, by using accidental technique of sample selection.

METHOD

In the present study the *Descriptive Survey method* of research was used.

TOOLS

In the present study the following tools were employed for data collection-

- For measuring Creativity of students, Verbal Test of Creativity constructed by Baqer Mehdi was used.
- For measuring achievement of senior secondary students, percentage achieved by the students in the High School public examination conducted by Uttar Pradesh Board of Secondary Education, Allahabad is considered as achievement score.

STATISTICAL TECHNIQUES

The data were analyzed by the use of various statistical techniques viz; Mean, Coefficient of Correlation, Standard Deviation and Critical Ratio.

RESULT AND DISCUSSION

To study the effect of creativity of senior secondary science students on their achievement, first of all, the total sample of senior secondary science students was categorized into three groups on the basis of achievement scores as high, average and low achievers students.

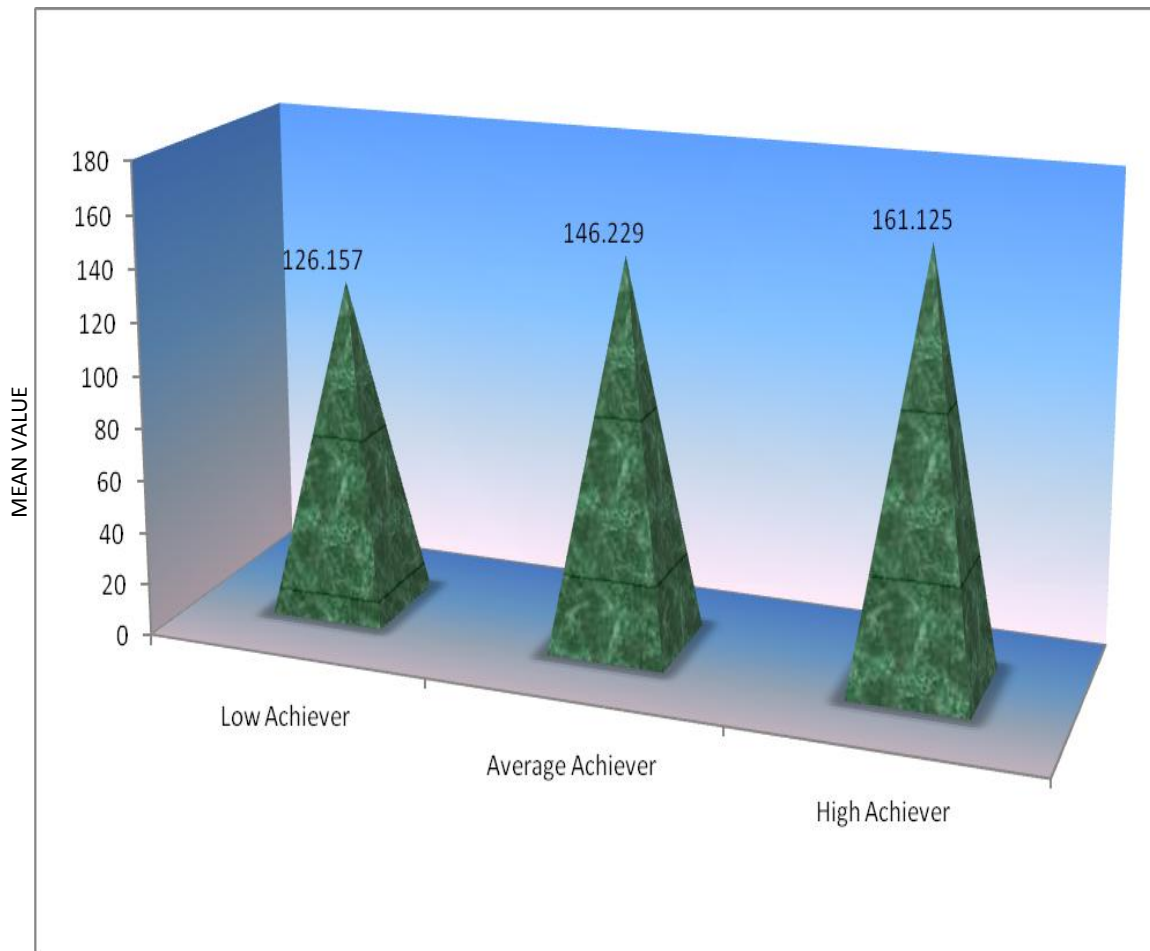
To categorize the total sample into three categories as high, average and low, the mean and standard deviation of achievement scores were considered. The senior secondary science students who scored 68 ($M + 1\sigma$) & above on achievement were considered as high in achievement. The senior secondary science students who scored 46 ($M - 1\sigma$) & below on the achievement were considered as low achievers, while students who scored in between the scores 68 & 46 were considered as average in achievement. To compare the three groups of students on their creativity, the critical ratio test was applied. The results obtained are shown in the table-1.

Table-1
Mean, S D and CR value of creativity of high, average & low achiever senior secondary science students

GROUPS	N	M	SD	CR	df	p
Low Achiever	70	126.157	23.062	6.75	326	Significant at .01 level
Average Achiever	258	146.229	17.906			
Low Achiever	70	126.157	23.062	8.72	140	Significant at .01 level
High Achiever	72	161.125	24.733			
Average Achiever	258	146.229	17.906	4.77	328	Significant at .01 level
High Achiever	72	161.125	24.733			

A careful perusal of the table-1 reflects that on creativity test, the high achiever senior secondary science students scored high in comparison to the average and low achiever senior secondary science students. The obtained CR-values for low & average; low & high and average & high achiever senior secondary science students are statistically significant at .01 level of significance. It shows that the groups low, average and high achiever senior secondary science students differ significantly on their creativity. The senior secondary science students who are high in their achievement are found high in their creativity. This fact is also evident from the pictorial representation of mean value of creativity scores (vide fig-1).

Fig.1 Diagram showing comparison between low, average and high achievers on creativity scores of students



Thus, the null hypothesis that “*there exists no significant difference in Creativity among high, average and low achievers senior secondary science students*” is rejected. Therefore it can be inferred that high achievers senior secondary science students are more creative and have more fluency, flexibility and originality. The obtained results are in confirmation to the findings of **Singh (2007)**.

The relationship between the creativity and achievement of senior secondary science students was further studied by computing the coefficient of correlation. The results are presented in table-2.

Table-2

Correlation between creativity and achievement scores of the senior secondary science students (area-wise and as a whole)

S. No.	Dimensions of Creativity	Achievement	The value of Coefficient of Correlation
1	Fluency	Achievement	.446*
2	Flexibility	Achievement	.412*
3	Originality	Achievement	.387*
4	Total Creativity	Achievement	.464*

* Significant at .01 level N = 400

Table-2 reveals the coefficient of correlations between achievement and different dimensions of creativity i.e. fluency, flexibility and originality and total creativity. The calculated values of correlation are more than the tabulated value at 0.01 level of significance ($r = .446, .412, .387$ and $.464$ respectively). Hence, there exist positive and significant relationship between achievement and creativity of senior secondary science students.

In other words, these significant correlation have established that fluency, flexibility and originality dimensions of creativity have significant relationship with achievement of the students. It means that students higher on fluency, flexibility and originality measures of creativity tend to achieve high in the subjects.

The reasons for the significant correlation of fluency, flexibility and originality dimensions of creativity may be due to the fact that these dimensions are directly or indirectly related to speed, relevancy and flow of innovative and unrepeated ideas. All these factors are important to achieve higher marks in all subjects. Second, for the solution of problems thinking ability is very much involved. The students with high level of these three factors have the mental curiosity about the problems, which boost the

original thoughts in their minds. Clearly all these things are needed in order to get proficiency in all academic subjects. Therefore the hypothesis that stated that “*there exist no significant relationship between creativity and achievement of senior secondary science students*” is rejected.

Above results are in agreement with already available empirical evidences by **Patel (1992)** found a significant relationship between dimensions of creativity and achievement. **Annie (2007) and Chaudhary (2008)** who came out with the conclusion that there exists significant relationship between dimensions creativity and academic achievement.

EDUCATIONAL IMPLICATIONS OF THE STUDY

The present investigation has brought out the achievement of the creative adolescents. Hence, it will be beneficial to the parents, teachers as well as to the members of the society in identifying the creative children or the prospective creative children on the basis of their achievement. At the same time, these groups of society should help the adolescents to imbibe the achievement conducive for creative thinking. The following some other recommendations are suggested -

1. The overall achievement level of students was found to be average. It points out that schools may concentrate on appropriate way of teaching different subjects, the remedial teaching for weaker students, homework and enrichment exercises may be provided for the students which may increase their performance level.
2. Teachers are under pressure to assist in the effort to increase students’ achievement. They can respond to his challenge by taking more initiatives to improve the school climate, using direct interventions such as teaching study skills and involving students in achievement motivation groups, and by increasing the involvement of parents in the educational process.
3. Government should allocate funds in educational institutions for the maintenance of infrastructure of the school and to set up guidance and counseling centre. Free health check-up camp for the students should be provided by the government. To spend the leisure time activities, the government can set up playground, park, community hall, library etc. in each and every area. Teacher orientation camp should be conducted regularly to skills in handling youths appropriately.

4. It is said that a sound mind in a sound body. The yoga and value education may be introduced in all schools at all levels to inculcate healthy practices among the students.

From the above recommendations it can be concluded that the school administrators, teachers, parents and government may be able to perform well their roles or duties to the fullest of their potentialities, it will inspire the students to develop mentally, innovatively and academically.

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