

CREATIVE THINKING OF XII CLASS STUDENTS OF HIMACHAL PRADESH

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Abstract: *The paper focuses on the fluency component of creative thinking of senior secondary school students of navodaya vidyalayas and government schools of Himachal Pradesh with respect to gender and socio demographic variables. The sample of the study consisted of 550 students of XII class. To collect the requisite data for the present study, the investigator used Verbal test of Creative Thinking constructed by Dr. Kulwinder Singh. The data was analyzed with the help of three way ANOVA (2x2x3). Students studying in navodaya vidyalayas and government schools do not differ significantly on fluency component of creative thinking. Male and female students differ significantly on the fluency component of creative thinking. There is no significant difference between students belonging to schedule caste, non-schedule caste and schedule tribe categories on the fluency component of creative thinking. Interactional effects are not found to be significant with respect to school type, gender and socio demographic variables.*

Key Words: *Creative Thinking, Fluency component, Socio Demographic Variables.*

1. INTRODUCTION:

An educational institution occupies a very important and vital place in educational period of a student. It provides an area of interaction in which students are exposed to new conditions, knowledge, discipline to special environment of schools and colleges, new ways of control which are quite unlike to those to which he/she is accustomed at home or elsewhere. India is an agrarian country in which the majority of people live in the villages. Rural children do not get opportunity to compete with their urban counterparts. Urban students get all types of educational opportunities which are denied to rural students who not get chance to display their talent. Keeping all these aspects in view, due importance was given to rural education in the Seventh Five year Plan (1985-90) and also in NPE (1986). As a result of this Navodaya Vidyalayas came into being in each state in whole country to promising children particularly those coming from rural areas and steps were taken to establish these schools in rural setting. Navodaya Vidyalayas are residential schools and are equipped with best type facilities. The powerful landed elite who had so far felt discriminated against by the educational system is now being provided with prestigious education for their children.

2. CONCEPT OF CREATIVE THINKING

Success in the complex society would depend on our ability to solve the problems in today's world. New discoveries and development is possible only due to creative thinking. No nation whether big or small can afford to overlook the importance of creative thinking in this age of competition. Thus, whatever good and beautiful that has survived through the passage of time in human civilization and culture is designed and determined by creative thinkers. Creativity, thus, is the highest order of human potentiality that contributes to optimum growth and development, progress and prosperity, and nurtures the greatness and glory of a nation's destiny. The creative persons are really the assets of the nation.

Creativity has been approached differently by different thinkers. Philosophically, creative thinking is not a peculiar type of thinking that has different feature from other types of thinking. For a philosopher, a creative thinker is one whose thinking leads to results which conform to criteria of value in one domain or another. Social scientists approach creativity with respect to interpersonal relationships. For them, creativity is a social invention whose product is not an object but a person i.e. creativity in human relationships. That person is regarded creative who is intelligent and possesses sharp perceptions, subtle sensitivities and respect for the individual person, boldness to explain one's point of view and to stand for one's conviction.

According to Guilford (1962) "creativity refers to abilities that are most characteristics of creative people. Thus, creativity refers to the abilities of an individual to create or produce result of creative nature."

According to Maslow (1962) "creativity is not the sole prerogative of certain professional like theorists, artists, scientists, inventors, writers or it cannot be confined to certain conventional areas." He distinguished special talent, creativeness and self actualizing creativeness.

According to Torrance (1962) "creativity is the process of becoming sensitive to the problem, deficiencies, gaps in knowledge, missing elements, disharmonies and so on; identifying the difficulty; search for solutions; making

guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and restating them; and finally communicating the results”.

According to Skinner creative thinker is one who explores new ideas and makes new observation, new prediction and new inferences. Thus creativity is the capacity or ability of an individual to create, discover or produce a new idea or object including the re-arrangement or reshaping of what is already known to him.

Thus, creative thinking is a capacity, which can express itself in all areas of life. It is a scientific way of thinking, handling information, observing things, behaving and reacting with external objects. It is an integral part of scientific method. Creativity is positively related to day to day performance of the students. In order to develop the society, it has been considered necessary to provide new knowledge and skills by emphasizing understanding, intelligence and creative thinking among individuals.

3. NATURE OF CREATIVE THINKING:

The phenomenon of creativity is so complex and multidimensional that it has proved to be one of the most troublesome concepts in the literature of measurement with no universally accepted definition and method for its quantitative evaluation. A thorough analysis of fifty definitions of creativity led **Rhodas (1961)** to indicate four strands of creativity i.e. Person, Process, Press and Product. The theoreticians and systematic investigators in the field of creativity have used or are using either one of a combination of four strands of creativity.

The concept of creativity in terms of cognitive power has frequently been thought of as a single dimension or at least as a unified cluster of traits resembling and to some extent overlapping general intellectual ability, whereas within the context of non-cognitive aspects of personality, a set of characteristics is considered to match the response properties used as a criterion of creativeness.

Guilford (1950) has been a staunch exponent of cognitive functioning in defining creativity. In his “Structure of intellect,” he emphasized creativity as an individual’s ability of generation of information from given information where the emphasis is on variety of output from the same source i.e. originality, unusual synthesis or perspective. On the basis of factor analysis studies, he plotted out many indicators of creativity. Wilson et al. (1954), on the same lines worked out similar factors-fluency, flexibility, originality, elaboration and redefinition.

Guilford (1957) further analyzed additional factors that were put forth in his scheme of classification of human abilities. He could extract four ‘fluency’ factors namely, associational, expressional, word and ideational and two flexibility factors namely, spontaneous and adaptive. Initially, he limited the mental abilities involved in creativity to those grouped under divergent thinking but at a later stage he added more factors namely, symbolic and semantic redefinition, both belonging to evaluation. These studies provided a base for practical and empirical explanation about creativity.

Process refers to the act of the mind that calls into play, motivation, perception, learning and thinking.. Spearman (1930) thought of creation as purely a process. For him, creative thinking is the process of seeing or creating relationship with both conscious and subconscious processes operating. Jung felt that the collective or objective part of each person’s unconscious in contrast to the personal part that is formed as a result of one’s own experiences was the source of creative ideas. These are the archetypical resources that can, under appropriate conditions, be activated to give rise to archetypical images. Guilford has also believed the “process” when he defined divergent thinking as “the process of hypotheses forming, testing and result communication.” Torrance (1962) defined creativity as a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements and so on; searching for solutions, making guesses and formulating hypotheses about deficiencies, testing and retesting these hypotheses and possibly modifying and retesting them, and finally communicating the results.

Press means the interaction between human beings and their environment. It is the effect of the environment that initiates the individual for certain creative activity. The basic idea of defining creativity on the basis of press can be traced back in the Freudian consideration of neurotic etiology. Creative person is, therefore, a form of substitute gratification and an extension of child’s play and ordinary man’s day-dream.

Besides the role played by unconscious mind in creative thinking, the conscious mind also contributes to it. Thus, the creative function is a function of relative strength of conscious and unconscious processes. Maslow (1962) while explaining self-actualization, observed that creativity involves fundamental change in personality structure, and that this change occur in the direction of fulfillment. For him, self actualization sets expression in motivated personality growth that enables the creator to create creative products and thereby seek self gratification and self formation.

Guilford (1957) has observed that individualized potential for being creative to his readiness is to produce novel ideas or psychological products. Production of old ideas in new connections is also considered as creative product indicating “transformation’ process. This readiness depends upon his information in memory storage and dispositions that enable him to make use of it in new context.

From the above discussion, it seems that no definition of creativity is complete in itself by taking into consideration all its four strands i.e. person, process, press and products. **Torrance (1962)** defined Creative thinking,

“as a process of sensing difficulties, problems, gaps in information, missing element; making guesses or formulating the hypotheses about these deficiencies, testing these guesses and possibly revising and retesting them; and finally communicating the results.”

4. SIGNIFICANCE OF THE STUDY

School age is a dynamic period of growth and development as children undergo the physical, mental, emotional and social changes during this stage. The purpose of education is to identify the inner potentialities of the individual and to enhance healthy growth and development of the individual to contribute to the well being of the society. Creativity means production of novel ideas, theories and objects. Creativity involves the translation of our unique gifts, talent and vision into an external reality that is new and useful. It is the basis of all social developments. Thinking has a great role to play in the creativity process. Sincere attempt has been made by the investigator to check the importance of creativity for the individual and the society. The investigator has made an humble attempt to study whether school type, gender and social category has any relation to creative thinking for secondary level students or not.

It is hoped that the present investigation would be of paramount importance to educational field. Teachers and researches who are working in the area of education to provide better and quality education particularly to the deprived segments of society will be benefited from the study. Findings of the study will be helpful to the guidance workers who are engaged in providing educational and vocational guidance to students.

5. OBJECTIVES OF THE STUDY:

- To compare senior secondary students studying in navodaya vidyalayas and government schools on fluency component of creative thinking.
- To compare male and female senior secondary students on fluency component of creative thinking.
- To study the differences among senior secondary students belonging to scheduled caste, non scheduled caste and scheduled tribe categories on fluency component of creative thinking.
- To study the double and triple interactional effects of school type, gender and social category on fluency component of creative thinking of senior secondary students.
- **Hypotheses**
- Students studying in navodaya vidyalayas and government school do not differ significantly on fluency component of creative thinking.
- Male and female students do not differ significantly on fluency component of creative thinking.
- Students belonging to scheduled caste, non scheduled caste and scheduled tribe categories do not differ significantly on fluency component of creative thinking.
- School type and gender does not interact significantly with regard to fluency component of creative thinking of students.
- Gender and social category does not interact significantly with respect to fluency component of creative thinking.
- School type and social category does not interact significant with regard to fluency component of creative thinking.
- The triple interactional effect of school type, gender and social category on fluency component of creative thinking of students is not significant.

6. METHODOLOGY:

Descriptive survey method of research was employed in carrying out the study. It involves the description, analysis and interpretation of conditions that now exist.

Sample

The population of the study consists of all the students of secondary classes studying in navodaya vidyalayas and government schools of Himachal Pradesh.

Tool Used

To collect the requisite data for the present study, the investigator used “Verbal Test of Creative Thinking” constructed and standardized by Kulwinder Singh (1981). The verbal test of creativity includes four subsets namely; consequences test, seeing problem test, unusual uses test and product improvement test. The investigator administered the tool personally on the students of XII class. The norms and standards of the test were followed by the researcher. Fluency has been scored in terms of total number of categories.

Statistical Technique

The statistical technique of ANOVA (2x2x3) : School Type (navodaya vidyalayas and government schools); Gender (male and female); Social Category (SC, ST and Non SC) was used by the investigator to analyze the data.

7. ANALYSIS AND RESULTS :

To fulfill the objectives of the present study, the investigator analyzed the data of fluency component of creative thinking obtained through Verbal test of Creative Thinking from the sampled students of XII class taken from navodaya vidyalayas and government schools.

Effect of school type, gender and social category on the fluency component of creative thinking of senior secondary school students

In order to find out the main effect of school type (navodaya vidyalaya and government schools), gender (male and female) and social category (schedule caste, non- schedule caste and schedule tribe) on the fluency component of creative thinking of senior secondary school students along with their double and triple interactional effects, 'analysis of variance' (2x2x3 factorial design) was applied on the means of fluency scores.

The means of fluency scores of senior secondary school students in relation to their school type, gender and social category are given in Table I and pictorially shown in Figure I.

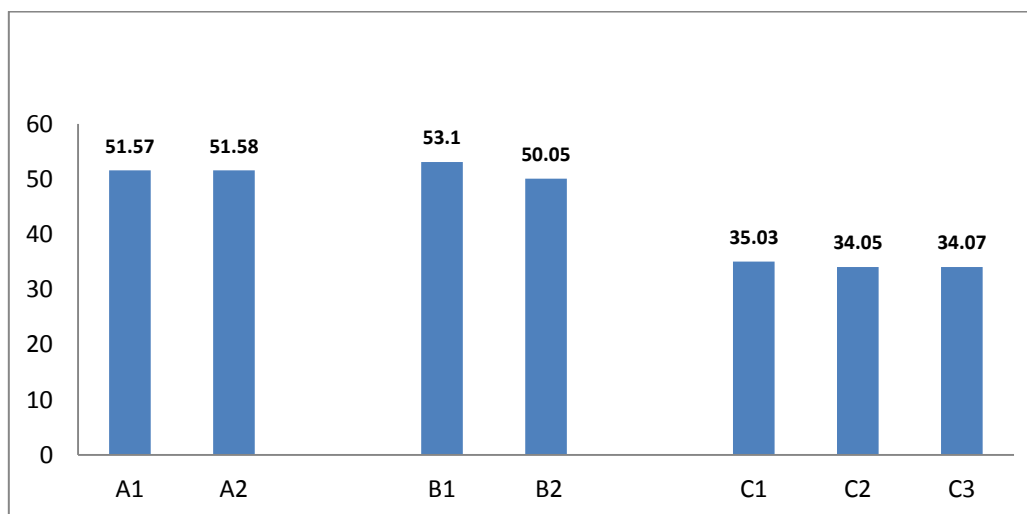
TABLE I

Means of fluency scores of senior secondary school students in relation to their School Type (A), Gender (B) and Social Category (C)

Sr. No.	Variables	Mean Values	Pairs Comparison of	Mean Differences
1.	School Type (A)			
	Navodaya vidyalaya (A ₁)	51.57	A ₁ -A ₂	0.01
	Govt. Schools (A ₂)	51.58		
2.	Gender (B)			
	Male (B ₁)	53.10	B ₁ -B ₂	3.05
	Female (B ₂)	50.05		
3.	Social Category (C)			
	Schedule Caste (C ₁)	35.03	C ₁ -C ₂	0.98
	Non -Schedule Caste (C ₂)	34.05	C ₂ -C ₃	0.02
	Schedule Tribe (C ₃)	34.07	C ₁ -C ₃	0.96

FIGURE I

Means of fluency scores of senior secondary school students in relation to their school type A[Navodaya Vidyalaya (A₁) and government schools (A₂)], Gender (B) [male (B₁) and female(B₂)] and Social Category (C) [scheduled caste (C₁), non-schedule caste (C₂) and schedule tribe (C₃)]



The summary of the results of the main effects of school type, gender and social category alongwith their double and triple interactional effects on fluency component of creative thinking of senior secondary school students is given in Table II.

TABLE II
Summary Table of Analysis of Variance

Sr. No.	Source of Variation	Sum of Squares	df	Mean Square	F-value
1	School Type (A)	0.006	1	0.006	0.000059 ^{NS}
2	Gender (B)	447.13	1	447.13	4.41*
3	Social Category (C)	90.13	2	45.07	0.445 ^{NS}
4	(AXB)	61.88	1	61.88	0.61 ^{NS}
5	(BXC)	41.16	2	20.58	0.203 ^{NS}
6	(AXC)	261.78	2	130.89	1.292 ^{NS}
7	(AXBXC)	107.04	2	53.52	0.53 ^{NS}
8	Within Conditions	18229.69	180	101.28	
	Total	19238.82	191		

* Significant at 0.05 level of significance

NS = Not Significant

8. MAIN EFFECTS:

8.1 Effects of School Type (A)

The calculated value of 'F' for the main effect of school type on the fluency component of creative thinking of senior secondary school students, irrespective of their gender and social category came out to be 0.000059, for df 1 and 180, which is much lower than the table value (3.89), even at 0.05 level of significance. Hence, the hypothesis no. 1 that "Students studying in navodaya vidyalayas and government schools do not differ significantly on fluency component of creative thinking." was accepted. Table (3.1) also makes it evident that means of fluency scores of navodaya vidyalaya (51.57) and government school (51.58) students are the same.

8.2 Effects of Gender (B)

The obtained value of 'F' for the main effect of gender on the fluency component of creative thinking of senior secondary school students, irrespective of their school type and social category, came out to be 4.41, for df 1 and 180, which is higher than the table value (3.89) at 0.05 level of significance. Hence, the hypothesis no. 2 that "Male and female students do not differ significantly on fluency component of creative thinking" was not accepted. It may be interpreted that male students have significantly higher mean of fluency score (53.10) than their female counterparts (50.05).

8.3 Effects of Social Category (C)

The computed value of 'F' for the main effect of social category on fluency component of creative thinking of senior secondary school students, irrespective of their gender and school type, came out to be 0.445, for df 2 and 180, which is much lower than the table value (3.04), even at 0.05 level of significance. Hence, the hypothesis no. 3 that "Students belonging to schedule caste, non-schedule caste and schedule tribe categories do not differ significantly on fluency component of creative thinking" was accepted. However, from table 3.1, it is evident that schedule caste students possessed highest means of fluency scores (35.03) followed by schedule tribal (34.07) and non-schedule caste students (34.05), but none of the mean differences was significant statistically.

8.4 Interactional Effects

School Type and Gender (AXB)

The obtained value of 'F' for the interactional effect of school type and gender on the fluency component of creative thinking of senior secondary school students, came out to be 0.61, for df 1 and 180, which is lower than the table value (3.89) even at 0.05 level of significance. Hence, the hypothesis no. 4 that "School type and gender does not interact significantly with regard to fluency component of creative thinking of students" was accepted.

According to Edwards (1971, p 211), it may be interpreted that there are approximately the same differences in the means of fluency scores of students studying in navodaya vidyalayas and government schools regardless of their gender i.e. male and female.

Gender and Social Category (BXC)

The computed value of 'F' for the interactional effect of gender and social category on the fluency component of creative thinking of senior secondary school students, came out to be 0.203, for df 2 and 180, which is much below than the table value (3.04) at 0.05 level of significance. Hence, the hypothesis no. 5 that "Gender and social category does not interact significantly with regard to fluency component of creative thinking of students" was accepted.

It may be inferred that there are approximately the same differences in the means of fluency scores of male and female students regardless of the social category to which they belong i.e. schedule caste, non schedule caste and schedule tribe.

School Type and Social Category (AXC)

The calculated value of 'F' for the interactional effect of social category and school type on fluency component of creative thinking of senior secondary school students, was found to be 1.292, for df 2 and 180, which is

less than the table value (3.04) at 0.05 level of significance. Hence, the hypothesis no. 6 that “School type and social category does not interact significantly with regard to fluency component of creative thinking of students” was accepted.

It may be said that there is approximately the same differences in the means of fluency scores of students studying in navodaya vidyalayas and government schools regardless of their social category i.e. schedule caste, non schedule caste and schedule tribe.

School Type, Gender and Social Category (AXBXC)

The obtained value of ‘F’ for the triple interactional effect of school type, gender and social category on fluency component of creative thinking of senior secondary school students, came out to be 0.53, for df 2 and 180, which is much below the table value (3.04) at 0.05 level of significance. Hence, the hypothesis no. 7 that “The triple interactional effect of school type, gender and social category on the fluency component of creative thinking of students is not significant” was accepted.

According to Edwards (1971, p 216), the fact that triple interaction among school type, gender and social category is not significant means that school type and gender interactions with regard to fluency component of creative thinking for the separate levels of social category are of the same form; that the gender and social category interactions with regard to fluency component of creative thinking for the separate levels of school type are of the same form; that the school type and social category interactions with regard to fluency component of creative thinking for the separate levels of gender are of the same form.

9. MAJOR FINDINGS OF THE STUDY:

- Students studying in navodaya vidyalayas and government schools do not differ significantly on fluency component of creative thinking.
- Male and female students differ significantly on the fluency component of creative thinking.
- There is no significant difference between students belonging to schedule caste, non-schedule caste and schedule tribe categories on the fluency component of creative thinking.
- School type and gender does not interact significantly with regard to fluency component of creative thinking of the students.
- There is no significant interaction between gender and social category with regard to fluency component of creative thinking of the students.
- School type and social category do not interact significantly with regard fluency component of creative thinking of the students.
- The triple interactional effect of school type, gender and social category on the fluency component of creative thinking of the students is not significant.

REFERENCES:

1. Best, J.W. (1978). *Research in Education*, New Delhi: Prentice Hall, Pvt. Ltd.
2. Drevdahl, J. E. (1956), “ Factors of Importance for Creativity.” *Journal of clinical psychology*, Vol 12, pp 21-26.
3. Garret, H. E. (1982), *Statistics in Psychology and Education*. Bombay: Vakils, Feffer and Simons. Ltd.
4. Good, C.V., (1952), *Dictionary of Education*. New York: McGraw Hill.
5. Guilford, J. P. (1959), “Traits of creativity” In P.E.Vernon (Ed), *CreativityEngland :Penguin Modern Psychology reading*. 1970.
6. Guilford, J.P. (1950), “Creativity”. *American Psychologist*, 5, pp. 444-454.
7. Guilford, J.P. (1962), “Potentiality of Creativity”, *Gifted Child Quarterly*, pp. 87-90.
8. Koul L. (2006), “Methodolgy of Educational Research”. New Delhi: Vikas Publishing house Pvt. Ltd.New Delhi.
9. Maslow, A. H. (1962). *Towards a Psychology of Being*. Princeton: D. Van Nostrand Company.
10. National Policy on Education, (1986). Government of India, New Delhi: MHRD.
11. Rhodes, M. (1961). “An analysis of creativity”, *Phi Beta Kappen*, 42, pp: 305-310.
12. Rogers, C. R. (1959), “Towards a theory of Creativity” In P.E.Vernon (Ed), *CreativityEngland :Penguin Modern Psychology reading*. 1970, p. 138.
13. Rogers, C. R. (1961) “On Becoming a Person”. Boston :Houghton Mifflin.
14. Sharma, V. P. (2000), “Creativity: Potentials and Prospects”. Agra: H. P. Bhargva Book House.
15. Skinner, B.F.(1938) “The Behaviour of Organism”. New York: Appleton Century.
16. Spearman, C. “Creative mind” (London, 1930).