

A STUDY OF RELATIONSHIP OF CERTAIN VARIABLES ON ACADEMIC ACHIEVEMENT OF SENIOR SECONDARY SCHOOL STUDENTS

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Abstract: Academic achievement level of the students determines the career development in this present age of science and education. The school performances of the children are greatly affected by a number of factors at home and schools. The present study is a humble attempt to find out the relationship and contribution of different variables (Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement) on the academic achievement of the Senior Secondary School Students. A sample involves of 240 Students (130 Boys and 110 Girls) of class XI from different schools of both urban and rural parts of Aligarh district have been drawn by employing Simple Random Sampling technique by using standardized tools. The findings of the study explored that all the four variables (Parental Involvement, Socio Economic Status, School Environment, and Scientific Attitude) had a positive contributions on the academic achievement of the senior secondary school students. The study also revealed a significant difference in the academic achievement of the students in relation to gender and locality.

Key Words: Academic Achievement; Parental Involvement; Socio-economic Status; School Environment; Scientific Attitude.

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Introduction:

Education enlightens the mind of the people and shows the mankind the right direction to move. The fundamental aim of education is not just making a child literate but to enhance rational thinking, knowledge and self- sufficiency among students and it is said that there is a willingness to change, there is hope for progress in any field of human endeavor. The progress of any nation depends upon the many factors and the educational status of the citizens is one of the most significant ones among them. Education in general as well as school education in particular plays a major role in molding the personality of children. To lay the foundation of holistic personality development of a child, school education is a must because it is during this period that a child is able to learn and understand things properly. School paves the way for a strong academic achievement that is very much important for a student to give a new direction to his career. Effective teaching and high academic achievement of student have always been a central focus of current educational reform movements. But there is disconnection between the classroom learning and the required education that is needed in real life of individuals to get economic progress so that they can earn substantial amount of money to lead a prosperous life. Educationists have been suggesting integration of classroom learning with real life but because of various factors on the way of learning even talented students are unable to get a proper employment in their life.

Academic achievement denotes to what and how an individual has got the information and knowledge qualitatively and quantitatively after a period of instruction given and demonstrate a performance carried out successfully by an individual on the completion of a learning class. It suggests that all those behavioral changes which take place in an individual as a result of various learning experiences can be termed as academic achievement (Chawla 2016). According to Dictionary of Education (2008), "Academic achievement is a measure of knowledge gained through formal education usually indicated by test scores, grade point average and degree." Thus academic Achievement refers to a degree or level of success or that of competency attained in some specific area related scholastic or academic work. Academic achievement can be defined as excellence in all academic disciplines, in class as well as extracurricular activities. It includes excellence in behavior, confidence, communication skills, punctuality, assertiveness, arts, culture, and the like.

Academic achievement is the important output of academic endeavors at all levels of education. The academic achievement of higher secondary students includes their achievement in all subjects such as languages, science, mathematics, social studies, etc. Research studies on academic achievement indicate the influence of student's socio-personal factors, family and parental characteristics, nature and type of school or educational institution, cognitive aspects, learning style, personality characteristics, etc. affect the academic achievement.

School environment

Carolyn (1982) described school environment —as the conditions, processes and psychological stimuli which affect the educational achievement of the students at all level. A school's environment is the thread that connects the multiple activities of students and teachers on a campus. A school's physical environment includes the school building, temperature, library, teachers, curricula activities and lighting as well as physical, biological, or chemical agents. The term school environment describes the environment that affects the behavior of teachers and students.

The environment factors play major role in the academic development of students at all level of learning as the student spend much of their time in schools their school environment has an effect on their academic progress. Many studies proved that academic achievement of a student is related to several psychological & environmental aspects of students and school Environment is also one of them.

According to Freiberg (1999), "School environment is about that quality of school that helps each individual feel personal worth, dignity and importance, while simultaneously helping create a sense of belong to something beyond ourselves".

Dorsy (2000) defined School environment, "as involving for key relationships: the relationship of a student to him or herself; a student to his or her peers; a student to his her parents and community; and a student to his or her school workers including teacher, administrator, and all staff".

The quality of education not only depends on the teachers but also in the effective coordination of the school environment with teachers and students at school premises (Ajao, 2001).

According to Ajewole and Okebukola (2000), a number of factors are said to have contributed to the students' poor academic achievement in school like poor study habits and lack of available resource materials, indiscipline, inadequate facilities, teachers' ineffectiveness, the teaching method and school environment is also major one among them.

Aliade (2008) was of the view s that learning environment should have good infrastructural development, adequate trained teachers, good leadership and adequate instructional materials among others.

Farombi (1998) was of the opinion that school environment have negatively influence on students' academic achievement especially if such environment lacks good school climate, instructional materials, discipline, physical facilities, has poor teacher quality and type of location.

Benipal and Singh (2014) in his study revealed that poor school facilities impact the teacher's performance and has negative effects on student's achievement and well-structured classrooms improve student's academic achievement.

Nazir and Mattoo (2012) studied the impact of school environment on academic achievement among young students. Results of the study identified that girls students whose performance were outstanding. Particularly the students of private schools have performed better than the government students. The study concluded that school environment has close relations with the academic achievement.

The effects of school environment had a co-relation with students' academic achievement. Study illustrate that beside school environment there are numerous factors that affects students performances which includes home environment, social interactions, friends influences and physical facilities at home and school affects their academic achievement (Byamugisha, 2010).

Surapuramath (2010) studied on the mutual relations of school climate and the academic achievement in the subject of mathematics. His study found high co-relation between school climate and students achievement.

Parental Involvement

To children, home is called the first school and its environment significantly contributes for the academic pursuit in addition to creating an atmosphere favorable for the children to gain a lot of life-oriented experiences. The home also greatly extends its services to the school, the formal education institution and the major role in this regard is of parents at home.

Parental involvement referred to the dedication of resources by the parents to the child within a given domain particularly concerning the activities at school (i.e. attending parent - teacher conferences and school activities) and at home (helping with homework asking about the school).

Davis (1991) explores that parenting as involving the selection of a plan to achieve a desired goal, including the continuous reappraisal of success and experience of emotion as a function of wanted and unwanted results

Eccles and Herolds (1993) described that parental involvement works as a filter for their child's experiences and abilities, parents may have effect their adolescents' self-perceptions and task values across achievement related aspects.

According to Maccoby and Martin (1983), "Parental involvement is described as the degree to which a parent is committed to his or her role as a parent and to the fostering of optimal child development".

"Parental engagement involves partnerships between families, schools and communities, raising parental awareness about the benefits of becoming engaged in their children's education, and providing them with the skills to do so" (Muller, 2006).

“The common wisdom is that parental involvement and strong schools are inseparable--that you cannot have one without the other. Indeed, research indicates a strong link between parental involvement and student achievement” (Hester, 1989).

Davies (1991) said that, “As society restructures itself, as communities restructure themselves and as schools restructure, parental involvement also is being transformed”.

“The term Parental involvement, in contrast, is used by some to refer only to those activities that take place in the school such as volunteering, meeting with teachers and other school personnel, attending school events, and parent teacher conferences” (Hill & Taylor, 2004).

Hill and Tyson (2009) conducted a meta-analysis based on 50 published studies on parent involvement in middle school and concluded that parental involvement was positively associated with students’ achievements. Shatkin and Gershberg (2007), revealed that parent participation in school governance can foster activism around school issues and lead to significant improvements in school performance. Although there is a substantial body of literature supporting positive associations between parent involvement and student achievement, there is evidence to suggest a more complex concept of this relationship (McNeal, 2012).

Students achievement effected by home environment and parental involvement. (Avinashilingan, et al 2005,).Family climate also affects the performance of child (Heaven and Ciarrochi 2008). Achievement of the students having favorable family climate are better than students having unfavorable climate .Parents should create an environment that is intellectually motivating for a child. This hidden curriculum at home depends on parental education. Education and occupation of parents positively influence the academic achievement of students (Suman Bala 2011) The academic performance of the students of one parent working group was better than both parents working group (Saini, S. 2005).

Socio-economic Status

Socio-economic Status (SES) illustrates the position and rank of an individual in the society where he or she is living. It is the mindset of the people that ranked an individual on the basis of

his social and economic status. SES denotes not only just income of a family but also include educational attainment, financial condition, and subjective perceptions of social status and class. SES has various connotations such as quality of life attributes and opportunities that people privilege while living within society. Further, SES is a reliable predictor to assess the educational achievement, including physical and psychological health of the students.

Santrock (2004) defines it as “the grouping of people with similar occupational, educational, and economic characteristics”.

Woolfolk (2007) calls SES “the relative standing in society based on income, power, background and prestige”.

Attitude can be defined as “feelings, beliefs and values held about the enterprise of school science, school science and the impact of the science on society” (Osborne, 2003).

SES has its great importance in predicting the academic achievement of students. Ewijk and Slegers (2010) concluded the fact that SES is one the contributing factor in expecting the academic achievement of a student. Hence it is the SES which correlate the academic performance (Sirin 2005; and Barry 2005).

An opinion of the society is that the students belongs to Upper class have countless number of opportunities to interact with learning environment and exhibit bigger achievement. Contrary to this, students come from lower SES have lesser number of prospects and chances (Akhtar, Hamid & Niazi, 2011).

In analyzing the SES of children it is essential to observe their parents Status. The children whose parents have better educational background are more likely to move upward in their academic achievement (Stella et al, 2012), as they have more opportunities that facilitate them to ascent in their overall achievement (Akhtar et al, 2011). This doesn't make any difference whether these achievements are scholastic or co-scholastic. The children have no role to play in building their status rather it is the status which they acquire from their parents.

Scientific attitude

The term scientific attitude of a person shows his interest towards Science and that is sub reflected in his lifestyle and also in the cognitive, affective and conative abilities. Attitude towards Science determines an interest or feeling towards studying Science. It is the student's outlook towards 'like' or 'dislike' Science (Olatunde, 2009).

The inclination of a child become very important for teacher by studying his attitude towards Science subject. It brings a sign that how he would be able to get benefit from the subject cognitively, affectively and co-natively. The academic achievement is determined by the attitude, which a student illustrates towards Science (Singh & Giri, 2016).

It is perceived that students who possess greater scientific attitude in their habit and possess greater logical and rational aptitude in their daily routine work seem to have greater achievement in their scholastic and co-scholastic fields (Tiwari and Anwar, 2015).

Stefan and Ciomos (2010) revealed the fact those students who have good command over Science subjects show a good amount of self-confidence in all walks of their life. Thus, it is evident that attitude towards Science of especially school going children plays a more valuable role in their academic achievements

The planned and sustained growth of any nation in both the quality and extent of education and research in Science and technology (Education commission 1964-66).The studies of (Dhindsa & Chung, 2003) also showed that there is no difference in the attitude of boys and girls towards Science. Bearing in mind the importance of learning Science, it becomes very important for schools and families in particular and society at large to grow up good attitude toward learning, Intelligence, learning skills among students and provide good socio-economic conditions for their effective learning and performance in Science. (Narmadha and Chamundeshwari, 2013).

Methodology:

The present study establishes the association Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement with Academic achievement of Senior Secondary School

students. A sample involves of 240 Students (130 Boys and 110 Girls) of class XI from different schools of both urban and rural parts of Aligarh district have been drawn by employing Simple Random Sampling technique. Scientific Attitude Scale by Sukhwant Bajwa & Monika Mahajan (2009), Socio-economic Status Scale by Ashoka K. Kalia and Sudhir Sahu (2012), School Environment Scale by Dr. K. S. Misra (2012) and Parental Involvement scale by (2013) was developed and standardized for data collection purpose while total marks obtained by the students in former class was used as their academic achievement. Statistical techniques like Mean (M), Standard Deviation (S.D), t-test, Correlation and Regression Analysis are used in the present study.

Objectives of the Study:

1. To study the significant contribution of all the Independent variables (Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement) on the Academic achievement of the Senior Secondary level.
2. To study the relationship between Independent variables (Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement) with the Academic achievement of Senior Secondary School Students.
3. To study the difference in the Academic achievement of male and female students at Senior Secondary level.
4. To study the difference in the Academic achievement of urban and rural students at Senior Secondary level.

Hypotheses of the Study:

1. There is no significant contribution of Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement on the Academic achievement of Senior Secondary School Students.
2. There is no significant relationship between the Independent Variables (Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement) with the Academic achievement of Senior Secondary School Students.
3. There is no significant difference in Academic achievement between the male and female Senior Secondary School students.

4. There is no significant difference in Academic achievement between urban and rural Senior Secondary School Students

Data Analysis:

Table 1. Model Summary Model Summary for Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.821	.674	.667	.289

The multiple regression with academic achievement shows a regression coefficient (R) of 0.837 which shows a relation between Academic achievement with independent variables. The Coefficient of determination (R^2) of 0.667 indicates that 66.7 % of the variability in academic achievement is explained by all the four independent variables.

Table 2. Coefficients Coefficient for Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.791	.174		-4.541	.000
	Scientific Attitude	.004	.003	.076	1.242	.216
	Socio-economic Status	.012	.002	.580	6.080	.000
	School Environment	.001	.001	.127	1.609	.109
	Parental Involvement	.017	.004	.186	4.266	.000

Table 2. Shows that 7.6% of the academic achievement is contributed by Scientific Attitude while Socio-economic Status, School Environment and Parental Involvement contributes 58%, 12.7% and 18.6% respectively.

It is inferred from the study that out of four independent variables, Socio-economic Status contributed utmost being 58% to academic achievement for the total sample of this study. The other three independent variables Scientific Attitude, School Environment and Parental Involvement are also contributed to academic achievement but little slighter than Socio-economic Status. Table 1 shows that their collective contribution is 66.7% and Scientific Attitude being the least contributor to academic achievement i.e. 7.6%. The highest influence to academic achievement of Senior Secondary School students is of Socio-economic Status.

Table 3. Showing the relationship among Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement with Academic achievement of Senior Secondary School students

Variables	Scientific Attitude	Socio-economic Status	School Environment	Parental Involvement
Academic achievement	.25	.72	.65	.53

Coefficient of correlation between the predictive variables i.e. Scientific Attitude, Socio-economic Status, School Environment and Parental Involvement with criterion variable (Academic achievement) are .25, .72, .65 and .53 respectively. All the coefficients are Positive and Significantly Correlated.

Table 4. Showing the Comparison of Academic achievement between Male and Female Students

Gender	N	Mean	S.D.	Sig (2-tailed)
Male	130	61.27	7.52	.004*
Female	110	63.64	3.28	

*Significant at .05 level

The P-value < .01 level in the Table 4 shows that there exists a significant difference in the Academic achievement between the male and female Senior Secondary School students. Thus the null hypothesis that “there is no significant difference in Academic achievement between the male and female Senior Secondary School students” is rejected. It shows that the Academic achievement between male and female Senior Secondary School students is of different nature. There lies a variance in their Academic achievement. The mean value of male and female students are 61.27 and 63.64 respectively. The p-value indicates that there exists a significant difference lies in the level of Academic achievement and we can say that Academic achievement is affected gender.

Table 5. Showing the Comparison of Academic achievement between Urban and Rural Students

Area	N	Mean	S.D.	Sig (2-tailed)
Urban	124	65.20	5.09	.003*
Rural	116	63.47	2.86	

*Significant at .05 level

P-value < .01 level in the Table 5 shows that there exists a significant difference in the Academic achievement between the urban and rural Senior Secondary School students. Thus the null hypothesis that “there is no significant difference in Academic achievement between urban and rural Senior Secondary School Students” is rejected. It shows that the Academic achievement between urban and rural Senior Secondary School Students are unlike. There lies a dissimilarity in their level of Academic achievement. The mean value of urban and rural students are 65.20 and 63.47 respectively. The p-value indicates that there exists a significant difference lies in the level of Academic achievement and we can say that Academic achievement is affected by area and location.

Conclusion

The findings of the study revealed that school environment, socio economic status, parental involvement and scientific attitude contribute positively in the academic achievement of senior secondary school students. Positive School environment and home climate is very much essential

for the academic achievement of students as well as scientific attitude of the students play a significant role in science achievement. The present study can be important to parents, teachers and educators as educational policies can be made by taking in to consideration the findings of the study. Rural students were found lower in their academic achievement in comparison to urban students, hence educators should focus on the development of rural areas education. The following recommendations were made by the researchers in the light of the above findings.

Recommendations

1. Secondary Schools should create positive environments with all physical facilities that facilitate students' moral, cognitive and psychomotor skills.
2. Schools should provide more practical-oriented activities especially to science students to develop their competency in science and technology.
3. Teachers should motivate the students toward the importance of science as it's an era of science by treating their study habits toward this field.
4. Special attention should be given to remote areas by the government to establish new schools with ICT support as the academic achievement of rural students is poorer than urban ones.
5. Parents should be welcomed at schools premises and parent's teachers meetings should be regular in schools.
6. Parents should also engage in home work and assignment as well as other co-curricular activities with their child such as holiday's festivals, school feasts, sport events etc. It has a positive impact on children's mind that parents value their schooling.
7. The findings of this study suggest a need for further investigation on large samples to explore the effect of these and other variables on the academic achievement of students.
8. The study also recommended that Government should provide incentives and infrastructure in schools conducive to children belonging to poor socio economic status.
9. Education should be made job- oriented specially at senior secondary level as most of the students of lower socio economic students are not capable to carry on further study to higher education.

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