



Research Article

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Association of Classroom Environment with Academic Achievement of Secondary School Girls in Pakistan

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Abstract

The purpose of the study was to find out the association of classroom environment with the academic achievement of secondary school girls in Pakistan. The population of the study was 1104 Secondary School Teachers SSTs / Trained Graduate Teachers TGTs (Female), 5628 secondary school girls in 64 Federal Government Girls Secondary Schools. Multistage sampling was used in the present research. Three categories of schools (Large, Medium, Small) were constructed for research purpose on the basis of the number of students who appeared in SSC-I annual examination 2014 by a federal board of intermediate and secondary education Islamabad. The objectives of the study were to find out the nature of the classroom environment at girls secondary schools and to identify the association of classroom environment with the academic achievement of girls at secondary school level. Two hypotheses were formulated and tested with the help of statistical tests to achieve the objectives of the study. The study was descriptive in nature and survey technique was used to collect data from respondents. Data were collected on various aspects of the classroom environment, including temperature, furniture and fixture, arrangement of furniture, air, light, writing board facilities. The tool consisting of fourteen statements on classroom environment was getting validated from four experts to determine content validity. Reliability of the research instrument was determined by using Cronbach Alpha based which was .855. The analysis of the collected data was carried out by using two non parametric statistical tests, i.e. (i) Chi Square test, (ii) Mann Whitney U test. There was a positive association between the classroom environment and academic achievement of girls at secondary school level.

Keywords: Academic achievement, Classroom Environment, Furniture and fixtures, Class Size, Temperature

1. Introduction

Aldridge (2000) has viewed that classroom learning environment is very important and powerful agent to enhance thinking of the learners. Classroom learning environment can be made more effective by focusing student direction, social support and academic achievement of students. The innovative teaching, learning environment of schools has an impact on student achievement and attitude towards learning. The use computers and information technology in schools creates an innovative and interesting learning environment for both teachers and students through which students can be made higher.

The Education for All (EFA) Global Monitoring Report for the year 2013-2014 UNESCO, indicates that there is a lack of attention to the quality of education globally. It emphasis the drawing up ways for improvement in the quality of teaching and learning by enhancing knowledge, skills and abilities of learners through improved in a classroom environment. The academic achievement of learners depends upon classroom learning environment under qualified professional teachers. The position of teachers is to influence directly or indirectly the achievement of students during classroom learning practices (Lasley, 2006; William, 2007). Thus, there exists a need to explore the association of classroom environment and academic achievement.

2. Statement of the Problem

The study was designed to investigate the association of classroom environment and academic achievement of secondary school girls in Pakistan.

3. The Objectives of the Study

The objectives of the study were as follow:

- (i) To find out the nature of the classroom environment at girls secondary school Level.
- (ii) To explore the association of classroom environment with the academic achievement of secondary school girls.

4. Hypotheses of the Study

In order to achieve the objectives of the study, following null hypotheses were formulated.

[H₀]₁: There is no association between overall classroom environment scores of female teachers and secondary school girls.

[H₀]₂: There is no association between the classroom environment and academic achievement of secondary school girls.

5. Delimitations of the Study

The study was delimited to Federal Government Girls Secondary Schools under the administrative control of Directorate, Federal Government, Educational Institutions (Cantt / Garrison) Rawalpindi and girls of class X enrolled for academic session 2013-15.

6. Review of Literature

Owoeye *et al.*, (2011) have stated that the class size of secondary school students is linked with academic performance of the students. The number of students in secondary classroom should not more than 30. Class size is an administrative decision in learning environment and teachers have no control over it. But the performance of students relates to the performance of the teacher. Various researchers have found that the size of the class is a significant factor towards the degree of success of students. Often in small class the teacher has the opportunity to explore much as compared to large class. It is difficult to know all the students personally in large class by the teacher due to which many discipline problems arise.

Commonwealth of Virginia Department of Education (2013) has suggested revised guidelines for classrooms. The required number of classrooms in school can be determined with projected enrollment of students, physical facilities and teacher/pupil ratio. The design of the school building during construction or alteration should be mapped in such a way that it may be covered into some extra rooms for the learning process. Classrooms should occupy net floor covered area for each group:

Table 6.1: Covered Area of A Classrooms

S. No	Classes	Covered Area Of A Classroom (Square feet)
1	Pre-Kindergarten, Kindergarten, Grade 1	975
2	Grades 2 – Grades 5	800
3	Grades 6 – Grades 12	700

Table 6.1 indicates that the required covered area of classrooms for secondary school students is 700 square feet. A self contained classroom should consist of garment storage; shelves for teachers, work counters, vestibules and fixtures, but toilet and general storage room should be excluded. The length of classroom should not exceed 1.5 times of its breadth.

Post Primary Teacher's Association (2014) has viewed about the size of the classroom. According to the New Zealand Post Primary Teacher's Association Te Wehengarua (PPTA) that quality of education depends upon the size of the classroom. The small size of the classroom provides opportunities for young children towards quality of education. Number of students in a classroom should not exceed 26 students.

Katie (2014) has stated that teachers can do a lot of things in the classroom teaching learning process to achieve success of students. The teacher can offer additional time to create the habit of personalized learning among students. But the physical arrangement in classroom has its own impact on learning. The arrangement most often includes desks, chairs and charts, etc. It has been found from studies that with the help of an effective classroom design teacher can enhance performance and achievement of students up to 25%. Positive effects of classroom include inspiration, extrinsic motivation, concentration, enhancement of positive behavior, reduction in misbehavior, encouragement, support in achieving good results and ability of communication. Katie (2014) has suggested that the following items should be considered during planning for effective classroom:

- a. Furniture: Tables, chairs, teacher's desk, teacher chair, cupboards etc.
- b. Design Layout: Arrangement of furniture.
- c. Tinge: Colors of the walls, roof and floor of classroom
- d. Temperature: The degree of hotness or coldness of classroom or internal

Maryellen (2014) has presented views about adjustment of classroom learning environment. The model classroom should allow all the children to work freely and learn in safe and sound environment. Diversity among the learners should be addressed so that every learner has an opportunity to understand the concepts regardless of race, class, gender and physiological abilities. The respect and self recognition of every student should be valued by teachers and peers. All students be dealt with dignity and students must feel the ownership of the classroom environment. The classroom discipline as well as learning problems and issues can be resolved through self respect of students. The classroom is a place just like an acid test laboratory where each and every student can be evaluated and judged about their abilities and capabilities.

Smith et al., (2005) has stated that Interactive White Boards (IWBs) were framed only for office adjustments but now these are the new addition to classroom learning environment. In the same context, Slay, Sieborger & Hodgkinson (2008) have viewed that IWBs are such learning tools that can be connected to computers and multimedia projectors. The computer image can be displayed on screen through multimedia. Students can present their presentations easily with the help of IWBs. Electronic pen and e Beam can also be used to motivate the students for learning. The adjustment of the electronic pen for each student in the classroom can be managed with the help of a computer.

7. Research Methodology

The main purpose of the present study was to investigate the association of classroom environment and academic achievement of secondary school girls in Pakistan. Survey technique was applied to collect data from female secondary school teachers / female trained graduate teachers and girls of class X about the classroom environment. The analysis of collecting information was made through statistical tests.

7.1 Research Design

The present research was descriptive. Survey techniques were applied to collect data about the classroom environment from female secondary school teachers and students. Figure 1 shows the research design of the study:

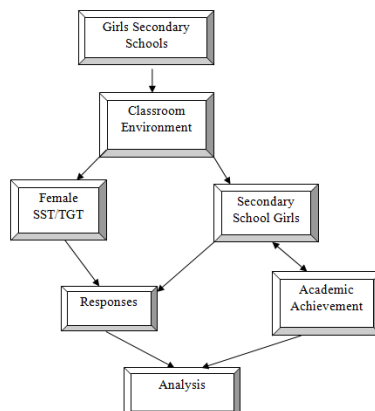


Figure 1: Research Design of Research Study

7.2 Population

The population of the study was as given below:

- i. 64 Federal Government Girls Secondary Schools in Cantt / Garrison located in ten regions under the administrative supervision of Directorate Federal Government Educational Institutions Cantt / Garrison Rawalpindi.
- ii. 1104 Female Secondary School Teachers serving in these secondary schools.
- iii. 5628 girls of class X enrolled during session 2013-15 and appeared in Secondary School Certificate, part one (SSC-I) annual examination 2014 (FBISE Result Gazette, 2014).

7.3 Sample

Multistage sampling was used in the present research. The selection of sample for the study is given below:

i. 19 Federal Government Girls Secondary Schools located in ten regions under the administrative command of Directorate, Federal Government, Educational Institutions Cantt / Garrison Rawalpindi, were randomly selected in the first stage.

ii. 190 secondary school teachers working in the selected schools were randomly selected using tables of random numbers. 215 secondary school girls who had appeared in SSC (Part one) annual examination 2014 of the selected schools was selected randomly.

The ten Regions were divided into three categories, namely large, medium and small for the present study. The three categories were framed by the researcher on the basis of the number of students who appeared in Secondary School Certificate, Part one (SSC-I) examination of the Federal Board of Intermediate & Secondary Education, Islamabad. The largest category was up to 100 students, the medium category was included 60 students and small category was in the range of 55 students who appeared in Secondary School Certificate, Part one (SSC-I) examination of the FBISE Islamabad. First category included into Rawalpindi and Wah region, second category consisted Lahore, Multan and Peshawar regions, while the third category included under Kharian, Gujranwala, Bahawalpur, Karachi and Quetta Regions. The examining and evaluating body of all secondary schools in the ten regions is Federal Board of Intermediate & Secondary Education, Islamabad.

7.4 Development of Research Tool

The nature of the research was descriptive. A questionnaire comprising of fourteen statements about the classroom environment on the basis of five point Likert Scale was developed and finalized for female secondary school teachers. Urdu translation of questionnaire was made for girls of class X to collect responses.

A pilot study was organized to enhance effectiveness and to calculate the desired level of statistical calculation from data. The weaknesses of the research tool were removed through four experts in the field of education. The Statistical Package of Social Sciences (SPSS) version 19 was applied to check the internal consistency of the research tool. The reliability statistics of Cronbach Alpha based on standardized items were found to be 0.855.

7.5 Data Collection

The respondents of the questionnaire were female secondary school teachers, female trained graduate teachers and girls of class X enrolled during the session 2013-15. The questionnaires were mailed along with self addressed stamped envelopes to all the respondents. Personal, mobile and telephonic resources were used to collect data. The academic achievement of the girls was collected from annual result gazette of SSC-I for the year 2014 from Board of Intermediate & Secondary Education, H-8/4, Islamabad.

8. Data Analysis

The analysis of data was made through a statistical test, chi square in large, medium and small category schools, while non parametric Mann Whitney U Test was used to explore the association of classroom environment and secondary school girls of Pakistan in relation to academic achievement.

Table 8.1: Overall Classroom environment of Girls Schools in Large Category

Respondents/Responses	SA	A	UNC	DA	SDA	Total	Chi Square Value
Female Teachers	626 (631) (0.039)	456 (417), (3.64)	81 (44) (31.11)	145 (148.5) (0.082)	92 (159.5) (28.56)	1400	126.85
Girls of Class X	636 (631) (0.039)	378 (417) (3.64)	07 (44) (31.11)	152 (148.5) (0.082)	227 (159.5) (28.56)	1400	
Total	1262	834	088	297	319	2800	

Level of Significance 0.05

Table 8.1 indicates that the table value of chi square is 9.49 at level of significance 0.05 by taking 4 degrees of freedom while 126.85 was the calculated value of chi square. The calculated value was much greater than the table value. Therefore, hypothesis H₀ (01) in large category schools that “there is no association between overall classroom environment scores of girls of class X and female teachers”, was not accepted.

Table 8.2: Overall Classroom environment of Girls Schools in Medium Category

Respondents/Responses	SA	A	UNC	DA	SDA	Total	Chi Square Value
Female Teachers	286 (339.16) (8.33)	300 (243.72) (12.99)	65 (64.16) (0.01)	85 (76.02) (1.05)	34 (46.91) (3.55)	770	56.87
Girls of Class X	343 (289.83) (9.75)	152 (208.27) (15.20)	54 (54.83) (0.01)	56 (64.97) (1.23)	53 (40.08) (4.15)	658	
Total	629	452	119	141	87	1428	

Level of Significance 0.05

Table 8.2 indicates that the table value of chi square is 9.49 at level of significance 0.05 by taking 4 degrees of freedom while 56.87 was the calculated value of chi square. The calculated value was much greater than the table value. Therefore, hypothesis H₀ (01) in large category schools that “there is no association between overall classroom environment scores of girls of class X and female teachers”, was not accepted.

Table 8.3: Overall Classroom environment of Girls Schools in Small Category

Respondents/Responses	SA	A	UNC	DA	SDA	Total	Chi Square Value
Female Teachers	121 (139.22) (2.38)	133 (98.17) (12.35)	10 (17.40) (3.14)	23 (22.65) (0.005)	21 (30.53) (2.97)	308	31.01
Girls of Class X	303 (284.77) (1.16)	166 (200.82) (6.03)	43 (35.59) (1.53)	46 (46.34) (0.002)	72 (62.46) (1.45)	630	
Total	424	299	53	69	93	938	

Level of Significance 0.05

Table 8.3 indicates that the table value of chi square is 9.49 at level of significance 0.05 by taking 4 degrees of freedom while 31.01 was the calculated value of chi square. The calculated value was much greater than the table value. Therefore, hypothesis H₀ (01) in large category schools that “there is no association between overall classroom environment scores of girls of class X and female teachers”, was not accepted.

Table 8.4: Association of Classroom Environment with Academic Achievement in all Categories

Responses (A)	Academic Achievement (B)	Values for (A)	Values for (B)	Ranks for (A)	Ranks for (B)	U Value	Z-score
2315	330	260	0	3	1	7*	-1.707
1585	436	499	39	8	2		
260	513	507	269	9	4		
507	269	1585	330	11	5		
499	39	2315	415	12	6		
-	0	-	436	-	7		
-	415	-	513	-	10		
5=n ₍₁₎	7=n ₍₂₎	-	-	43=R1	35=R2		
$U_1 = n_{(1)} n_{(2)} + (n_{(1)} (n_{(1)} + 1)) / 2 - R1 = 5 \times 7 + (5 (5 + 1)) / 2 - 43 = 7$ $U_2 = n_{(1)} n_{(2)} + (n_{(2)} (n_{(2)} + 1)) / 2 - R2 = 5 \times 7 + (7 (7 + 1)) / 2 - 35 = 28$ The critical value of U at $p \leq 0.05$ is 5.							

*Significant at 0.05 levels

The analysis regarding the effect of classroom environments in secondary schools for girls in academic achievement from female students and teachers in large, medium and small category schools is given in table 8.4.

Table 8.4 indicates that the effect of independent variable "Classroom Environment" on the academic achievement of Girls. The results are presented the information about the Z - ratio and U-value. The Z - score was -1.707, while the table value of Mann Whitney two tailed U-test is 5 at level of significance 0.05. The calculated value of U- statistic was 7. Since the calculated value of U-statistics are greater than the table value, therefore, the hypotheses $[H_0]_2$ was rejected, which shows that a significant association exists between academic achievement and classroom environment of secondary school girls for female teachers and girls in all categories of schools.

9. Findings

Following were the major findings of the study:

It was found that classroom environment during the teaching learning process was effective in the academic achievement of girls at secondary school level. The classroom environment indicated the existence of adequate physical and modern instructional facilities of classroom for teaching and learning process. The positive effect of classroom environment on academic achievement was found in small, medium and large category schools (Table 8.1 to Table 8.4).

10. Conclusion

On the basis of the findings, it was concluded that there is a positive significant effect on classroom environment for the academic achievement of secondary school girls in small, medium and large category schools.

11. Recommendations

On the basis of the conclusion it is recommended that classroom environment may be made attractive for teaching learning process in secondary schools of Pakistan. For this purpose, some extra funds may be allocated to make the classroom learning environment equipped with basic and modern facilities. Teachers may use innovative ways to make the classroom environment attractive for students.

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