



A study of non-verbal creativity among secondary school students in relation to gender and locale

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Abstract

The main purpose of the present investigation is to study non-verbal creativity among secondary school students in relation to gender and locale. The sample consisted of 1600 male and female students studying in 9th and 10th standard of senior secondary schools situated in the rural and urban areas of Sirmour District of Himachal Pradesh. Non-verbal test of creativity developed by Baqer Mehdi was used for the collection of the data. Mean, SD, t-test and ANOVA were calculated to analyze the data. The findings reveal that male secondary school students were having high mean score on originality than female secondary school students. Further it showed that rural students were found to have higher mean scores on all dimensions of Non-verbal Creativity viz. elaboration, originality and total creativity than urban secondary school students.

Keywords: creativity, gender and locale

Introduction

Creativity is a complex, multidimensional psychological construct involved in the fulfilment of the human potential to produce, notice and appreciate beauty, excellence and skilled performance in all domains of life—nature, art, science or everyday experience. Creativity is essentially a human phenomenon. It is a process that helps an individual to achieve dignity and meaning in life. Creativity is a unique gift of nature, a highly valued human quality which has been known for a long time to have its influence on scientific, technological and artistic spheres of human activity. A nation's progress, greatly depends not only on its material achievements but also upon its great thinkers, artists and scholars that are regarded as creative and genius. Creativity may be thus regarded as the highest order of human potentiality of a country that contributes to the optimum growth and development, progress and prosperity and nurtures the greatness and glory of nation's destiny (Panda, 1999) ^[16].

Today's child is tomorrow's citizen, so if a student is developed with creative minds, he/she is the asset of the country. Creative individuals contribute most to the growth of society. They create new horizons and set new standards in science, literature, fine arts, business, industry and social leadership. The world is full of examples in every field of the outcomes of creative persons. The creative persons either utilize the available opportunity or create a suitable environment for the application of creative potential. Torrance (1969) says that, "everybody possesses to some extent the ability involved in being creative. These abilities can be increased or decreased in the way, children are treated."

Creativity is a quality which each human being is capable of exhibiting. Individuals, however as a result of both, nature and nurture, vary in the amount and kind of creativity they display. Education is the process of developing inner abilities and powers of the individual. It helps an individual to draw the

best out of their mind and spirit. Education aims at natural, harmonious and progressive development of an individual. Education, as an instrument of change, is really one of the major means available to civilize society for improving its members. It plays a vital role in the personal growth and social development among all of us. Education transforms a person to live a better life and more importantly in a socially being.

The rapidly changing demands and challenges existing in the today's world have almost necessarily been accompanied by creative expression and contributions from talented persons. 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). When we look critically at the present day educational practices, one of the lacunae is a lack of importance given to creativity. Education for creative thinking seems to be the central issue around which revolve many problems of education. But our education is so traditional or convention-bound that even generous teachers underestimate and suppress the budding creative exceptionalities of students. The present system of education has neglected and too often suppressed the natural creativity of the young and emphasized convergent thinking abilities. Education is not a preparation for later life, it is an aspect of life itself. If one of the long-term purposes of education is to prepare children to take their places in fast-changing society, they will need open, flexible minds and the ability to combine information in new ways. The goal of education is to develop productive capabilities, personal expression, inventiveness and gifted leadership.

India is the largest democracy and second highest populated country in the world. The country comprising of diverse socio-cultural contexts, disparate economies and widely varying geographical and climatic conditions. Nearly, 60%

Indians live in rural areas because of their high dependence on agriculture and most of the rural residents in India have lower educational levels, higher poverty and fewer modern amenities than urban residents. Himachal Pradesh is a hilly state, about 90% of its population reside in the rural areas. Some of schools in rural areas plagued with so many problems like dearth of teachers, poor quality of teaching methods and teacher absentees. Even the project of the digital education is also unsuccessful in rural areas due to frequent power cut off and poor internet connectivity. All these conditions have left an adverse effect on the intellectual and social development of the individuals. Though everyone has creativity ability to some extent and tend to use one or the other cognitive styles, someone may be more fortunate to realize his own potentialities in greater measures. It is perhaps true that most of the rural children in India who are in a way disadvantages may not seem to get fair opportunities to foster better growth in contrast to their counterparts who are better placed in the society. Urban students get all types of educational opportunities which are denied to rural students who don't get chance to display their talent.

Creativity is a rare and unique talent possessed by almost all individuals, but its dimensions varies from individual to individual. Its development depends upon how teachers identify and foster it. Students with creative abilities should be identified early, and their talents have to be nourished and cultivated. Educational administrators should also inculcate attitude towards creativity among the teachers to give training to the children in the development of their creativity.

Creativity

Creativity is derived from the Latin word 'Creatus' literally 'to make into observance'. Creativity is manifested in the production of a creative work. Creative people view things in new ways or from different perspective also attributed to divine intervention, cognitive traits and chance and may be traits acquired at birth or taught with the application of simple techniques.

Creativity is the ability to see something in a new way, to view and solve problems in different ways, untried and unusual and to engage in mental and physical experiences that are novel, unique or different.

According to Guilford, "*Creativity sometimes refers to creative potential, sometimes to creative production, and sometimes to creative productivity.*"

Here creative potential means the personal disposition of the individual in which there are some more or less permanent qualities which help him in creative thinking. Creative thinking leads to new ideas. Creative production means the processes of productive thinking. Creative productivity means productivity according to socially confirmed forms of words, thoughts and phrases." (Sharma and Sharma, 2006)

According to Passi (1972) ^[18], "*Creativity is a multidimensional (verbal and non-verbal) attribute differentially distributed among people and includes chiefly the factors of seeing problems, fluency, flexibility, originality, inquisitiveness and persistency.*"

Components of Creativity

The concepts of imagination, fantasy, fluency, flexibility,

originality, elaboration, curiosity and giftedness have been studied in children and in many cases have been equated with creativity. Among of all these components, primary ones are fluency, flexibility, originality and elaboration and these appear to operate creative thinking of children.

1. Fluency: It means the frequency with which relevant and unrepeated ideas come to one's mind after a question is put.
2. Flexibility: It is represented by a person's ability to produce ideas which differ in approval or thought trend.
3. Originality: It is uniqueness of response. Guilford (1962) defines originality as "the production of unusual, for fetched, remote or clever responses among members of certain population that is culturally homogenous."
4. Elaboration: It is indicated by a person's ability to add pertinent details (more ideas) to the minimum and primary response to the stimulus figure.

Creative thinking is judged on the basis of the verbal and non-verbal creativity scores obtained on all the components of creativity fluency, flexibility, elaboration and originality.

Non-Verbal Test of Creativity

Non-verbal Verbal Test of Creativity is intended to measure the individual's ability to deal with figural content in a creative manner. Three types of activities are used for this purpose viz. picture construction, incomplete figures and triangles and ellipses. These three activities taken together provide ample opportunity to the subject to use his/her imagination with different types of figural tasks and come out with some novel ideas. These activities are scored under three dimensions of non-verbal creativity i.e. Elaboration, Originality and Total Non-verbal Creativity.

- a. Elaboration indicated by the task in which the examinee is given one or two simple lines and told to construct on this foundation a more complex object.
- b. Originality indicated by unusualness of responses, clever responses or remote association and relationship.
- c. Total Non-verbal Creativity is judged on the basis of the total score obtained on all the two dimensions of Non-verbal creativity (elaboration and originality).

Creativity and Gender

Individual and group differences can occur for creativity and such differences warrant study to permit understanding of their underlying causes. One such class of group differences for creativity is gender differences. Boys and girls may differ in their creativity, due to sex differences associated with different biological influences on the two sexes and/or due to gender differences associated with different socio-cultural influences on the two sexes. This research is an investigation of non-verbal creativity differences between boys and girls with an emphasis on gender differences on creativity.

The study of gender differences in creativity constitutes a vital as well as a complex and controversial topic in the study of creativity. There are studies which support the supremacy of male over female students (Strauss and Strauss, 1968; Raina, 1971; Tara, S. Nayana, 1981; Singh, 1982; Dharmangandan, 1981; Ghosh, 2013; Reddy, Viswanath & Reddy, 2015) ^[27, 28, 23, 3, 6, 20]. Investigation of Naintara (1981) reported that males excelled, as compared to females on measures of verbal

fluency, verbal flexibility, figural originality and figural elaboration. The contention that male students, in general, are more creative than female students was supported by the findings of Shukla, Dharmangandan, Ghosh and Reddy, Viswanath & Reddy also. Similarly, He, Wong, Li, and Xu (2013) [7] investigated gender differences among 627 students in China using the Test for Creative Thinking-Drawing Production (TCT-DP). Of the participants, 332 were boys and 295 were girls. He *et al.* (2013) found that males had superiority over the females in creativity test performance as demonstrated by both composite creative scores and individual subscale scores.

The superiority of female students have also been reported in Indian studies in verbal and non-verbal creativity on TTCT (Bedi, 1974), in verbal and figural creativity (Kelly, 1965; Dauw, 1966; Fletcher, 1968; Solomon, 1968; Ogletree, 1968; Taylor and Mc Kean, 1968) [2, 4, 25, 15, 29], in figural originality and composite creativity (Deshmukh, 1980). Singh (1978) [24] reported that the girls were superior to boys in originality, fluency and elaboration of non-verbal creative thinking.

Creativity and Locale

Creative potential is culture bound. Children brought up and nurtured in different cultures, in different social settings and in different locale adopt differential pattern of personality traits which may have a facilitative or an inhibitory effect on the acquisition and development of creative thinking abilities. Torrance (1962) accepts that “Creativity by its nature requires both sensitivity and independence. In our culture, sensitivity is feminine virtue while independence is a masculine...” Thus cultural values plays vital role in the development of creativity.

A number of studies (Torrance, 1960; Sharma, 1972; Mehdi, 1973; Azmi, 1974; Mishra, 1986; Sudhir & Khiangte, 1997) [30, 22, 14, 1, 11], reported the superiority of rural children than urban counterparts. However, a few studies (Singh, 1980; Dharmangandan, 1981; Shukla, 1982; Mishra, 1986; Pandey & Rai, 1988; Goel, 1990; Reddy, 2003) [3, 23, 17, 5] showed the superiority of urban children as against their rural counterparts.

Statement of the problem

“A study of non-verbal creativity among secondary school students in relation to gender and locale”

Objectives of the study

1. To study the effect of gender on various dimensions of non-verbal creativity viz. Elaboration, Originality and Total creativity of secondary school students.
2. To study effect of locale on various dimensions of non-verbal creativity viz. Elaboration, Originality and Total

creativity of secondary school students.

3. To study the interactional effect of gender and locale on various dimensions of non-verbal creativity viz. Elaboration, Originality and Total creativity of secondary school students.

Hypotheses of the study

1. There will be no significant effect of gender on various dimensions of non-verbal creativity viz. Elaboration, Originality and Total creativity of secondary school students.
2. There will be no significant effect of locale on various dimensions of non-verbal creativity viz. Elaboration, Originality and Total creativity secondary school students.
3. There will be no significant interactional effect of gender and locale on various dimensions of non-verbal creativity viz. Elaboration, Originality and Total creativity of secondary school students.

Method

In this study, descriptive research method has been used to study non-verbal creativity among secondary school students in relation to gender and locale.

Population and Sample

The population of the present study consisted of all students of 9th and 10th class studying in Government secondary and senior secondary schools of district Sirmour, Himachal Pradesh. The sample comprised of 1600 students of class 9th and 10th studying in Government secondary and senior secondary schools of district Sirmour, Himachal Pradesh.

Variables

Three dimensions of Non-Verbal Creativity viz. Elaboration, Originality and Total creativity were regarded as dependent variables. Gender and Locale were treated as independent variables.

Tools

Non-Verbal Creative Thinking Test developed by Baqer Mehdi (1973) [14] was used for data collection.

Research Design

In the present study a 2x2 factorial design was used for analyzing the data in respect of Non-Verbal Creativity. There were two levels of gender- male and female and also two levels of locale- rural and urban.

Statistical Techniques

Two-way ANOVA was employed in the study of analysis of the data.

Table 1: Summary of Two-Way ANOVA in respect of various dimensions of Non-Verbal Creativity

Sr. No.	Dimensions	Source of Variance	Sum of Squares	df	Mean Square	F-Ratio
1	Elaboration	Gender (A)	44.56	1	44.56	0.45 NS
		Locale (B)	435.77	1	435.77	4.40*
		Interaction (AxB)	49.35	1	49.35	0.50 NS
2	Originality	Gender (A)	621.26	1	621.26	6.45*
		Locale (B)	3150.02	1	3150.02	32.73**
		Interaction (AxB)	1205.83	1	1205.83	12.53**

3	Total Creativity	Gender (A)	333.063	1	333.063	0.97 NS
		Locale (B)	5929	1	5929	17.18**
		Interaction (A×B)	767.29	1	767.29	2.22 NS

**Significant at 0.01 level, *Significant at 0.05 level & NS- Not Significant at 0.05 level

Table 2: Mean and SDs Scores of Male and Female Secondary School Students on Originality

Dimension	Male	Female
Originality	M = 50.55	M = 49.31
	SD = 10.41	SD = 9.45
	N = 800	N = 800

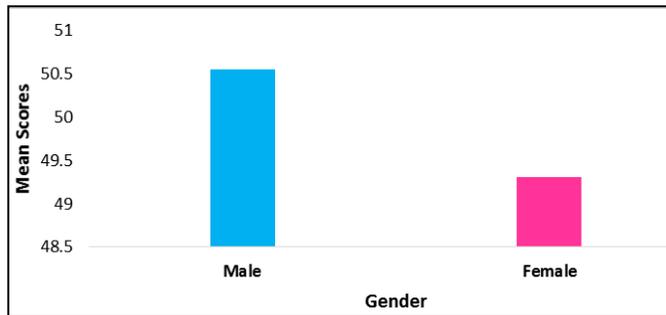


Fig 1: Mean Scores of Male and Female Secondary School Students on Originality Component of Non-Verbal Creativity

Table 3: Mean and SDs Scores of Rural and Urban Secondary School Students on Non-Verbal Creativity

Dimensions	Rural	Urban
Elaboration	M= 50.50	M= 49.45
	SD=10.66	SD= 9.21
	N= 800	N= 800
Originality	M= 51.33	M= 48.53
	SD=10.58	SD= 9.09
	N= 800	N= 800
Total Creativity	M= 101.83	M= 97.98
	SD= 20.02	SD= 17.03
	N= 800	N= 800

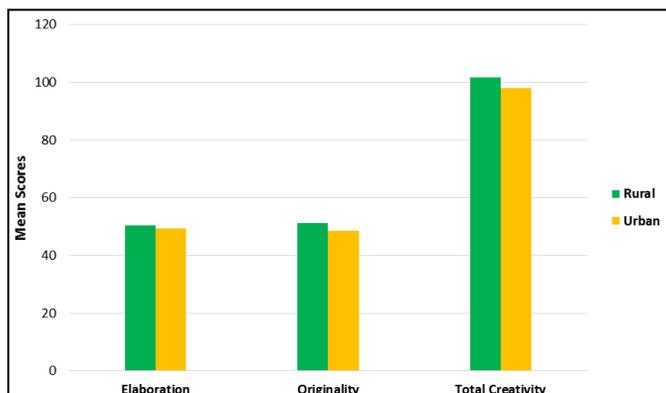


Fig 2: Difference in the mean scores on Elaboration, Originality and Total Creativity of Rural and Urban Secondary School Students

Further since the interactional effect of gender and locale was found to be significant only in case of Originality dimension of Non-verbal Creativity. So, further t-test was employed for

finding out the mean differences in different pairs of comparisons. Hence, below table 4 has been shown ‘t’ values of Non-Verbal Creativity (Originality dimension) of Secondary School Students.

Table 4: Means and SDs of Interaction cells and ‘t’ values of Non-Verbal Creativity (Originality dimension) of Secondary School Students

	Rural	Urban	Interaction Cell	t-value
Male	M=52.82 1	M=48.28 2	1&2	6.39*
	SD= 11.10	SD= 9.14	3&4	1.62 NS
	N= 400	N= 400	1&3	4.03*
Female	M= 49.84 3	M=48.77 4	2&4	0.78 NS
	SD= 9.83	SD= 9.04	1&4	5.70*
	N= 400	N= 400	2&3	2.36 NS

*Significance at 0.05 level & NS- Not Significant at 0.05 level

Results

The obtained results of two way ANOVA in respect of Non-Verbal Creativity have been given in table1. Means scores of male and female secondary school students for only Originality dimension of Non-verbal Creativity where differences were found to be significant are presented in table 2. Further the mean scores of rural and urban secondary school students have been reported in table3 for Elaboration, Originality and Total Creativity dimensions of Non-verbal Creativity for which the F-ratio was found to be significant. Further it is evident from table 1 that there was significant interactional effect of gender and locale on Originality dimension of Non-verbal Creativity of secondary school students.

As regards gender differences, it was observed (vide table2) that male secondary school students tended to rate them higher on Originality dimension of Non-verbal Creativity than female counterparts.

The means scores (vide table3) disclosed that on Elaboration, Originality and Total Creativity, rural secondary school students tended to score higher than urban secondary school students.

Discussion

Hypothesis 1: stated that there would be no significant differences in Non-verbal creativity of male and female secondary school students. This was not retained with reference to one dimension of Non-verbal Creativity i.e Originality. The findings revealed that male secondary school students were having high mean score on originality than female secondary school students. Such findings of the study is in conformity with the findings of Ghosh, 2013; He, Wong, Li, and Xu (2013) [7]; Reddy, Viswanath & Reddy, 2015 Hypothesis 2: anticipated no significant differences in the Non-verbal Creativity of the rural and urban secondary school students. This was not retained with regard to all dimensions of Non-verbal Creativity namely Elaboration, Originality and Total Creativity. Rural students were found to have higher

mean scores on all dimensions of Non-verbal Creativity viz. elaboration, originality and total creativity than urban secondary school students. The studies supporting these findings are Torrance, 1960; Sharma, 1972; Mehdi, 1973; Azmi, 1974; Mishra, 1986; Sudhir & Khiangte, 1997.

Hypothesis 3: stated that there would be no significant interaction between gender and locale on all dimensions of Non-verbal creativity of secondary school students which was not retained with respect to one dimension namely originality. Table 4 depicts that the obtained 't' values (6.39, 4.03, 5.70) comparing mean scores of rural male and urban male; rural male and rural female; rural male and urban female secondary school students were found to be significant. It implies that overall rural male students to be higher on mean scores of originality as compared to their counterparts rural & urban female and urban male secondary school students. The study supporting this finding is Reddy & Joythi (1996) revealed that the interaction between locality and sex was significant.

Educational Implications

This study suggests several courses of action for developing creative thinking abilities of the students. In the first place, there is a definite need for integrating creativity into K-12 (Kindergarten and 12 years of basic education) curricula and providing opportunities for both males and females to develop their creative thinking abilities. This necessitates curriculum designers, teachers, and decision makers to develop a broader plan of how K-12 curricula could develop creative thinking abilities of individuals, what methods and activities enhancing creative thinking could be integrated into curricula, and how both males and females could benefit from integrated creative curricula. In the formulation of such a plan, the differences between the males and females in their creative thinking abilities should be taken into consideration, and special emphasis should also be placed on designing ways to help female students improve their creative thinking abilities. This research suggests many topics in need of further investigation. In the first place, more research is needed to better understand if 9th and 10th graders in other states or countries display similar patterns of creative thinking abilities. Replications of this study could provide researchers with insights as to how creativity is affected by different cultural and educational contexts. Further studies could also investigate the creativity profiles of females and males in different grades. This could enable researchers to explore when gender differences in creative thinking start, how the gap between males and females develops, and when the gap closes, if ever.

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