

CREATIVITY ACROSS GOVERNMENT, GOVERNMENT-AIDED, AND PRIVATE SCHOOLS: A GENDER-BASED ANALYSIS

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ABSTRACT

The present study investigated differences in creativity across school types in the context of gender. The sample consisted of 301 Class IX students drawn from government, government-aided, and private schools. Creativity was assessed using three non-verbal tests from the *Passi Tests of Creativity*: the Seeing Problems Test, the Unusual Uses Test, and the Consequences Test. To analyze the data, separate 3×2 analyses of variance (ANOVAs) were conducted with school type and gender as the predictor variables and creativity and its dimensions as the criterion variables. The findings revealed that: (i) students from private schools obtained significantly higher scores in fluency, flexibility, and overall creativity than students from government schools; (ii) no significant differences in flexibility were found between students from government and government-aided schools or between students from government-aided and private schools; (iii) no significant differences in originality were found among students from government, government-aided, and private schools; (iv) girls demonstrated significantly higher levels of fluency, flexibility, and overall creativity than boys; and (v) boys and girls did not differ significantly in originality.

Keywords: creativity, school type, gender differences, fluency, flexibility, originality, secondary school students

INTRODUCTION

Creativity has been the driving force behind human advancement since time immemorial, fostering innovation, discovery, and societal progress. Consequently, educationists and policy makers have recognized creativity as a fundamental goal of school education (Beghetto; 2010; Craft, 2007; Fisher, 2004, Hwang, Chen, Dung, & Yang, 2007; National Curriculum Framework [NCF], 2005; Rinkevich, 2011; Sharma, 2014; Sheffield, 2005). Creativity has been conceptualized in many ways by different authors across the generations (Sternberg & Lubart, 1995; Torrance, 1962; Treffinger, 2000, 2007). Torrance (1962) defined creativity as the process of seeing problems, or gaps in information, forming ideas or hypothesis, testing and modifying these hypotheses, and communicating the results. Likewise, Runco (1993) emphasized that creativity involved both convergent and divergent thinking, problem finding and problem solving, self-expression, intrinsic motivation, a questioning attitude and self-confidence. Sternberg and Lubart (1995) conceptualized creativity as the ability to produce work that both novel (that is original, unexpected) and appropriate (that is useful and meets task constraints). Similarly, Treffinger (2000, 2007) defined creative thinking as encountering gaps, paradoxes, opportunities, challenges, or concerns and searching for meaningful new connections by generating numerous, varied and original possibilities. Endorsing this perspective, Runco and Jaeger (2012) argued that the standard definition of creativity is bipartite that requires for both originality and effectiveness. In nutshell, these definitions and

perspectives point out that creativity is a multidimensional construct involving problem identification, formulation of hypotheses, problem posing, and the production of varied, original and effective ideas or products.

The proponents of creativity argue that teachers and educational institutions should create an environment characterized by flexibility, openness, discovery, creative self-efficacy, initiative, and collaboration to enable creativity to flourish (Craft, 2005; Miller, 2015; NACCCE, 1999). The school culture can be a key determinant of creativity, as it can either facilitate or inhibit its development among students (Cropley, 2001; Beghetto, 2010). The environment in the government, grant-in-aid, and private schools may differ with respect to the organizational set-up and leadership, and availability of funds. This may create differences in the opportunities provided to the students for the facilitation of creative thinking. These factors can significantly influence the creativity of school students. Furthermore, the institutional environment may interact with gender-related socialization and educational experiences, making it important to examine whether differences in creativity across school types vary for boys and girls.

Previously, Al-Oweidi (2013) found significant differences between public and private schools with respect to various creative characteristics. Specifically, students from private schools scored higher on ambiguity, fantasy, curiosity, adventure, and sense of humor, whereas students from public schools performed better on fluency, problem sensitivity, and independence. Sharma (2011) also found significant differences in creative thinking across school types, reporting that students studying in government schools had better creative thinking than their counterparts in the private schools. However, Surapuramath (2014) found no significant differences in the creativity between students from government and aided school.

Also, studies have found no significant difference exists between male and females (Chaudhary, 1983; Desai, 1987; Gautam, 1992; He & Wong, 2011; Surapuramath, 2014), males having better creativity than females (Ghosh, 1991; Mary, 1992; Sharma, 1977), and females scoring better on creative thinking test in comparison to males (Arora, 1978; Goel, 1990; Jarial, 1981; Sharma, 2011). Researchers have analysed that gender plays a role in the creativity but relative importance of males or females cannot be generalized (Baer & Kaufman, 2008; Pagnani, 2011; Passi, 1997; Runco, Cramond, & Pagnani, 2010).

Previous findings are inconclusive regarding the relative influence of school type and gender on creativity. Overall, only a limited number of studies have examined the creativity across school types. Therefore, further research is required to understand the combined role of school types and gender in shaping the creativity of school students. Thus, the present study aimed to investigate the influence of school type, gender, and their interaction on the creativity of school students. The research questions addressed in the study were:

1. Do students from government, government-aided and private schools differ significantly in fluency, flexibility, originality, and total creativity?
2. Do male and female students differ significantly in their fluency, flexibility, originality, and total creativity?
3. Is there a significant interaction effect between school type (government, government-aided, and private) and gender (male and female) on students' creativity (fluency, flexibility, originality, and total creativity)?

METHOD

Sample

The sample of the study was selected using the cluster random sampling technique. The target population comprised Class IX students from government, government-aided, and private schools in the Nawanshahr district and Phagwara City. The final sample consisted of 301 students, out of which 52.8 percent were males ($n = 159$) and 47.2 percent were females ($n = 142$). Moreover, the sample was distributed almost equally across the three different types of schools (government = 100, government-aided = 100, and private = 101).

Measure

Passi Tests of Creativity (PTC)

The Passi Tests of Creativity (PTC), developed by Passi (1979) in both English and Hindi, were used to measure students' creativity. The PTC comprises both verbal and non-verbal tests. The test battery includes six tests: (i) the Seeing Problems Test, (ii) the Unusual Uses Test, (iii) the Consequences Test, (iv) the Test of Inquisitiveness, (v) the Square Puzzle Test, and (vi) the Blocks Test of Creativity. These tests are based on the framework developed by Torrance (1962). Of these six tests, only the three non-verbal tests — namely, the Seeing Problems Test, the Unusual Uses Test, and the Consequences Test — were used in the present study. The total time required to administer these tests was 24 minutes, excluding the time needed for giving instructions, distributing the test booklets, and collecting them. The test-retest and split-half reliability coefficients of three tests of the PTC have been reported and are presented in Table 1, which indicates that the test-retest reliability coefficients of the three tests ranged from 0.68 to 0.97, while the split-half reliability coefficients (r_{11}) ranged from 0.51 to 0.88. These coefficients indicate that the PTC are acceptable to high reliability for measuring students' creativity. The validity of the PTC was established using factor analysis.

Table 1

Test-Retest and Split-Half Reliability Coefficients of the PTC

Sr .No.	Name of the Test	Test-Retest Reliability	Split-Half Reliability (r_{11})
1	Seeing Problems Test	0.68	0.88
2	Unusual Uses Test	0.97	0.51
3	Consequences Test	0.71	0.80

Procedure

In each school, the students selected for the sample were seated comfortably in a separate room. Standard verbal instructions were given, and the Passi Tests of Creativity (PTC) were administered in accordance with the procedures outlined in the test manual. The responses were scored for fluency, flexibility, and originality following the scoring guidelines provided in the PTC manual. The overall creativity score was computed by summing the scores for fluency, flexibility, and originality.

Design

An ex post facto research design was employed to examine differences in creativity across government, government-aided, and private schools, as well as between boys and girls. The

study also examined the interaction effect of school type and gender on creativity. The variables included in the study were as follows:

Criterion Variable: Creativity (fluency, flexibility, originality, and total creativity)

Predictor Variables: School type (government, government-aided, and private schools) and gender (boys and girls)

Results

To study the influence of school type (government, government-aided, and private schools), gender, and their interaction on students' fluency, separate 3×2 analyses of variance (ANOVAs) were conducted for each creativity dimension (fluency, flexibility, originality, and total creativity). School type and gender were taken as predictor variables, whereas fluency, flexibility, originality, and total creativity were treated as criterion variables. Means and standard deviations of these variables can be found in Table 2.

Table 2

Means and Standard Deviation of Scores on PTC by School Type and Gender

Variables		N	Fluency		Flexibility		Originality		Total Creativity	
School Type	Gender		M	SD	M	SD	M	SD	M	SD
Government	Boys	56	37.27	8.05	5.89	2.20	7.82	3.22	50.93	10.36
	Girls	44	46.27	9.99	7.34	1.79	7.80	1.89	61.43	9.96
Government-Aided	Boys	54	49.57	8.33	6.44	1.54	8.46	2.95	64.35	8.90
	Girls	46	48.33	7.95	7.13	2.02	7.78	7.99	63.09	8.98
Private	Boys	49	43.92	12.68	6.76	1.57	7.86	2.09	58.41	13.83
	Girls	52	51.12	9.36	7.85	2.05	8.04	2.22	67.00	9.46

Fluency

The results of ANOVA for fluency are presented in Table 3. As indicated in Table 3, there were significant main effects for school type, $F(2, 295) = 15.40, p < .001$; gender, $F(1, 295) = 24.53, p < .001$; and interaction, $F(2, 295) = 9.20, p < .001$. Post hoc comparisons of the means using Tukey's HSD test revealed that both private and government-aided school students were significantly better than government school students in terms of fluency dimension of the creativity. However, no significant difference in fluency was found between students from government-aided and private schools. Furthermore, the mean fluency score of girls ($M = 145.72$) was higher than that of boys ($M = 130.76$), indicating that girls demonstrated greater fluency than boys. The Graph 1 plotted to study the trend of interaction effect, revealed that fluency of girls was significantly better than boys in the government and private schools, whereas boys exhibited higher fluency than girls in government-aided schools.

Flexibility

The results of ANOVA for flexibility are presented in Table 4. As indicated in Table 4, there were significant main effects for school type, $F(2, 295) = 3.58, p < .05$ and gender, $F(1, 295) = 24.36, p < .001$. No significant interactions were found. Post hoc comparisons of the means

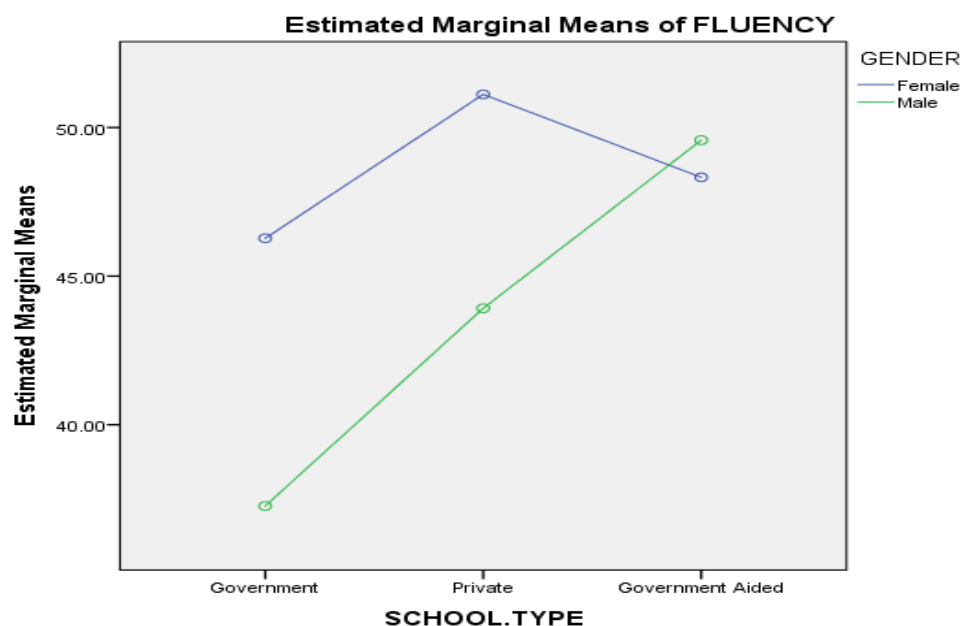
using Tukey's HSD test revealed that students from private schools had significantly higher flexibility than students from government schools. However, no significant differences in flexibility were found between students from government and government-aided schools or between students from government-aided and private schools. Furthermore, the mean flexibility score of girls ($M = 22.32$) was higher than that of boys ($M = 19.09$), indicating that girls demonstrated greater flexibility than boys.

Table 3

Summary of 3×2 Factorial Analysis of Variance for Fluency

Source	SS	df	MS	F	p
School Type	2857.32	2	1428.66	15.87	< .001
Gender	1856.05	1	1856.05	20.62	< .001
School Type $\times$ Gender	1486.64	2	743.32	8.26	< .001
Error	26556.00	295	90.02	—	—
Total	669061.00	301	—	—	—

Graph 1



Originality

The results of ANOVA for originality are presented in Table 5. As indicated in Table 5, there were no significant main effects for school type, $F(2, 295) = 0.40$, $p > .05$; gender, $F(1, 295) = 0.37$, $p > .05$; and interaction, $F(2, 295) = 0.82$, $p > .05$. Thus, no significant differences in originality were found between students from government, government-aided, and private schools. Also, boys and girls did not differ with respect to originality, and influence of school type on originality did not vary by gender.

Table 4

Summary of 3 × 2 Factorial Analysis of Variance for Flexibility

Source	SS	df	MS	F	p
School Type	25.35	2	12.68	3.58	< .05
Gender	86.33	1	86.33	24.36	< .001
School Type × Gender	7.20	2	3.60	1.02	> .05
Error	1045.63	295	3.54	—	—
Total	15380.00	301	—	—	—

Table 5

Summary of 3 × 2 Factorial Analysis of Variance for Originality

Source	SS	df	MS	F	p
School Type	4.91	2	2.46	0.40	> .05
Gender	2.29	1	2.29	0.37	> .05
School Type × Gender	10.09	2	5.05	0.82	> .05
Error	1824.55	295	6.19	—	—
Total	20963.00	301	—	—	—

Creativity

The results of ANOVA for creativity are presented in Table 6. As shown in Table 6, there were significant main effects for school type, $F(2, 295) = 15.40, p < .001$; gender, $F(1, 295) = 24.53, p < .001$; and interaction, $F(2, 295) = 9.20, p < .001$. Post hoc comparisons of the means using Tukey's HSD test revealed that creativity of both private and government-aided school students was significantly higher than government school students. However, no significant differences in creativity were found between students from government-aided and private schools. Furthermore, the mean creativity score of girls ($M = 191.52$) was higher than that of boys ($M = 173.69$), indicating that girls demonstrated greater creativity than boys. The Graph 2 plotted to study the trend of interaction effect, revealed that creativity of girls was significantly better than boys in the government and private schools, whereas boys exhibited higher creativity than girls in government-aided schools.

Table 6

Summary of 3 × 2 Factorial Analysis of Variance for Creativity

Source	SS	df	MS	F	p
School Type	3313.80	2	1656.90	15.40	< .001
Gender	2638.72	1	2638.72	24.53	< .001
School Type × Gender	1979.95	2	989.97	9.20	< .001
Error	31734.31	295	107.57	—	—
Total	1150326.00	301	—	—	—

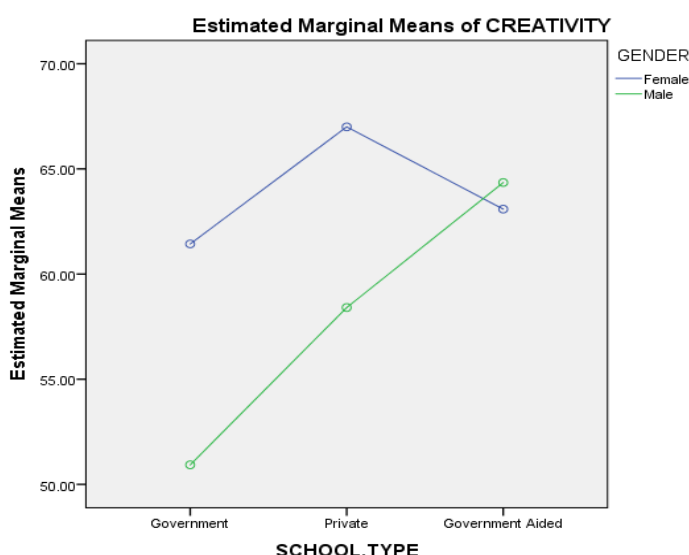
DISCUSSION

The findings of the study revealed that students from private schools obtained significantly higher scores in fluency, flexibility, and overall creativity than students from government schools. However, no significant differences were found in originality among students from

government, government-aided, and private schools. Although these findings raise questions about the work culture, teacher commitment, and the effectiveness of the substantially higher pay-scales in government schools in fostering students' creativity, the excessive non-academic duties assigned to the government school teachers, such as census and survey work, election duties, and Mid-Day Meal administration, may be one of the factors contributing to the lower creativity of government school students. Moreover, findings indicate that students from different school types did not vary significantly in originality. The equivalence of originality across different school types may be attributed to the rigid, examination-oriented curriculum followed in government, government-aided, private schools, where opportunities for original and novel thinking are often not much.

The study found that girls demonstrated significantly higher levels of fluency, flexibility, and overall creativity than boys. These findings are consistent with those of Arora (1978), Goel (1990), Jarial (1981), and Sharma (2011), who also found that females having better creative thinking than males. However, boys and girls did not differ significantly in originality.

Graph 2



CONCLUSION

The study highlights the need for interventions aimed at fostering fluency, flexibility, and overall creativity of the government school students, especially boys, by creating an atmosphere of autonomy, risk-taking, collaboration, and openness to new ideas. Furthermore, efforts should be made through teacher training programmes and student workshops to promote awareness of the developing and safeguarding original and novel ideas in the classrooms.

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