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"SCIENTIFIC CREATIVITY IN RELATION TO GENDER AND TYPE OF SCHOOL"

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ABSTRACT : *Scientific creativity as a kind of intellectual trait or ability producing or potentially producing a certain product that is original and has social or personal value, designed with a certain purpose in mind, using given information. In this study the scientific creativity of Secondary School Students of Block Fatehabad of District Fatehabad based on a selected demographic variable (Sex and Type of School) is being studies. The sample of the study comprised with 100 Secondary School Students. A standardized tool named VERBAL TEST FOR SCIENTIFIC CREATIVITY developed by Dr. V.P. Sharma and Dr. J. P. Shukla (1971) is used for data collection. The findings of the study illustrates that there was significant difference between scientific creativity of students in relation to Gender as well as type of school.*

Keywords: Creativity, Scientific Creativity etc.

Introduction: The recent era of globalised learning is concerned with creativity and innovation. Creativity is not only distinctive and unique but essential for the success of an individual, society and country because it includes all thoughts and acts. That's why it should be present in association of critical thinking for more accountability and productivity. As our nation is driving towards the status of developed country, the younger population should be equipped with versatile feature i.e. resources, skills and knowledge. Creativity is considered as watching the same things but thinking differently. It is marked by creating something novel, unique, original and having worth (**Torrance, 1967**). A person is creative when he has the capacity to solve problems, create new products and start the topic in a unique way (**Gardner, 1999**). Characteristics of creative process involve imaginative thinking, purposeful activity aimed to achieve a goal, originality and valuable outcomes in accordance with objective. Reflecting thinking is the base of creativity which includes divergent thinking and awareness (**Ofsted, 2003**).

Scientific creativity : Creativity in the field of science education is specifically known as scientific creativity and it is an aspect of sensitivity towards scientific problems **(Lobart, 1994, Hu & Adey, 2002)**. In this notion**, Stenberg** & **Lubart (1999**) described scientific creativity as fundamental at both levels either it is individual level or societal level. At individual level a person can solve his personal as well as work place problems and at societal level scientific discovery is the outcome. Scientific equipments as a resultant of scientific discovery have become an important part of our life that is available because of scientific creativity and scientific thinking. It modifies the ordinary thinking process by instilling some skills and habits **(Kalbag, 1991)**. For scientific progress science with ingenious frame of mind is essential otherwise science would stand at a halt. Scientific creativity deals creatively with scientific activities, problem solving and experiments. It is a type of ability that is influenced by scientific skills, knowledge and certain non-intellectual factors. Scientific creativity is different from other creativity since it is majorly concerned with creative science experiments, creative scientific problem finding and solving, and creative science activity. The structure of scientific creativity itself does not include non-intellectual factors; although non-intellectual factors may manipulate scientific creativity. Scientific creativity should be a combination of static structure and developmental structure. The adolescent and the mature scientist have the same basic mental structure of scientific creativity but that of the latter is more developed. Creativity and analytical intelligence are two different factors of a singular function originating from mental ability.

Need and Significance of the Study

Future of country is being shaped in the classrooms and innovations are generating in the minds of students. Educational organizations play a vital role in nurturing their minds by fostering their creative ideas,

thinking, abilities and talents of students through science curriculum. In the modern globalized trends with high tech developments, innovative and productive people required in all areas of society. At every level of scientific research creativity is used by the scientists (**Abd-el Khalick & Lederman, 2000**). That is why scientific creativity has auxiliary role in scientific researches as it is used during the whole process of experiments and affects all the steps including problem introduction, hypotheses formulation and experiment design. So creative thinking is required for individuals to use scientific creativity in developing a new product as well in finding innovative solutions for the problems of daily life (**Saxena, 1994**). It is worth to study scientific creativity because it explores what is yet to be explored. This study will be useful to educators, teachers, students, education department, research scholars and social scientists for framing curriculum and construction methods that will promote the development of scientific creativity.

Objectives of the Study

1. To compare the scientific creativity of male students of private school and government school.
2. To compare the scientific creativity of female students of private school and government school.
3. To compare the scientific creativity of male students of private school and female students of private school.
4. To compare the scientific creativity of male students of government school and female students of government school.

Hypotheses of the Study

1. There is no significant difference between scientific creativity of male students of private school and government school.
2. There is no significant difference between scientific creativity of female students of private school and government school.
3. There is no significant difference between scientific creativity of male students of private school and female students of private school.
4. There is no significant difference between scientific creativity of male students of government school and female students of government school.

Methodology

Population and Sample of the Study

The target population of the present study consist students of secondary schools of Block Fatehabad of District Fatehabad. Sample size of the present study was limited to 100 secondary school students which are based on selected demographic variables (Sex and Type of School).

Method : Researcher used survey method for this study.

Tools Used : For the collection of data a standardized tool named VERBAL TEST FOR SCIENTIFIC CREATIVITY developed by Dr. V.P. Sharma and Dr. J. P. Shukla (1971) is used.

Results

Table 1.1: Significance of difference in mean scores of scientific creativity of government and private secondary school male students.

Table 1.1

Variable	Private school male (n=30)		Government school male (n=25)		Degree of freedom (df)	't' value	Level of significance
	Mean	S.D.	Mean	S .D.			
Scientific Creativity	80.26	11	51.08	8.7	53	29.18	Not Significant

't' value at 0.01 level of significance is 2.68 & at 0.05 level is 2.01 at df = 53

It may be seen in the table 4.1 that calculated 't' value is 29.18 which is higher than the table value at 0.05 level and 0.01 level. It means that there is significant difference in mean score of student's scientific creativity of private school male is and government school male. Mean Score of scientific creativity of private school male is 80.26 and of Government school male is 51.08. It shows

that the scientific creativity of private secondary school male is higher than government secondary school male.

Graphical representation of Table 1.1

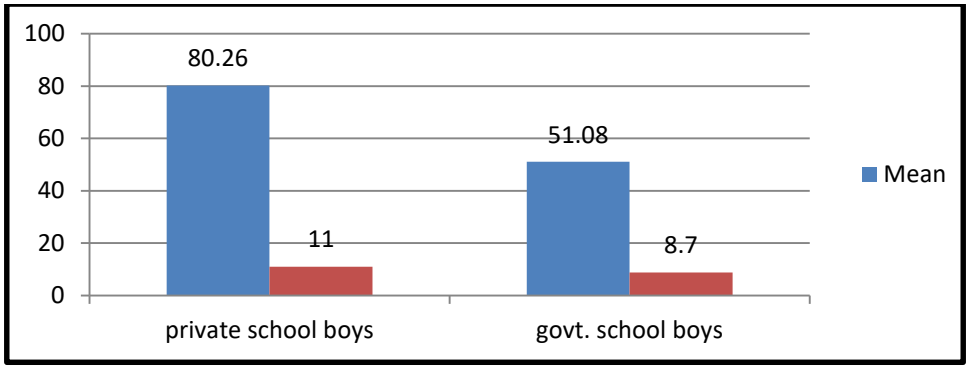


Table 1.2 Significance of difference in mean scores of scientific creativity of government and private secondary school female students.

Table1.2

Variable	Private school female (n=20)		Government school female (n=25)		Degree of freedom (df)	't' value	Level of significance
	Mean	S.D.	Mean	S .D.			
Scientific Creativity	77.6	16.7	90.12	9.7	43	3.9	Not Significant

't' value at 0.01 level of significance is 2.68 and at 0.05 level is 1.63.

It may be seen in the table 1.2 that calculated 't' value is 3.9 which is higher than the table value at 0.05 level and 0.01 level. It means that there is significant difference in mean score of student's scientific creativity of private school female and government school female. Mean Score of scientific creativity of private school female is 77.6 and of Government school female is 90.12. It shows that the scientific creativity of government secondary school female is higher than private secondary school female.

Graphical representation of Table1.2

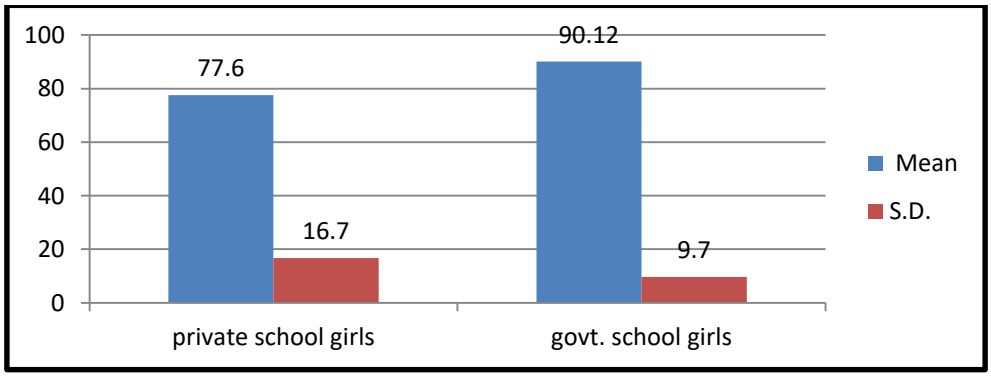


Table 1.3 Significance of difference in mean scores of scientific creativity of male students of private school and female students of private school.

Table 1.3

Variable	Private school male (n=30)		Private school female (n=20)		Degree of freedom (df)	't' value	Level of significance
	Mean	S.D.	Mean	S .D.			
Scientific Creativity	80.26	11	77.6	16.7	48	2.278	**

't' value at 0.01 level of significance is 2.68 and at 0.05 level is 2.01 at df=48

It may be seen in the table 1.3 that calculated 't' value is 2.278 which is higher than the table value at 0.05 level and 0.01 level. It means that there is significant difference in mean score of student's scientific creativity of private school male and government school female. Mean Score of scientific creativity of private school male is 80.26 and of private school female is 77.6. It shows that the scientific creativity of private school male is higher than private school female.

Graphical representation of Table1.3

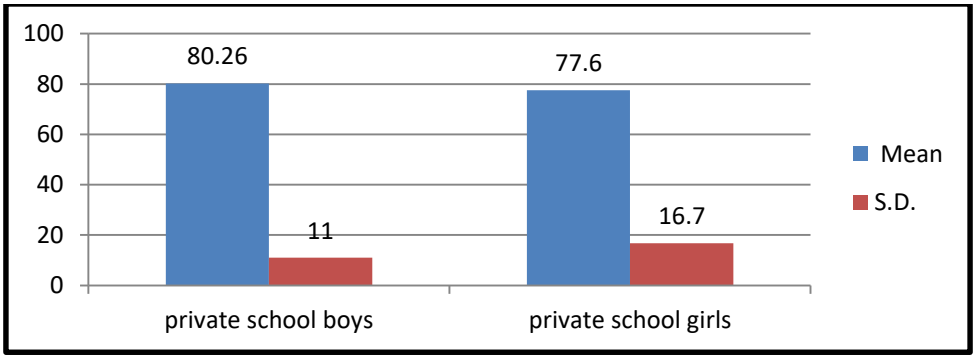


Table 1.4: Significance of difference in mean scores of scientific creativity of male and female students of government school.

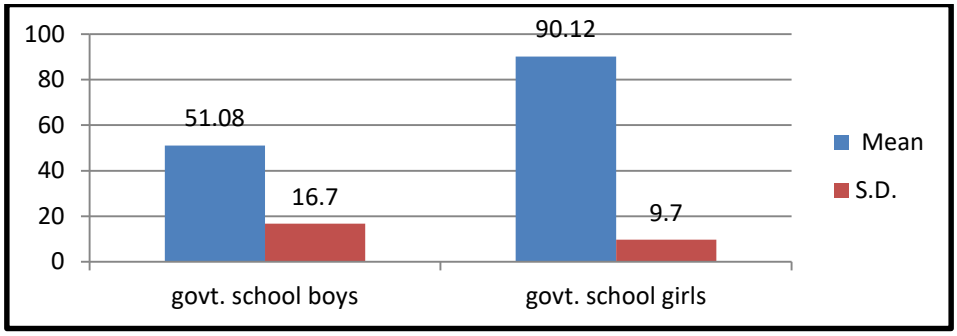
Table 1.4

Variable	Government school male (n=25)		Government school female (n=25)		Degree of freedom (df)	't' value	Level of significance
	Mean	S.D.	Mean	S .D.			
Scientific Creativity	51.08	8.7	90.12	9.7	48	14.902	**

't' value at 0.01 level of significance is 2.68 and at 0.05 level is 2.01 at df = 48.

It may be seen in the table 1.4 that calculated 't' value is 14.902 which is higher than the table value at 0.05 level and 0.01 level. It means that there is significant difference in mean score of student's scientific creativity of government school male and government school female. Mean Score of scientific creativity of government school male is 51.08 and of government school female is 90.12. It shows that the scientific creativity of government school female is higher than government school male.

Graphical representation of Table1.4



Conclusion and Suggestions

Findings of the study shows that the scientific creativity of government school female is higher than government school male while scientific creativity of private school male is higher than private school female. Scientific creativity of private secondary school male is higher than government secondary school male while scientific creativity of government secondary school female is higher than private secondary school female. The present study has been confined only to scientific creativity of secondary school students, there is further scope to undertake in-depth research to know which other demographic variables can be affect scientific creativity. What are barriers faced by students to learn and understand science concept. Another study can be undertaken to know the level of scientific creativity and achievement level of students of different families (type of families, children of working and nonworking parents). For the national development, innovations in field of science are essential as scientific research requires creativity. So scientific creativity is more considerable and science is taught to improve the quality of creative thinking among students in schools. In the age of globalization and technology we require those citizens who are productive and innovative in all walks of life that is way acculturation creativity is required in early stages of human mind' development.

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