

Achievement in Mathematics as Related to Study Habits of the Adolescents

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Abstract

Quality of education is reflected through academic achievement which is a function of study habits. Researchers believe that good study habits are the gateways of knowledge and wisdom. Achievement in Mathematics refers not only to obtaining excellent marks in the grade level examination but it also refers to the attainment of Mathematical abilities and skills. Mathematics achievement means knowledge attained or skills developed in the subject usually designated by the test scores or marks assigned by teachers or both (Good, 1973) and Study habit is the tendency of a pupil to study when the opportunity is given (Good, 1959). The present study was conducted to explore the relationship between Achievement in Mathematics and study habits of the adolescents. The study shows that the value of calculated co-efficient of correlation between Achievement in Mathematics and Study Habits came out to be -0.012 and the value is not significant at either 0.01 or 0.05 level of significance. It was concluded that there exist no correlation between Achievement in Mathematics and Study Habits of the adolescents.

Introduction

The quality of human resource of a country depends upon quality of education and quality of education besides other factors depends upon study habits and attitude of the learners. Quality of education is reflected through academic achievement which is a function of study habits. "Poor habits of study not only retard school progress but develop frustration, destroy initiative and confidence and make prominent the feeling of worthlessness towards himself and the

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subject of study whereas effective methods ensure success, happiness and sense of accomplishment” – Smith and Littlefield (1948). Education aims at tapping the potentialities of an individual to the maximum. Efforts are made to make the teaching-learning process most effective. A teacher must take into account the learner's attitudes and if necessary build up new attitudes in order to facilitate the learning of skills and knowledge. “Good work habits and skills are not acquired theoretically or in vacuum, it is proper habit of work and insistence on them in every detail and over a long period of time that create right attitudes and values” (Secondary Education Commission, 1952-53).

All the subjects of study contain information necessary to become a knowledgeable and functional member of our society. As we become more dependent on the technology, we require more technical reasoning for survival. Mathematics is no longer just a subject taken by the elite rather it has become a necessity in our educational systems. Mathematics is rightly said to be the father of all the sciences. The person can never be a good scientist till he develops a reasonable practical aptitude in Mathematics. In the present fast paced life more emphasis is laid on the achievement in Mathematics. Studying Mathematics is essentially cognitive in character. It inculcates in pupil a problem solving ability, logical reasoning, a clear expression of thoughts etc. Achievement in Mathematics refers not only to obtaining excellent marks in the grade level examination but it also refers to the attainment of Mathematical ability and skills.

There are various factors that affect the achievement of students. Many factors may be considered responsible for the high or low achievement of student and study habits is one of them. Students who have good study habits are likely to excel others of equal intelligence because of their superior study habits. Study habits imply a sort of more or less regular method of studying. Researchers believe that good study habits are the gateways of knowledge and wisdom. It is

one of the effective means of systematic development of knowledge, language and personality of an individual. There are many factors viz. concentration, motivation, keen observation, adjustment in school, networking etc. which influence the proper development of study habits. Quality of education is reflected through academic achievement which is a function of study habits. Thus to enhance the quality of education, it is necessary to improve the study habits of the students.

Achievement in Mathematics

Mathematics is the mirror of civilization. The place of Mathematics in modern education must be determined by an analysis of the culture and civilization of the modern society. The Kothari Commission (1964-66) report rightly points that the study of Mathematics plays a prominent role in the modern education. Mathematics is the foundation of all disciplines including science and technology. The subject plays a major role in determining the strength of any nation's workforce. We must improve achievement in Mathematics to maintain our economic leadership. While technology advances with lightning speed, poor performance in school Mathematics changes the student's future and endangers our prosperity and our nation's security.

Achievement in Mathematics is the level of attainment of proficiency in Mathematics work as evaluated by teachers or by standardized test, or by a combination of both (Chaplin, 1961). Mathematics achievement refers to understanding of mathematical concept, application of knowledge to new situation and logical reasoning as involved in interpretation of data, identification of missing links etc.(Kulkarni, Lal and Naidu, 1970). Mathematics achievement means knowledge attained or skills developed in the subject usually designated by the test scores or marks assigned by teachers or both (Good, 1973). Mathematical achievement is the level attained in academic work or as formally acquired knowledge in school subject which is often

represented by percentage of marks obtained by the students in examination (Kohli, 1975).

Study Habits

Study habits are one of the major factors that contribute towards the academic achievement of students. Every individual has got his own habit of studying. Some individuals believe in the habit of regularity, punctuality and planning. Some students study with definite plans from the very beginning. But some students start their study just before a few days of their examination.

Eysenck, Meille and Arnold (1972) defined habit as a customary pattern of behavioural, cognitive or emotional response predictable according to the conditions of operating at the time of response and acquired by a process of learning or the underlying set of tendency towards that response. Habits e.g. can be study habits, play habits, eating habits and so on. Habit is an accomplished form of behaviour in which things are done quickly, accurately and automatically with little voluntary attention (Burt, 1957). Study is planned effort on the part of the learner in solving a problem, in getting knowledge or understanding or in acquiring certain abilities and Study habit is the tendency of a pupil to study when the opportunity is given (Good, 1959). According to Mukhopadhyay and Sansanwal (1990), Study habits consists of nine different kinds of study behaviour i.e. comprehension, concentration, task orientation, sets, interaction, drilling, supports, recordings, and language.

Good study habits means planned and regular concentrated study. Study according to time-table, regularly preparing and learning lessons, adopting a sitting posture while studying, struggling hard to overcome difficulties. Good study skills and habits can help you to use your time more effectively and efficiently. It is a myth that the good student is born with some superior intelligence or intellectual ability. Achieving students put in considerable study time and concentration into their academic work. Study skills and habits are

learned, sometimes through formal training, but more often, through trial and error.

NEED OF THE STUDY

The changing job scenario and recent developments in every sphere of life, there arises a dire need to be fully equipped with skills and possess extraordinary potential for being successful. The potential and skill makes a person inwardly confident and thus helps him in facing the challenges of the dynamic world. Educators and parents long have been intrigued by the problem of student's low achievement in school. Many parents have had the frustrating experience of watching a child's poor performance because of the child simply not trying to improve the performance.

There are several variables that contribute to student success. These variables fall into 3 categories viz. Cognitive Entry Skills, Quality of Instruction, and Affective Characteristics. Thus to enhance the performance, it is necessary to improve the study habits and study attitudes of the child. To improve study habits and study attitude, we need to identify those factors which affect these characteristics adversely. Identification of these factors may lead towards remedial measures.

Study habits are one of the major factors that contribute towards the academic achievement of students. Every individual has got his own habit of studying. Some individuals believe in the habit of regularity, punctuality and planning. Investigator observed during interaction with the school students during supervised practice teaching of the teacher trainees that the achievement in Mathematics is not so satisfactory in spite of all out efforts by the teachers. Therefore, to find out the cause of declining achievement in Mathematics the present study was planned.

Objectives of the Study

1. To study the Achievement in Mathematics of adolescent boys and girls.
2. To study the Achievement in Mathematics of adolescents in Government and Private Schools.
3. To study the Study Habits of adolescent boys and girls.
4. To study the Study Habits of adolescents of Government and Private Schools.
5. To find out correlation between the Achievement in Mathematics and the Study Habits of the adolescents.

Hypotheses

1. There is no significant difference in the Achievement in Mathematics of adolescent boys and girls.
2. There is no significant difference in the Achievement in Mathematics of adolescents in Government and Private Schools.
3. There is no significant difference in the Study Habits of adolescent boys and girls.
4. There is no significant difference in the Study Habits of adolescents of Government and Private Schools.
5. There is no significant correlation between the Achievement in Mathematics and the Study Habits of the adolescents.

Design and Procedure of the Study

The present investigation was primarily designed to determine the relation between Achievement in Mathematics and the Study Habits of the adolescents. In the present study, sample comprised of 200 students and equal number of students were taken from both government and private schools i.e. 100 students (50 Boys and 50 Girls) were taken from each category of schools i.e. government and private schools. Equal number of boys and girls was taken for

the purpose of data collection. The data was collected in the year 2012 from 200 senior secondary school students of class XI on the basis of random sampling. Descriptive survey method was employed to collect the data. The investigator uses previous class final examination (Class X) scores to study Achievement in Mathematics and used Study Habit Inventory (SHI) by Mukhopadhyay and Sansanwal (1992) to assess the Study Habits of the adolescents. Achievement in Mathematics was taken as dependent variable while Study Habits was taken as independent variable.

Analysis and Interpretation of Data

The data collected was analysed by employing descriptive and inferential statistics and the results were interpreted. Descriptive statistics like Mean, Median, Standard Deviation, Skewness and Kurtosis were worked out in order to see the trend and nature of distribution of scores in two variables.

Table 1: Descriptive Statistics of Achievement in Mathematics and Study Habits

Dimensions	Mathematics Achievement	Study Habits
Mean	60.26	99.31
Median	58.00	96.00
S. D.	20.240	18.501
Skewness	.213	1.372
Kurtosis	-.984	2.223

N= 200

The table 1 shows the mean, median, S.D., skewness and Kurtosis corresponding to the two variables, i.e. Achievement in Mathematics and Study Habits. It is evident from the data that mean score of Achievement in Mathematics is 60.26, median is 58.00, S.D. is 20.240, Skewness is .213 and

Kurtosis is -.984 and 1.431 and the values for variable Study Habits are 99.31, 96.00, 18.501, 1.372 and 2.223 respectively. These values show that the distribution of scores is almost normal.

Table 2: Difference in Achievement in Mathematics with regard to gender

Dimension	Gender	N	Mean	S.D	t-value	df	Level of Significance
Achievement in Mathematics	Males	100	61.81	20.660	*1.087	198	0.01
	Females	100	58.70	19.792			

*Not Significant

Fig.1: Mean scores of Achievement in Mathematics of students with regard to gender

From the table 2, it is clear that mean score of Achievement in Mathematics of male students is 61.81 and the mean score of female students is 58.70, the t-value for the groups came out 1.087. Since the calculated t-value for two groups is less than the table value for 198 degrees of freedom, therefore, is not significant at 0.01 level of significance. Hence the null hypothesis 1 “There is no significant difference in the Achievement in Mathematics of adolescent boys and girls” is not rejected. Thus there is no significant difference in the Achievement in Mathematics of adolescent boys and girls.

Table 3: Difference in Achievement in Mathematics with regards to type of schools

Dimension	Type of Schools	N	Mean	S.D	t-value	df	Level of Significance
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Achievement	Govt.	100	62.04	24.080	*1.249	198	0.01
inMathematics	Pvt.	100	58.47	15.339			

*Not significant

Fig.2: Mean scores of Achievement in Mathematics with regards to type of schools

From the table 3, it is clear that mean score of Achievement in Mathematics of government schools students is 62.04 and the mean score of private schools students is 58.47, the t-value for the groups came out 1.249. Since the calculated t-value for two groups is less than the table value for 198 degrees of freedom, therefore, is not significant at 0.01 level of significance. Hence the null hypothesis 2 “There is no significant difference in the Achievement in Mathematics of adolescents in Government and Private Schools” is not rejected. Therefore, there is no significant difference in the Achievement in Mathematics of adolescents in Government and Private Schools.

Table 4: Difference in Study Habits of students with regard to gender

Dimension	Gender	N	Mean	S.D	t-value	df	Level of Significance
Study	Males	100	100.53	18.764	*.936	198	0.01
Habits	Females	100	98.08	18.246			

*Not significant

Fig.3: Mean Scores of Study Habits of students with regard to gender

From the Table 4 it is clear that mean score of Study Habits of boys is 100.53 and the mean score of Study Habits of girls is 98.08, the t-value for the groups came out .936. Since the calculated t-value for two groups is less than the table value for 198 degrees of freedom, therefore, is not significant at 0.01 level of significance. Hence the null hypothesis 3 “There is no significant difference in the Study Habits of adolescent boys and girls” is not rejected. Thus there is no significant difference in the Study Habits of adolescent boys and girls.

Table 5: Difference in Study Habits of students with regards to type of schools

Dimension	Type of Schools	of N	Mean	S.D	t-value	df	Level of Significance
Study Habits	Govt.	100	101.47	20.521	*1.662	198	0.01
	Pvt.	100	97.14	16.045			

*not significant

Fig.4: Mean Scores of Study Habits of students with regards to type of schools

From the Table 5 it is clear that mean score of Study Habits of students of government schools is 101.47 and the mean score of Study Habits of students of private schools is 97.14, the t-value for the groups came out 1.662. Since the calculated t-value for two groups is less than the table value for 198 degrees of freedom, therefore, is not significant at 0.01 level of significance. Hence the Null hypothesis 4 “There is no significant difference in the Study Habits of adolescents of Government and Private Schools” is not rejected. Thus there is no significant difference in the Study Habits of adolescents of Government and

Private Schools. However, the study conducted by Kaur (2003) on the Study Habits of X class students studying in Government and Private schools of Hoshiarpur district reported a significant difference.

Table 6: Co-efficient of Correlation between the Achievement in Mathematics and the Study Habits of the adolescents

Variables	Degree of freedom (df)	Correlation	Table value at 0.05 level	Table value at 0.01 level
Achievement in Mathematics and the Study Habits	198	*.012	.233	.302

*Not significant

From the Table 6 it is clear that the coefficient of correlation between the Achievement in Mathematics and the Study Habits of the adolescents is 0.012, and the table value at 0.01 level is .302 and the table value at 0.05 level is .233. Hence, the value is not significant at either 0.01 or 0.05 level of significance. Hence, the null hypothesis “There is no significant correlation between the Achievement in Mathematics and the Study Habits of the adolescents” is rejected. Thus there is no significant correlation between the Achievement in Mathematics and the Study Habits of the adolescents.

Findings and Conclusion

From the data analysis and interpretation of the results the followings conclusions can be drawn.

1. Mean scores of Achievement in Mathematics of male students is 61.81 and the mean score of female students is 58.70, the t-value for the groups came out 1.087. Since the calculated t-value for two groups is less

than the table value for 198 degrees of freedom hence, there is no significant difference in the Achievement in Mathematics of adolescent boys and girls.

2. Mean score of Achievement in Mathematics of government schools students is 62.04 and the mean score of private schools students is 58.47, the t-value for the groups came out 1.259. Since the calculated t-value for two groups is less than the table value for 198 degrees of freedom hence, there is no significant difference in the Achievement in Mathematics of adolescents in Government and Private Schools.
3. Mean score of Study Habits of boys is 100.53 and the mean score of Study Habits of girls is 98.08, the t-value for the groups came out .936. Since the calculated t-value for two groups is less than the table value for 198 degrees of freedom hence, there is no significant difference in the Study Habits of adolescent boys and girls.
4. Mean score of Study Habits of students of government schools is 101.47 and the mean score of Study Habits of students of private schools is 97.14, the t-value for the groups came out 1.662. Since the calculated t-value for two groups is less than the table value for 198 degrees of freedom hence, there is no significant difference in the Study Habits of adolescents of Government and Private Schools.
5. The coefficient of correlation between the Achievement in Mathematics and the Study Habits of the adolescents is 0.012, and the table value at 0.01 level is .302 and the table value at 0.05 level is 0.233. Hence, there is no significant correlation between the Achievement in Mathematics and the Study Habits of the adolescents.

From the above discussion of the results we can infer that Achievement in Mathematics and Study Habits of the adolescents are not related as far as the

data so analysed is concerned. For further conclusions and inference study required to be replicated at large scale covering large population of the adolescents.

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