Determinants of Students' Academic Achievement at Secondary School Level

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Abstract

The present study aimed at investigating socio economic status, school climate and study habits of secondary school students as determinants of academic achievement. The study also explored study habits based on gender and locale basis. The study was conducted on 1500 students of 10th grade from 60 schools. Data were collected through School Climate Student Questionnaire (SCSQ) developed by Dr. Georgia Pashiardis, Study Skills Inventory developed by Dennis H. Congos, and socio-economic status questionnaire. The achievement scores of students were collected from the result Gazette for the secondary schools' annual examination of concerned Boards of Intermediate and Secondary Education Punjab. Data were analyzed through descriptive and inferential statistics. Results showed that parents' socio economic status, school climate and study habits had impact on students' academic achievement. Gender and locale had impact on study habits of students. In the light of findings, it was inferred that the enhancement of school climate and development of good study habits may improve academic achievement of students.

Keywords: Socio economic status, school climate, study habits, academic achievement.

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Introduction

Education is the right of every human being. Education helps people in improving their abilities, attitude, confidence, decision making, and ultimately, in attaining a good job. The improvement in human abilities and psychological skills can be achieved through improved student learning. However, a good employment opportunity depends upon quality education. Education systems, in general, focus on the completion of the course rather than the extent of knowledge gained by the students. Teachers don't behave like facilitators. They often act as tutors whose main target is to complete the syllabus before the deadline; ignoring the fact that the student is unable to digest so much information in such short periods of time which affects the academic achievement of the students. The reason for low academic achievement may also be rooted in family, school or in students' personal traits. Therefore, there is a need to gauge the relationship of the socio-economic status of parents, school climate, and students' study habits to probe the determinants of students' academic achievements at the secondary school level.

It is empirical that nations make colossal efforts and spend innumerable resources for enhanced quality education to improve student learning. The government of Pakistan is making efforts to improve the quality of secondary education. However, the results of public examinations at 5th, 8th, 9th, 10th, 11th and 12th levels don't meet the desired level of expectation after huge investments in the education sector. This dilemma imposes pressure to investigate the root causes of under achievement of students. Research related to the socio-economic status and study habits of students from secondary schools in Pakistan, has not been conducted yet. Akhtar & Niazi (2011) found a gap in the research concerning the relationship of socio-economic status, school climate, students' academic achievement and study habits of students at the secondary school level in Pakistan and directed future research to be conducted.

Student learning which is directly related to academic achievement is categorized into three major factors: family, institutional, and personal factors. Family factors relate to socio-economic status including parents' qualifications and occupation, family size, income and social standing in society and home environment. Institutional factors include educational environment, curriculum, extent of physical amenities and teachers' competencies and behavior with students. Students' personal factors may include intelligence, attitude, motivation, interests, and aptitude and study habits. Out of the above-mentioned factors, the effect of socio-economic status, school climate and study habits needs to be researched thoroughly to investigate their impact upon student learning and academic achievement.

Economic and social status of the family, parental educational level, occupational status, income level, and the emotional environment at home are essential factors that help the students reach their potentials in a maximum productive way (Lam, 1997). Socio-economic status is a social stratum in the society. Families are defined into different social strata. On an international basis, families are usually categorized in five different categories, "upper class", "upper middle class", "middle class", "lower middle class" and "lower class" (Akhtar & Niazi, 2011). Barry (2005) testified that high achievers come from high socio-economic situations and low achievers are from lower socio-economic circumstances.

Johnson & Johnson (1993) described the second category of institutional factor as a school climate which includes environmental aspects of the school, the personalities of the students and educators, academic performance, levels of physical activity, and the processes and materials used throughout the instructional procedures. A good quality school climate is linked with students' academic achievement (Hattie, 2009), and builds students' capacity for learning (Johnson, 2006).

Personal factors of students are directly proportional to the motivation and study habits. Rothkopf (1982) argued that students' attitudes towards the act of studying refer to study habits whether students study at the same time each day, whether they shut off the radio or television while reading, and whether they paraphrase and write down what they have read. Study habits also activate and facilitate the internal process of learning. Rothkopf also coined the term "*mathemagenic*" meaning "*to give birth to learning"* which is something that learners do in processing (thinking about) learning material that causes learning and long-term retention of the learning material (Rothkopf, 1982).

Methodology

The research population was spread in 36 districts of Punjab province. Multistage sampling methods were used to attain a sample of grade 10 students from all public secondary schools of Punjab. The Province of Punjab was divided into five groups on the basis of their literacy rate. Then a total of five districts were chosen from these groups using simple random sampling technique. Six male and six female schools from each district were selected randomly. Thus fifteen hundred students in the 10th grade from sixty public sector secondary schools were selected as the sample of the study. Data were collected through the use of a school climate survey, "School

Climate Student Questionnaire" (SCSQ) developed by Dr. Georgia Pashiardis, Study Skills Inventory developed by Dennis H. Congos, and socio-economic status questionnaire. SCSQ covered physical, social and learning environment. There were two parts of this questionnaire. The school climate's social, physical and learning environments were assessed within the first part in a total of 53 statements. Eleven statements, or items, were used to test the "physical environment", twenty items were used to test the "social environment" and twenty two items were used to assess the "learning environment". The second part contained demographic information, for example gender, class size and type of school. Five point Likert rating scale was used to note down the responses. Study Skills Inventory comprised fifty three items and six sub scales: text book reading, note taking, memory, test preparation, concentration and time management. Eight items were included in text book reading, five items included in note taking, nine items included in memory, thirteen items included in test preparation, ten items included in concentration and six items included in time management. The achievement scores of students were collected from the result Gazette for the secondary schools' annual examination of concerned boards of Intermediate and Secondary Education Punjab.

Data Analysis

Data were analyzed by employing descriptive and inferential statistics. The School Climate Students' Questionnaire was administered to students to know their perceptions about their school climate. Students' responses enabled researchers to categorize schools in three categories as schools with poor, average and good climate. This categorization was done on the basis histogram on students' responses. Schools with a mean score less than Mean -1SD were considered as schools with poor environment, Schools with mean score = Mean ±1SD were considered as average, and schools with mean scores greater than Mean+1SD were considered as schools with good environment. Chi-square test was employed to compare environments of schools for male and female students, urban and rural schools and other categories of schools by gender and locale. The proceeding table presents the summary of chi-square test.

Table 1
Distribution of levels of school climate regarding their gender and locale

School Climate	N	Poor	Average	*Good*	χ^2
Male	30	5	22	3	.595
Female	30	5	20	5	
Urban	30	6	16	8	10.78**
Rural	30	4	26	0	
Male Urban	15	3	9	3	11.97
Male Rural	15	2	13	0	
Female Urban	15	3	7	5	
Female Rural	15	2	13	0	
Total	60	10	42	8	

**p<.01

Table 1 provides information about school climate. It shows that urban schools are significantly good in their climate. Moreover, it provides information that female schools are significantly better than male schools.

Table 2
ANOVA for Difference among schools having different climate on Academic Achievement of secondary school students

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	1310529.328	2	655264.664	129.802	<.001
Within Groups	7183570.647	1423	5048.187		
Total	8494099.975	1425			

The above table shows that academic achievement of students differs as a result in differences of school climate. ANOVA was conducted to see the differences. The results show that there is a significant difference (*F*=129.80, *p*<.001) in students' academic achievement of different school climate.

Table 3
Post Hoc Test Pairwise Comparison (Tukey test) of schools with different climate to students' Academic Achievement

(I) School Climate	(J) School Climate	Mean Diff. (I-J)	SE	*P*
Good	Poor	113.122(*)	7.108	<.001
	Average	72.962(*)	5.730	<.001
Average	Poor	40.160(*)	5.251	<.001

Pairwise comparison (Tukey Test) of schools having a different climate on students' academic achievement was conducted. The results show that students of poor school climate have low academic achievement (M= 293.14, SD=69.39) students of average school climate have average academic achievement (M=333.30, SD=69.50) and students of good school climate have good academic achievement (Mean=406.27, SD=81.05). It concludes that differences in school climate results differences in academic achievement of students.

Variation of Study Habits by its Components

The study habits scale comprised six sub scales, i.e., Test Book Reading, Note Taking, Memory, Test Preparation, Concentration, and Time Management. Mean and SD on all the six sub scales of study habits were computed to see which components of study habits are strong or weak in secondary school students.

Table 4
Mean, SD of Study Habits of secondary school students

Sub Scales of Study Habits	*Mean*	*SD*
Text Book Reading	3.69	.71
Note Taking	3.20	1.08
Memory	3.71	.73
Test Preparation	4.15	.55
Concentration	4.04	.53
Time Management	3.33	.90
Total Study Habits	3.77	.55

Table 4 provides information on study habits of students. The table shows that Test Preparation related study habits are relatively most common *(M = 4.15, SD = .55)* whereas Note Taking related study habits are least common (*M*=3.20, *SD* = 1.08) among Concentration, Memory, Text Book Reading and Time Management related study habits.

Difference of Study Habits in Male and Female Students

Table 5 summarizes the data analysis in Study Habits of male and female students of secondary schools. The statistical differences were tested by applying a *t*-test.

Table 5
Comparison between male and female students on Study Habits

Variable	Gender	M	SD	t-value	p
Text Book Reading	Male	3.62	0.71	-3.43	<.001**
	Female	3.75	0.70		
Note Taking	Male	3.12	1.08	-2.64	0.008**
	Female	3.27	1.07		
Memory	Male	3.62	0.71	-4.35	<.001***
	Female	3.79	0.74		
Test Preparation	Male	4.14	0.56	-0.66	0.509
	Female	4.16	0.54		
Concentration	Male	3.98	0.54	-4.22	<.001***
	Female	4.10	0.51		
Time Management	Male	3.36	0.87	0.93	0.351
	Female	3.31	0.92		
Study Habits	Male	3.73	0.54	-3.17	.002**
	Female	3.82	0.55		

$*P<0.05, **P<0.01, ***P<0.001$

Table 5 portrays the comparison between male and female students in study habits. It shows that there are significant differences ($P<0.05$) between the male and female students on the habits of Text Book Reading, Note Taking, Memory and Concentration. The mean values of the female students on the dimensions of Text Book Reading ($M=3.75$, $SD=0.70$), Note Taking ($M=3.27$, $SD=1.07$), Memory ($M=3.79$, $SD=0.74$) and Concentration ($M=4.10$, $SD=0.51$) of study habits are better than the mean values of the male students on their study habits. It reveals that female students are better in Text Book Reading, Note Taking, Memory and Concentration than the male students. Similarly, a significant difference is found in the total study habits. It shows that urban students have better study habits.

Difference of Study Habits in Rural and Urban Students

Data were analyzed to see the difference in Study Habits of rural and urban students of secondary schools. Significance of difference was tested by employing a *t*-test.

Table 6

Difference between Urban and Rural students on Study Habits

Variable	Group	M	SD	T	P
Text Book Reading	Urban	3.84	0.62	9.75	<.001***
	Rural	3.49	0.76		
Note Taking	Urban	3.38	1.02	7.44	<.001***
	Rural	2.96	1.11		
Memory	Urban	3.87	0.67	10.05	<.001***
	Rural	3.49	0.75		
Test Preparation	Urban	4.23	0.49	6.65	<.001***
	Rural	4.04	0.61		
Concentration	Urban	4.13	0.48	7.76	<.001***
	Rural	3.92	0.56		
Time Management	Urban	3.51	0.86	8.93	<.001***
	Rural	3.10	0.90		
Study Habits	Urban	3.91	0.48	11.10	<.001***
	Rural	3.60	0.57		

*$P<0.05$, **$P<0.01$, ***$P<0.001$

Table 6 describes the comparison between rural and urban students in study habits. It shows that there are significant differences ($P<0.001$) between the rural and urban students in study habits of Text Book Reading, Note Taking, Memory, Test Preparation, Concentration and Time Management. The mean values of the urban students on all dimensions of study habits i.e. Text Book Reading (M=3.84, SD=0.62), Note Taking (M=3.38, SD=1.02), Memory (M=3.87, SD=0.67), Test Preparation (M=4.23, SD=0.49), Concentration (M=4.13, SD=0.48) and Time Management (M=3.51, SD=0.86) are better than the mean values of the rural students. It reveals that urban students are better in their study habits.

Table 7

SES, School Climate and Study Habits as the Predictors of Academic Achievement of Students

Variables	B	SE	β	T	P
Constant	-25.637	20.376		-1.258	0.209
SES	0.001	0.000	0.167	3.993	0.000***
School Climate	0.590	0.074	0.168	7.956	0.000***
Study Habits	1.346	0.127	0.447	10.592	0.000***

$R^2 = .471$

Table 7 shows results of multiple regression. Multiple regression was applied to see the effect of SES, School Climate and Study Habits on academic achievement. R^2 value was found to be 0.471. Consequently, it can be concluded that 47% variation in academic achievement is elucidated by socio-economic status of parents, school climate, and study habits. Study Habits is a significant predictor of academic achievement ($\beta=0.447$, $p<0.001$). Similarly, the SES ($\beta=0.0167$, $p<0.001$) and School climate ($\beta=0.168$, $p<0.001$) also affect the academic achievement of students.

Relationship between Parents' Socio economic status, School Climate, Study Habits and Academic Achievement of students

The following table presents a summary about the relationship of parents' SES, school climate, study habits and academic achievement of secondary school students. Correlation was applied to see the relationship of all the variables.

Table 8

Relationship between Parents' Socio economic status, School Climate, Study Habits and Academic Achievement of students

	1	2	3	4
1.Academic Achievement	-			
2.SES	.629**	-		
3.School Climate	.413**	.388**	-	
4.Study Habits	.663**	.887**	.402**	-

**p<.01

Table 8 reveals that the relationship between Parents' SES, School Climate, Study Habits and Academic Achievement of students. Correlation was found sufficient to explore the relationship of Parents' SES, School Climate, Study Habits and Academic Achievement. A positive and significant relationship exists among all variables. Students' study habits have strong relationship (r=.663) with academic achievement while SES (r=.629) and School Climate (r=.413) have moderate relationship.

Findings

The findings are as follows:

- Good school climate resulted in better study habits of students and better academic achievement of students, while poor school climate caused poor study habits of students and low academic achievement of students.
- There was variation in study habits of secondary school students.
- The female students are better in their study habits than the male students.
- The urban students are better in their study habits than the rural students.
- Socio-economic status of parents has impact on secondary school students' study habits.
- Study habits, socio-economic status and school climate are significant predictors of academic achievement of students.
- Study habits are a significant predictor of academic achievement of students.
- Students' study habits have a strong relationship with academic achievement.
- Socio-economic status and school climate have a moderate relationship.

Discussion

Findings of the study revealed that study habits of students have positive relationship with academic achievement. It also exposed that socio-economic status and school climate has an impact on students' study habits and academic achievement supported by studies of Chinn et al. (2010), Chaudhari (2013) and Kalaivani and Babu (2013).

Conclusions of this study revealed that locale and gender affects the study habits of students which is supported by other researches (Ogoemeka & Helen, 2013; Essuman et al., 2006). The results showed no large difference in study habits based on gender which is maintained by studies of Sarwar et al. (2010).

This study concluded that parents' socio-economic status has an impact on students study habits and academic achievement. These results were corroborated by previous studies conducted by Akhtar (2012), Downing (2008), Engle and Black (2008), Moyi (2006) and Farooq et al. (2011).

Recommendations

The following recommendations were made:

1. An enhanced environment of schools leads to better study habits of students and results in an improved academic performance. Therefore, it is recommended that efforts should be made to develop a better school climate.

2. This study is centered on the students' opinions regarding schools' climate. Therefore, another study needs to be done getting teachers' and principals' perceptions also.

3. This research does not provide a comparison of public and private schools. This in turns restricts our knowledge regarding the relationship between school climate and students' study habits related to their academic achievement.

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