

A Study of Academic Achievement in Science in Relation to Study Habits of Secondary School Students

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Abstract

Academic achievement of the students is mainly dependent on study habits where it place important role learning process. The present study is an effort to plot difference in achievement status of secondary school students. The paper throws light on the academic achievement in science in relation to the study habits of secondary school students of Karwar city. The study is restricted to students of IX standard in different schools of Karwar. A sample of 600 students 346 boys and 254 girls were selected for the study using stratified random sampling technique. The paper concentrates on how achievement of students in science is associated with various psychological and social factors. It also states how the technology can contributes towards better achievement using tech -savvy study habits.

Introduction

Man has been trying to understand the changes going around him and has been constantly receiving a great number of impressions through his various senses such as hearing, sight, smell, taste and touch. Making an effective use of his senses and using his communicative ability he accumulated information about his surroundings, organized this information and sought regularities in it and tried to find out why the regularities exist and finally transmitted his findings to the next generation. This systematized store of human knowledge gained after generalizing and inter-relating the various isolated facts is known as '*Science*'.

Science is universal but has been defined in different ways, example,
"Science is a systematized body of knowledge."
"Science is nothing but organized common sense."
"Science is a heap of truth."

Science Education in India

India is not a science-oriented nation. Its signal contributions in the realms of philosophy, ethics and religion have obscured its scientific aura. Certain sections in the Vedas and the Upanishads are replete with scientific information. There are references to the origin of the universe, the concept of atom, medicinal herbs and so on. The ancient Indians were experts in military science. The Universities at Takshashila and Nalanda were famous centres of learning, But due to propaganda caused by foreign aggressors and native religious leaders, the glory of ancient Indian science sank into oblivion.

With the advent of the British in 1600 A.D. modern science began to spread in India. But science education did not progress well during the British period. As the medium of instruction to teach science, English stood in the way of people who showed interest in learning science. The hostility against the British was extended to the Western

science too. Thus, scientific knowledge and outlook did not reach the masses, which was the main reason for the backwardness of India in science and technology.

Study Habits

The low understanding level accompanied by discouraging achievements of the students has become cause of great concern of our country and has bothered badly the educationists, parents, government and even the foreign countries at the eve of evaluating our students' knowledge. The educationists have made a number of systematic efforts to find out the causes of deterioration and suggested remedies thereof. Almost all the commissions and education policies have not only acknowledged the deterioration but also have presented suggestions for the improvement of the prevailing situation. In spite of all these efforts, the problem still seems to be unsolved. Amongst other drawbacks in the system of education, the study habits of the students play a vital role in reflecting the standard of education and the student's individual achievements. Sorenson (1991) while outlining the good basic study habits stated that one must study with the primary intention of understanding. This requires one not to be hurry in getting through, instead sustained concentration is necessary. According to Crow and Crow (1992), the effective habits of study include plan/place, a definite time table and taking brief of well organized notes.

The present study is an effort in the same direction in the light of the fact that teachers teach all students collectively but all students do not get the same grades. At this stage, we see underachievers and high achievers in educational achievements. Most of the teachers get puzzled on the sight of such situation and then either try to ignore or push too much. The treatment without the investigation into the responsible factors looks to be highly unscientific. There may be a number of reasons like different levels of intelligence, non-availability of sufficient physical facilities etc. But one of the reasons is that the students fail to make good efforts to learn the lesson taught in the class room. The study habits of the students could play pivotal role in learning process reflected in the academic achievements of the students. Rasul (1968) and Shafiq (1978) concluded that the habits have positive relationship with the learning, which result in better achievements. The students may fail to maintain higher level of achievements due to a particular study habit. It is, therefore, desirable that the students should be motivated toward such habits of study by which they may score good grades with better understanding of the subject matter. According to Kundu and Tutoo (1993) it has also been found that recitation method of study is better for immediate retention. Morgan (1956) stated that almost every student feels at one time or another that he should improve his study habits. So, it is the responsibility of teachers concerned to play their role by inflicting effective study habits among the students because left to self-training cannot be taken granted in any way.

The Problem

The present investigation is titled as: **A Study of Academic Achievement in Science in Relation to Study Habits of Secondary School Students**

Objectives of the study

1. To Study the differences in achievement in science of boys and girls of IX

Standard.

2. To study the achievement in Science of IX standard students in relation to their different levels of Study Habit.

Scope of the Study

Man has always been curious to find answers to the mysteries posed by the reality he lives in. One of the deepest and most profound is the one that in itself searches for the answer to how he came to be, to how his world originated, to how and when he and all living beings emerged from the nature they live in. All these questions are answered by science.

In the present study, the researcher intends to study the achievement In science of IX standard students studying in secondary schools of Karwar city in relation to some psychological factors like study habit, scientific attitude, achievement motivation and critical thinking.

Variables of the Study

In the present study the following variables were considered:

Dependent Variable

Achievement in Science

Independent Variable

Study Habits

Hypotheses of the Study

- There is no significant relationship between achievement in science and study habits among the students of IX standard studying in Karwar city.
- There is no significant difference in Achievement in science between IX Standard boys and girls.
- There is no significant difference in Achievement in science between IX Standard students belonging to low and moderate levels of study habits.
- There is no significant difference in Achievement in science between IX Standard students belonging to low and high levels of study habits.
- There is no significant difference in Achievement in science between IX Standard students belonging to moderate and high levels of study habits.

Research Tools Used

The following tools have been employed for collecting data for the present study.

For the purpose of measuring achievement in science of IX standard students, the researcher constructed an achievement test in science.

Study habits of IX standard students are measured with the help of study habits inventory developed by the Mukhopadhyay and Sansanwal.

Population and Sample

The students of IX standard studying in different schools of Karwar city during the 2013-14 constitute the population of the study. Out of the population, 600 students are

drawn as samples for the study. The sample includes 346 boys and 254 girls studying in schools of Karwar city. The basis for stratification being schools of Karwar city and gender, the researcher used the stratified random sampling technique to draw the sample.

Data Collection

The researcher administered the final tool for a sample of 600 students of IX standard drawn from different schools of Karwar city. During data collection researcher himself visited the different schools after approaching and getting the permission for data collection from the head of the institutions, met the concerned class teachers of IX standard with the help of them researcher ready for the collecting the data from the students. The confidentiality of the responses was assured. The collected data was systematically pooled for analyses.

Statistical Techniques

For the analysis of data collected, differential analysis, such as mean, standard deviation, ANOVA, t-test, analysis and correlation analysis were used.

Data Analyses

Table-1: Variables, Number, Df, Co-efficient of Correlation Values and Level of Significance between Achievement in Science and Study Habit

Variables	N	df	r-value	Level of significance
Achievement in science	600	598	0.275**	0.01
Study habit				

It is observed from the above table that a positive relationship is found between study habit and achievement in science among secondary school students. The value is tested for its significance using 'r'. The 'r' value 0.275 is found to be significant at 0.01 level of significance. It is positively low correlation. Therefore the null hypothesis rejected. Hence, it is inferred that there is a significant relationship between study habit and achievement in science of IX standard students.

Thus it is concluded that study habit and achievement in science are positively related.

Table-2: Number, Mean, SD, and t-value of Achievement in Science between Boys and Girls of IX Standard

Gender	N	Mean	SD	t-value	Level of Significance
Boys	346	30.13	10.144	5.269**	0.01
Girls	254	34.54	10.104		

It is observed from the above table that the mean difference between the boy and girls is found to be 4.41. This value is tested for its significance using 't'. The t-value 5.269 is found to be significant at 0.01 level of confidence. Therefore the null hypothesis

is rejected. Hence it is inferred that there is a significant difference in science achievement of boys and girls of IX standard students.

Thus it is concluded that the girls of IX standard are better in achievement in science when compare to boys of IXth standard students.

Table-3: Number, Mean, SD, and t-value of Achievement in Science between IX Standard Students belonging to Low and moderate Levels of Study Habits

Study Habits	N	Mean	SD	t-value	Level of Significance
Low	150	27.67	9.532	4.468**	0.01
Moderate	296	32.28	10.650		

It is observed from the above table that the mean difference between low and moderate levels of study habits is found to be 4.60. This value is tested for its significance using 't'. The t-value 4.468 is found to be significant at 0.01 level of confidence. Therefore, the null hypothesis is rejected. Hence, it is inferred that there is a significant difference between the IX standard students belonging to low and moderate level of study habits.

Thus, it is concluded that the students of IX standard belonging to moderate level of study habits performed better in achievement in science than the students belonging to low level of study habits.

Table-4: Number, Mean, SD, and t-value of Achievement in Science between IX Standard Students Belonging to Low and High Levels of Study Habits

Study Habits	N	Mean	SD	t-value	Level of significance
Low	150	27.67	9.532	7.532**	0.01
High	154	35.66	8.959		

It is observed from the above table that the mean difference between low and high levels of study habits is found to be 7.989. This value is tested for its significance using 't'. The t-value 7.532 is found to be significant at 0.01 level of confidence. Therefore the null hypothesis is rejected. Hence it is inferred that there is a significant difference between the IXth standard students belonging to low and high levels of study habits.

Thus, it is concluded that the students of IXth standard belonging to high of level study habits performed better in achievement in science than the students belonging to low level of study habits.

Table-5: Number, Mean, SD, and t-value of Achievement in Science between IX Standard Students Belonging to Moderate and High Levels of Study Habits

Study Habits	N	Mean	SD	t-value	Level of significance
Low	296	32.28	10.650	3.369**	0.01
High	154	35.66	8.959		

It is observed from the above table that the mean difference between moderate and high levels of study habits is found to be 3.38. This value is tested for its significance using 't'. The t-value 3.369 is found to be significant at 0.01 level of confidence. Therefore the null hypothesis is rejected. Hence it is inferred that there is a significant difference between the IXth standard students belonging to moderate and high levels of study habits.

Thus, it is concluded that the students of IXth standard belonging to high levels of study habits performed better in achievement in science than the students belonging to moderate level of study habits.

Major Findings of the Study

- There is a significant difference in achievement in science between IX standard boys and girls of Karwar city.
- There is a significant difference in achievement in science between IX standard students belonging to low and moderate level of study habits.
- There is a significant difference in achievement in science between IX standard students belonging to low and high levels of study habits.
- There is a significant difference in achievement in science between IX standard students belonging to moderate and high levels of study habits.
- There is a significant difference in achievement in science between IX standard students belonging to low and moderate levels of study habits.

Implications of the Study

Achievement of students in Science is associated with many psychological and social factors. Therefore, teachers of science should possess commitment, excellence, skill oriented in the subject science. It is to provide orderly and sequential learning situations for the students, so that they gain optimal achievement in the subject science.

In the present science & technology era, even ordinary schools also are elevated to hi-tech schools by providing modern teaching media like Science kit, information and communication technologies and modern education technology tools.

A science teacher has guide and direct students learning and for this purpose he' may take cognizance of the points mentioned below while planning and transacting science on his class.

- By developing students attitude towards the science subject.
- By arranging science diagnostic and remedial classes.
- By determining objectives in behavioural terms and applying objective based evaluation.
- By finding the remedies to pupils' difficulties in the field of science.

Secondary school Science teachers begin to develop such understandings from the first day of school, through activities, which engage students' emotions while helping them acquire a language to express these emotions. It is also important for teachers of young children to offer support to students in solving their own social problems and conflicts, but when a child is expected to confront in their own thinking, the reasons for treating other people with respect and the ways in which one can do so, "If we want schools to produce more powerful learning on the part of students, we have to offer more powerful learning opportunities to teachers."

Conclusion

Education has become a very complex phenomenon because of expansion of knowledge and demand of that knowledge on the part of the students. Students are no more required to memorize facts and pieces of information. In almost all disciplines, students are required to demonstrate high ability to develop an understanding of the subject matter.

Since the last few decades also constructivism and constructive approach in the learning have become general practice in educational institutions in many parts of the world.

Constructivism means that students should play active role in their learning and they should be provided with an opportunity to construct their own knowledge and meaning, instead of cramming. One of the requirements of constructivism is that students should adopt desired and good study habits so that they should learn independently. Reading and writing assignment are integrated part of good study habits. Similarly students are required to listen carefully to the lectures, take notes effectively and arrange their notes for better understanding.

There are different strategies that make study and learning more effectively. Students must know these effective strategies to make use of them while studying independently, because effective study habits and efficient work skills are necessary in a educational institution. So, the students may make effective use of their time and be able to select and understand the important ideas. Right and good study habits can increase the interest and positive attitude of the students towards the studies. Investigations have shown that students can save from one-fourth to one-third of their time if they systematize their efforts in accordance with the chief principles of learning.

Study Habits has main effect on Achievement in science among students of IX Standard. The students belonging to high group of

study habits performed better in Science than the students belonging to moderate and low group of study habits.

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