A Comparison of Students' English Language Classroom Anxiety in Single-Sex and Coeducational Schools

Safdar Hussain, Ph.D. Scholar & Shirin Zubair, Ph.D.
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Abstract

This study examines the difference in the level of anxiety associated with English language learning for students in single-sex and coeducational schools. It is a *causal comparative study* based on a sample of 576 students from secondary schools. The data were collected from 14 schools; 4 girls' only schools, 3 boys' only schools and 7 coeducational schools, located in a relatively small area of Multan. Horwitz's Foreign Language Classroom Anxiety Scale (FLCAS) was used to measure students' level of anxiety in English language classes. The data were analysed using t-test, analysis of variance and regression method.

Results of the study indicate that level of anxiety associated with English language learning is higher in coeducational setting for both the sexes and its value is higher for girls in both types of schools even after including different individual, school and family related

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factors. It is also indicated that a higher number of students in a class also increase the level of anxiety among students.

Keywords: anxiety, school type, gender, English language

Rational Thinking and Emotions

Our rational thinking and emotions are not two separate things and our emotions play an important role in our rational thinking and learning (Damasio, 1994). Under the same idea, a number of variables related to learners' psychology such as motivation and anxiety associated with foreign language learning have been a focus of research for many years (e.g. Ellis, 1994; Skehan, 1989). However, a very small amount of work has been done to find out their association with different school related factors such as language classroom settings (single-sex /coeducational) etc. Present research is an attempt to see any difference in students' level of English language classroom anxiety in different classroom settings (single-sex /coeducational).

Anxiety

Anxiety has been defined as "a subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the automatic nervous system" (Horwitz, Horwitz & Cope, 1986).

It is believed that anxiety consists of two components:

- Cognitive anxiety is the mental aspect of anxiety experience in which person loses self-confidence, has some worries about the performance and concerns about others' perceptions.

- Somatic anxiety is the physiological aspect of the anxiety experience that is reflected in such responses as high pulse rate, lack of breath, upset stomach, sweating and tense muscles. (Morris, Davis & Hutchings, 1981)

Foreign Language Classroom Anxiety

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Horwitz et al. (1986) were the first who introduced the concept of foreign language classroom anxiety as a separate phenomenon. They have given a comprehensive description of behaviours related to anxiety in the context of the foreign language classroom setting. There are three main types of foreign language anxiety:

- communication apprehension
- test anxiety
- fear of negative evaluation

Communication apprehension is a form of shyness because of which student fears to communicate with class fellows and teachers. Test anxiety originates from the fear of failure and worries about the performance in the test. Mostly, anxious students have some unachievable expectations from themselves. Fear of negative evaluation, is another cause of anxiety in which students have worries about evaluation from others and they avoid any situation where they expect any evaluation process because they have fear that others will evaluate them negatively. MacIntyre and Gardner consider foreign language anxiety as one of the social anxieties because in all these causes of anxiety it appears that foreign language anxiety originates mostly from the social and communicative characteristics of language learning (MacIntyre & Gardner, 1988).

Dale (1969, 1971, and 1974) has produced an extensive work on the subject of single-sex / coeducational schooling. After the work of Dale, a large number of studies were conducted by different researchers and most of them fall in these categories:

a) A comparison of the academic attainment of pupils from both systems.
b) A comparison of the social atmosphere of the two types of school, or
c) The administration of opinion surveys of various types.

An account of these studies is available in 'Single-sex versus Coeducational Schooling: A Systematic Review' (Mael, Alonso, Gibson, Rogers & Smith, 2005).

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Focus of Present Study

In most of these studies different academic, psychological and social issues are discussed in general with relation to school type (single-sex /coeducational). Present study is a new addition in this field of research as it explores the difference between students' level of anxiety associated with English language learning in single-sex and coeducational schools with an idea that presence of students of opposite-sex in a foreign language class may have some effect on this psychological issue of anxiety associated with foreign or second language learning.

The main objectives of the study are:

1) To examine the effect of school type (single-sex /coeducational) on students' level of English language classroom anxiety.
2) To find out, how far the effect of school type on students' level of English language classroom anxiety is varied with child gender.

METHOD

It is basically a causal comparative or *ex post-facto* research, which literally means after the fact. This approach was adopted to "explore possible causal relationships among variables that cannot be manipulated by the researcher" (McMillan & Schumacher, 1997).

Kerlinger (1970) defines *ex post-facto* as a type of research "in which the independent variable or variables have already occurred, and in which the researcher starts with the observation of a dependent variable or variables." (cited in Cohen, Manion and Morrison, 2001:204)

Because of this research design it was required to include different school and family related variables which may have some effect on dependent variable (English language classroom anxiety). For this purpose school related variables: medium of instruction, number of students in the class, gender of the teacher, educational year group of the student and family related variables: age of the student, economic status of family were also considered in this study

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along with main independent variables school type (single-sex or coeducational) and gender of student and dependent variable students' level of anxiety.

PROCEDURE

The data were collected from 14 schools; 4 girls' only schools, 3 boys' only schools and 7 coeducational schools, located in a relatively small area of Multan. Only students of 10th year group from English medium schools were considered to minimize the number of background variables in this study.

Horwitz's Foreign Language Classroom Anxiety Scale (FLCAS) was used to measure students' level of anxiety in English language classes. FLCAS is frequently used in research as a valid and reliable scale of Foreign Language Anxiety and its reliability in terms of internal consistency is α = 0.93 (Horwitz, 1986). Scores on this scale have a wide range, from a maximum 165 to a minimum 33, where a high score indicates a high level of anxiety related to English language learning.

The data related to background variables were collected from school administration on a personal data sheet. The data related to student's mother tongue were also collected and it was found that none of the students has English language as mother tongue so variable related to students' mother tongue was not included in statistical analysis. Economic status of student's family was reported on three levels; lower, middle and upper class.

FLCAS was administered in class time with cooperation of the class teachers. However, students were told before the administration of FLCAS that their responses will not be revealed and will be used only for research purposes. The researcher was available to help in case of any query from students. Table 1 below shows the overall composition of the data.

Table 1:

		School Type		
		SS*	CoEd**	Total
Sex	Girls	140	122	262

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	School Type		
	SS*	CoEd**	Total
Boys	156	158	314
Total	296	280	576

*SS = Single-sex , **CoEd=Coeducational

Students' scores on FLCAS were compared using t-test of independent samples, taking school type as a grouping variable (0 = single-sex schools, 1 = coeducational schools) for girls only, boys only and combine (pooled) samples separately.

Table 2:

Dependent Variable: FLCAS

		Pooled				Girls-only			Boys-only		
		SS	CoEd	t	SS	CoEd	t	SS	CoEd	t
	N	296	280		140	122		156	158	
FLCAS	Mean	89.95	107.90	-15.432*	94.25	115.61	-13.812*	86.09	101.94	-10.822*
	S.D.	12.940	14.844		12.028	12.999		12.539	13.390	

* p < .001

It can be seen from t-test of independent samples that students from co-educational schools had a significantly higher level of anxiety on FLCAS than their counterparts in single-sex schools (mean difference = - 17.947, p < .001). Both for girls-only data (mean difference = - 21.365, p < .001) and for boys-only data (mean difference = - 15.847, p < .001) level of anxiety in English language classes was higher in co-educational schools.

Ideally, for t-test, the subjects should have been assigned to two groups randomly, so that the difference in response is due to independent variable only and not because of other factors. This is not the case in present research, as students were not randomly assigned to single-sex or co-educational schools. Therefore, it was mandatory to ensure that differences in other factors were not enhancing or masking a significant difference in means.

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Results from t-tests of independent samples indicated significantly better overall educational environment in single-sex schools. However, there was a possibility that these differences were a result of other individual, school or family related factors because study was based on causal comparison of different samples. Therefore, these possible confounding variables were analysed against school type (single-sex/co-educational) students attended using t-test of independent samples (2-tailed) for continuous variables (age of student and average number of students in each class) and chi-square test of independence (2-sided) for categorical and ordinal variables (economic status of family, education level of mother, education level of father and sex of the teacher). These analyses were also repeated for both sexes separately taking girls-only sample and boys-only sample.

Results of t-test of independent sample in analyses of background variables indicated significant differences in average number of students in each class not only with pooled sample but also for separate samples for both sexes. Single-sex schools had a comparatively high number of students in each class. Perhaps, the reason behind this was that school administration tends to separate classes for girls and boys when they have a high number of students for any year group. The mean of students' age was not significantly different in any of these comparisons.

Table 3:

		Pooled			Girls-only			Boys-only		
		SS	CoEd	Δ	SS	CoEd	Δ	SS	CoEd	Δ
Students	Mean	30.93	21.89	9.036***	30.61	22.17	8.435***	31.22	21.68	9.541***
	S.D.	7.159	3.411		5.921	3.461		8.120	3.368	
Age	Mean	15.41	15.39	.019	15.40	15.32	.080	15.42	15.44	- .026
	S.D.	.717	.809		.632	.836		.787	.786	
% within School Type										
Economic Status	Low	4.0	.3	***	5.0	0	***	3.2	.6	***

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	Middle	32.8	18.4		34.7	15.3		31.2	21.0	
	High	14.6	29.9		13.7	31.3		15.3	28.7	
	Low	20.6	19.6		19.7	18.1		21.4	20.8	
Education level of father	Middle	26.3	27.9	**	26.6	26.6	*	26.0	28.9	-
	High	4.6	1.1		6.9	1.9		2.6	.3	
	Low	20.4	23.0		22.8	20.5		18.3	25.1	
Education level of mother	Middle	23.9	22.1	**	22.0	22.4	-	25.4	21.9	*
	High	7.5	3.2		8.9	3.5		6.4	2.9	
Sex of the Teacher	Female	24.3	22.2	-	53.4	20.6	***	0	23.6	***
	Male	27.1	26.4		0	26.0		49.7	26.8	

* p < .05, ** p < .005, *** p < .001, Δ = Mean difference

Results of chi-square test of independence indicated significant differences for economic status of the family in all the comparisons. Both types of school had a very low percentage of students from working class for variable ES (economic status of family) and a relatively high percentage of students from the upper class in co-educational schools. This suggested that choice of school is related to economic status of the family. English medium schools usually attract students from the upper and upper-middle classes. Among them single-sex English medium schools have a comparatively high percentage of students from the middle class and co-educational schools have a comparatively high percentage of students from the upper class. The data in the present study lack students from the working class, who usually join single-sex Urdu medium schools, run by the government. Education level of father was significantly different for girls-only and pooled sample as was education level of mother. Sex of the teacher was significant only with separate sample for boys-only data and girls-only data. In single-sex schools, teachers are appointed in accordance with the type of school i.e. male teachers for boys-only schools and female teachers for girls-only schools.

These significant differences highlight the importance of these background variables in the data analysis for better interpretation of the difference of the students' level of anxiety in English

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language classes in co-educational and single-sex schools, observed in t-tests of independent samples. All the background variables which were significantly different in any of the comparisons were included in further analyses. To understand the effect of background variables on this relationship between school type and dependent variables, the data were analysed using linear regression method to identify predictors for dependent variables. Linear regression is used to calculate the coefficients of linear equation, involving one or more independent variables that can predict the value of the dependent variable (McBurney & White, 2004; Mertens, 1998). Each regression analysis was repeated for girls-only and boys-only data, excluding SexStudent as factor.

β = Standardized Beta Coefficients; Err = Std. Error; B = Unstandardized Coefficients

Table 4:

Dependent Variable: FLCAS

	Pooled			
	B	**Err**	**β**	**t**
(Constant)	107.746	5.475		19.679
Schooltype	20.484	1.263	.629***	16.217
SexStudent	- 11.511	1.106	- .352***	- 10.404
Students	.214	.089	.095*	2.411
Edufather	- 6.160	.849	- .220***	- 7.258
Edumother	- 3.758	.742	- .151***	- 5.067
ES	- 4.336	.928	- .153***	- 4.672
SexTeacher	- .491	1.123	- .015	- .437
	Girls-only			
	B	**Err**	**β**	**t**
(Constant)	109.754	7.754		14.155
Schooltype	24.070	2.158	.743***	11.153
Students	- .096	.144	- .038	- .672
Edufather	- 7.443	1.107	- .285***	- 6.724
Edumother	- 5.682	.981	- .236***	- 5.790
ES	- 3.310	1.304	- .119*	- 2.537
SexTeacher	- 6.494	2.043	- .175	- 3.178
	Boys-only			
	B	**Err**	**β**	**t**
(Constant)	99.162	9.698		10.225

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Schooltype	16.916	1.995	.573***	8.478
Students	.167	.115	.089	1.447
Edufather	- 4.640	1.231	- .171***	- 3.768
Edumother	- 2.201	1.054	- .096*	- 2.088
ES	- 7.586	1.351	- .290***	- 5.615
SexTeacher	- 3.365	1.967	- .096	- 1.711

$* p < .05, ** p < .005, *** p < .001$

In the regression analysis for dependent variable FLCAS,

- Schooltype emerged as most important factor ($\beta = .629, p < .001$) with covariate SexStudent, Edufather, ES and Edumother in pooled sample.
- In girls-only data Schooltype appeared as most important factor ($\beta = .743, p < .001$) with covariate Edufather, Edumother and ES.
- In boys-only data Schooltype again appeared as most important factor ($\beta = .573, p < .001$) with covariate ES, Edufather and Edumother.

Estimated Marginal Means

Estimated marginal means of FLCAS were calculated with ANCOVA taking SexStudent, Edufather, Edumother and ES as covariates.

i) Unadjusted

ii) Adjusted for Covariates identified in regression analysis

Schooltype	Mean	
	i	**ii**
Single-sex	89.97	89.359 (a)
Co-educational	107.36	108.009 (a)

Covariates appearing in the model are evaluated at the following values: SexStudent = .54, Edufather = .66, Edumother = .67 and SES = 1.40.

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The analysis was repeated for girls-only and boys-only data, excluding SexStudent as factor.

Schooltype	Mean	
	i	ii
Single-sex	94.32	94.471 (a)
Co-educational	115.22	115.046 (a)

Covariates appearing in the model are evaluated at the following values: Edufather = .72, Edumother = .68 and SES = 1.40.

Schooltype	Mean	
	i	ii
Single-sex	86.09	85.165 (a)
Co-educational	101.16	102.096 (a)

Covariates appearing in the model are evaluated at the following values: Edufather = .61, Edumother = .66 and SES = 1.40.

Results of the present study suggest that both boys and girls attending single-sex schools have a considerable advantage compared to their counterparts attending coeducational school. Detailed analyses showed that school type variable was associated with different school and family related factors. Statistical analysis for the effects of these confounding variables that differentiated single-sex and coeducational school students revealed that relationship between school type and students' level of anxiety related to foreign language learning could be explained by taking these variables in account. However, even after including these confounding variables, students in single-sex schools have significantly a lower level of anxiety related to English language learning.

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This difference can be explained in terms of social and gender environment in these schools. Students' high score on FLCAS in coeducational environment suggests that they feel anxiety in the presence of students of opposite-sex. This may be because of gender-segregated society in Pakistan where boys and girls are kept separate in most of the domains of life and when they are exposed in coeducational schools they feel extra pressure and uneasiness which are the characteristics of anxiety. In the same way, overall high level of anxiety in girls may be a result of high social pressure on them.

It is possible that the lower anxiety level in single-sex schools may not reflect the influence of school type, but rather different other aspects of school climate which are not discussed in this study like teachers' attitude, available resources, school policies regarding discipline and control etc. So, a detailed study school type (single-sex /coeducational) effect may be justified using experimental design.

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