

STUDENTS' PERSONALITY DEVELOPMENT: SINGLE-SEX VERSUS COEDUCATIONAL SCHOOLS IN PAKISTAN

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ABSTRACT

The purpose of the present study was to find out the differential academic performance and personality development of girls and boys in the single-sex and coeducational primary schools. The academic performance was operationalized in terms of students' scores in fifth grade primary board examination in 2006 obtained from the Punjab Examination Commission. The personality of students was assessed using the Children Personality Questionnaire adapted and translated for the present study. The main effects of the two independent variables i.e. gender and type of school and their interaction on the scores of students was calculated using 2x2 Analysis of Variance (ANOVA). The results of the study showed better academic achievement and personality traits of students in the single-sex schools as compared with those in the coed schools. The coeducational schools had more adverse effect on girls than on boys on both the variables.

Keywords: Primary Schools; Personality Development; Single Sex Schools; Coed Schools

INTRODUCTION

Children in the early grades are deeply involved in learning gender roles and look for "appropriate" behaviors through which they later on, develop images about men and women in the society. Damon (1977) in a study of fourth and fifth graders in a school in USA noted that children viewed women as fragile, emotional, soft hearted, romantic, cultured, and loving, whilst men as strong, vigorous, violent/assertive, hard, determined and dominant. The development of gender stereotypes were also reported by Weiler (1998). He narrate 'story of George' to children of 4 to 9 years of age. 'George liked to play with dolls, but his parents bought him other toys, telling him that only girls play with dolls and not the boys'. William then asked the children for their comments on this story. A four year old child said, "It was all right for George to play with dolls if he wanted; there was no rule against it". However, a 6 year old child thought it was wrong for George to play with dolls. The children had gone beyond what boys and girls *actually do* to develop rules about what they *ought to do*. By about 9 years, children have a clear idea about what are the defined gender roles for each sex.

School is one of the most important socialization agents in the early formative years of a child. This is the period when a child steps outside the family, and started developing understanding of self in relation to the outside world. School climate has long been recognized as having an important effect on student learning and achievement (Lezotte, Hathaway, Miler, Passalacqua, & Brookover, 1980; Anderson, 1982; Howe 1985; Stickard & Mayberry 1986; Stronge & Jones, 1991). Schools are the major social environments in which students share beliefs, fears, values and norms and where in turn students' "cognitive and affective functioning is shaped by the characteristics of their schools and schooling" (Hofman, Hofman & Guldmond, 2001, p.172). In a manual for school leaders, Sweeney (1988) describes, "a winning school climate provides the very foundation for a sound

educational program. When the climate is right, people are inspired to do their best. Teachers and students ... do what needs to be done to stimulate learning. Achievement generally rises." (p.49). Learning in schools takes place in social contexts both inside and outside the classroom (Hofman *et al.*, 2001). A large body of evidence found students' perceptions of classroom psychosocial characteristics to be strongly related to cognitive and affective outcomes (Haertel, Walberg & Haertel, 1981; Fraser, Welch, Hattie & Walberg, 1987). A meta-analysis of studies of 17,805 students in 823 classes in eight subject areas across four nations, found higher student achievement in classrooms with greater cohesiveness, goal direction and satisfaction and less disorganization and friction (Haertel, *et al.*, 1981).

Researchers have different perspectives about improving the efficiency of schools. The school effectiveness approach highlights the equal treatment of boys and girls in the classrooms for effective learning and had observed differential behavior (Williams and Raudenbush, 1989; Mortimore, Sammons, Stool, Lewis, Ecob, 1988; Thomas, Pan and Goldstein, 1994). Whereas the sociological approach emphasized on the social production theory that considers schools as agents of socializing students to adopt gender roles as men and women in the society (Lee & Marks 1990; Younger, Warrington, Gray, Ruddock, McLellan, Bearn, Kershner & Bricheno, 2005). Hence, both the approaches, the school effectiveness approach focusing on differences in educational achievements among boys and girls in single- sex and coeducational schools and the sociological approach giving importance to the differences in educational practices within a school resulting gender differences in social and personal developments have led a discussion on the gender composition of a school and its impact on students' academic achievement and personal and social development.

The present study aimed at exploring students' differential academic achievement and personality traits in the single-sex and coeducational primary schools. The study involved two independent variables, gender and school type and two dependent variables, academic achievement and personality traits of students.

METHODOLOGY

Sample

The study employed multi-stage random sampling technique. Out of thirty-four districts of Punjab, eight districts were randomly selected. Those were Bahawalpur, Faisalabad, Gujranwala, Lahore, Mianwali, Multan, Rawalpindi, and Sargodha. From each of the selected district, eight coeducational and eight single-sex (four male and four female each) primary schools were randomly selected, making a total of 128 primary schools. All the students in fifth grade present on the day of visit to the selected 128 schools consists the sample of the study. In total, 4448 students, 2185 boys and 2263 girls, comprised the sample of the study.

Instruments

Two instruments were developed for the study.

Basic Information Performa

The overall and by subjects scores of students in the fifth grade public examination for the year 2006 were taken from Punjab Examination Commission to measure the academic achievement of students. The students' overall scores along with other basic information were recorded school wise on the Basic Information Performa (BIP) developed for the purpose.

Children's Personality Questionnaire (CPQ)-Revised (1992)

The personality of students was measured using the Children Personality Questionnaire (1992). The Children Personality Questionnaire is a self-report measure giving a general assessment of personality by assessing fourteen distinct traits of personality. The CPQ was designed for children between 8-12 years of age. The Personality traits measured through Children Personality Questionnaire includes warmth, emotional stability, self-concept, dominance, enthusiasm, boldness, sensitivity, withdrawal, shrewdness, self-discipline, excitability, apprehension, extraversion, and anxiety. The Children Personality Questionnaire (CPQ) was translated and adapted in the local language for better understanding of students.

Data Analysis

The 2x2 Analysis of Variance (ANOVA) was conducted to explore the significance of the two main effects i.e. gender and type of school and their interaction on the scores obtained by the students separately for the two independent variables. The t-test was applied to make comparisons between the mean scores of boys and girls in the single-sex and coeducational schools.

RESULTS

Students' Academic Achievement

The academic achievement scores of students in the single-sex schools were significantly higher than that of students in the coeducational schools. The mean score of students in single sex schools was 156.3 against their mean score of 134.9 in coed schools. Thus, the null hypothesis H_{01} stating no difference in the mean scores of students in the single-sex and coeducational schools is rejected. The academic achievement mean score of students was much lower in the coeducational schools as compared to that in the single-sex schools, suggesting that the students' (both boys and girls) had better learning environment in the single-sex schools leading to higher academic achievement than those in the coed environment.

Table 1. Academic Mean Achievement Scores of Boys and Girls by Type of School

Gender	Type of School						Total (Single-sex plus Coeducation)		
	Single Sex			Coeducation			N	Mean	SD
	N	Mean	SD	N	Mean	SD			
Boys	943	154.0	34.0	1242	135.9	51.8	2185	145.0	44.9
Girls	957	158.6	28.2	1306	134.0	40.7	2263	146.5	37.8
Total (Boys plus Girls)	1900	156.3	31.4	2548	134.9	46.2	4448	145.6	41.4

Further, boys in the single-sex schools had higher academic achievement scores than boys in the coeducational schools. The null hypothesis H_{02} , stating no significant difference between the academic achievement mean scores of boys in the two types of schools was rejected at α 0.05. Similarly, significant difference was found between the scores of girls in the single-sex and coeducational schools, rejecting the null hypothesis H_{03} , stating no significant difference between the academic achievement mean scores of girls in the two types of schools.

The data also shows that the girls were affected more by the type of school as they scored better than the boys in the single sex-schools with mean score of 158.6 against 154.0 and lower than the boys in coed schools with mean score of 134.0 against 135.9. There is an effect size of 0.3 between the academic achievement of boys in the single-sex and coeducational schools, which is as suggested by Cohen (1998) as a moderate difference whilst an effect size of 0.6 between the academic achievement of girls in the single-sex and coeducational schools is considered as a large difference. The bigger value of standard deviation (SD) in the coed schools as compared to that in the single-sex schools suggests that the students of single-sex schools were more homogeneous in academic performance as compared with the students in coed schools.

Table 2. Summary of ANOVA for Students' Academic Achievement Scores by Gender and Type of School

Source	Levels	df	Sum of Squares	Mean Squares	F
Gender	2	1	1887.7	1887.7	1.18
Type of School	2	1	479027.384	479027.384	299.82**
Gender* Type of School	2x2	1	10974.147	10974.147	6.87**

**p<.001

The girls' outperformed boys' as their academic achievement mean score was higher than that for boys in the single-sex as well as in the coeducational schools at α 0.05. In the single-sex schools, girls had higher academic achievement scores than boys whilst boys had higher academic achievement scores than girls in the coeducational schools.

Overall Personality Scores of Students

The personality development of students was observed by comparing the overall personality traits of students in the two types of schools. The overall high personality score indicates positive personality traits whilst the overall low personality score show them as having negative personality traits. Analysis of Variance was carried out to explore the significance of the two main effects i.e. gender and type of school and their interaction on the scores obtained by the students.

Table 3. Overall Mean Scores of Boys and Girls on CPQ by Type of School

Gender	Type of School						Total (Single-sex plus Coeducation)		
	Single Sex			Coeducation			N	Mean	SD
	N	Mean	SD	N	Mean	SD			
Boys	943	70.18	7.49	1242	67.68	7.08	2185	68.76	7.36
Girls	957	81.08	7.34	1306	70.06	6.36	2263	75.60	7.23
Total (Boys plus Girls)	1900	75.67	9.20	2548	68.87	7.91	4448	72.27	8.68

The study shows that the main effect of gender was found significant at 0.05, suggesting that the sex of students affect their personalities. Further, girls had more positive personalities as compared with that of boys. The main effect of the type of school was also found significant at 0.05. Thus, the null hypothesis H_{05} stating no differences in the overall mean scores of

students on CPQ in the single-sex and coeducational schools are rejected. The overall mean score of students on CPQ was found much lower in the coeducational schools (68.9) as compared with those in the single-sex schools (75.7), suggesting that students had more positive personalities in the single-sex environment. The interaction effect of gender and type of school was also found significant. Thus, the null hypothesis H_{06} of difference between the personality mean scores of boys and girls on overall personality traits is same in the single-sex and coeducational schools is rejected. The larger value of standard deviation (SD) in the single-sex schools as compared to that in the coed schools indicates that students of the coed schools were more homogeneous in overall personality traits as compared to students in the single-sex schools. This shows that students in coed schools work in groups and were more influenced by each other whereas students in single-sex schools were more independent in their behaviors and attitudes.

Table 4. Summary of ANOVA for Students' Overall Scores on CPQ by Gender and Type of School

<i>Source</i>	<i>Levels</i>	<i>df</i>	<i>Sum of Squares</i>	<i>Mean Squares</i>	<i>F</i>
Gender	2	1	69804.57	69804.57	1378.39**
Type of School	2	1	31593.51	31593.51	623.86**
Gender* Type of School	2x2	1	9097.57	9097.57	179.64**

** $p < .001$

The mean scores of girls dropped from 81.1 in the single-sex schools to 70.1 in the coed schools. The same fall of scores for boys was only of 2.5 i.e. from 70.1 in the single-sex schools to 67.7 in the coed schools. It means that the girls were more adversely affected in the coed schools. The difference between the mean scores in the single-sex and coed schools was statistically significant for girls as well as for boys. Thus, the null hypothesis H_{06} stating no significant difference between the mean scores of boys and the null hypothesis H_{07} stating no significant difference between the mean scores of girls in the two types of schools are rejected. An effect size of 0.3 between the boys in the single-sex and coeducational schools suggest a moderate difference in the overall personality traits of boys in the two types of schools whereas an effect size of 1.7 between the girls in the single-sex and coeducational schools indicate a large difference between the overall personality traits of girls in both types of schools.

DISCUSSION

The results of the study indicated better academic achievement and overall more positive traits for boys and girls in the single-sex schools as compared to the boys and girls in the coeducational schools. Most of the previous research conducted on this subject supports the results of the present study (Spielhofer, et al, 2002; Singh et al, 1998; Woodward et al, 1999 and National Association for Sex Public Education America, 2006). The study further concludes that adverse effects of coeducational schools are more on girls' than boys. These results are also supported by many researchers like Carpenter & Hayden, 1987; Caspi, 1995; Lee and Bryk, 1986 and Hannan et al, 1996.

In the early school years, gender plays a very critical role, thus, the differences between boys and girls studying together or separately are expected. The results of the present study have clearly indicated differences between boys and girls in the two types of schools and also

within the same type of school. The implication was more for girls than for boys. Woodward et al. (1999) and Gillibrand (1999) have also observed that girls in the single-sex schools took more interest in the classroom activities. Similarly, Caplice (1995) has suggested, "If there are no boys around to ridicule girls while reading, their efficiency will improve." (p.3) According to Streitmatter (1998, 1999) girls enjoyed more in all girls' classes and felt more comfortable at being challenged and were more willing to answer questions in front of the class. In the coed environment, girls and boys feel more social and environmental pressures in the presence of each other, particularly, in the socio-cultural context of Pakistan, girls feel more uncomfortable and show reserved behavior if boys are around. Another possible reason of boys and girls feeling more shy and nervous in the coeducational environment could be that at the end of the primary school is the period from where early adolescent age starts and girls particularly become more conscious about themselves and also about the surroundings. In a male-dominated society like Pakistan, it is generally expected from males and females to remain segregated in the gatherings, and mingling of boys and girls is not encouraged.

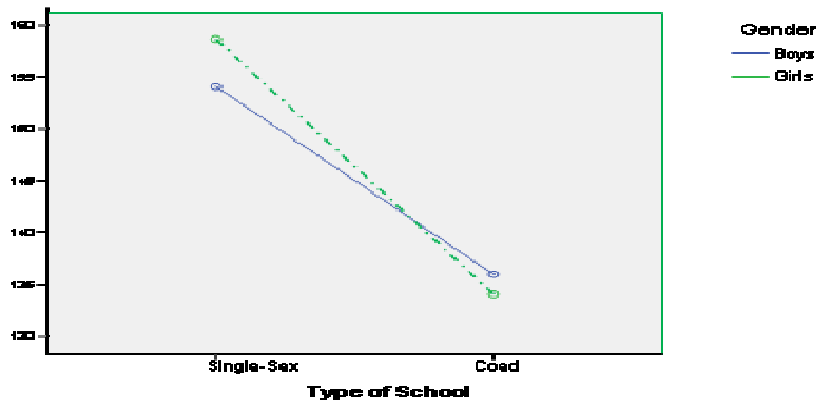


Figure 1. Academic Achievement

An important factor influencing the performance of students in the schools is teachers. In single-sex schools, the teacher is able to concentrate on the learning styles of each sex and uses variety of pedagogical strategies to bring out the best in each student. Similarly, lesson plans and activities in the classroom could be designed according to the needs of the same-sex. Martino et al. (2005) observed that teachers in the coeducational classrooms mostly are busy in controlling class disciplines. Warrington et al., (2003) and Francis et al. (2003) highlighted that when girls and boys work together, boys are likely to be more upsetting and control the classroom setting. Jones and Dindia (2004) conduct meta-analysis of eleven studies regarding classroom interaction and found that teachers had negative behaviors like scolding, criticism more often towards boys than girls. Derry and Philips (2004) also found that in separate girls' classes, students have more opportunities for learning and having interactions with teachers. Streitmatter (1999) concluded that in single-sex girls' classrooms, teacher has continuous dialogue with girls and helped them in solving problems. Balier and Sanford (1999) noted that teachers were able to give more attention to teaching in the single-sex classes than maintaining discipline in the coeducational classes. Thus, the empirical evidence suggests that in the single-sex schools, the teacher did not waste time in maintaining class environment; rather, the teacher is able to supervise various aspects of the teaching-learning process resulting in higher academic achievement and better personality development. "Single-sex environments allow teachers to adjust their curriculum and teaching style to the particular behavioral patterns of males or females." Caplice, 1995,

(p.235). The students in the single-sex schools are also able to engage more in discussions and learning process without involving into unnecessary competition.

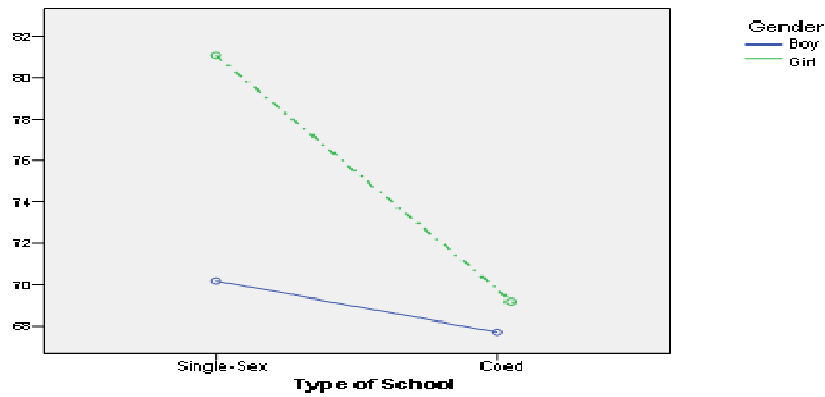


Figure 2. Overall Personality Development

The results of the present study did not provide support to coeducation at the primary level. Lloyd, Mete and Sathar (2002) conducting in the rural villages of Punjab (Pakistan) noted that while some girls attend boys', it is rare to find girls progressing beyond first few grades in boys' schools. Furthermore, when girls attend coeducational primary schools, their attendance rates are very low. The researchers also indicated that during the survey of rural primary schools in 12 villages, girls' attendance was found only 36% in the coeducational schools compared with 88% in the girls' schools. Therefore, in context of socio-cultural traditions of the country, there is a possibility that coeducational schools will further reduce girls' enrolment and will contribute towards higher dropout at the primary level. For boys, also, single-sex schools appeared to be more advantageous as compared to the coeducational schools. Thus, the coeducational schools may contribute towards the under-achievement of boys also.

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