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## **Study of Achievement Motivation and Achievement in Science of the Secondary School Students**

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### **ABSTRACT**

The study was undertaken to examine the achievement motivation and achievement in science of secondary school students. The sample of the study comprises of 160 secondary school students of class X grade selected randomly from various secondary schools. Around 80 students from each type of schools i.e. private and government schools were taken. For this random sampling method was used. The study was done on the bases of gender and management. The data was analysed with the help of mean, standard deviation, t-test and correlation. The finding of the study revealed that there is positive and significant correlation between achievement motivation and achievement in science of secondary school students.

The study further reveals that there is no significant difference in achievement motivation in science among male and female secondary school students. It also found that there is no significant difference in achievement in science among male and female secondary school students. Whereas it is found that there is significant difference in achievement motivation in science in relation to government and private school students. Also there is a significant difference in achievement in science in relation to government and private school students.

Key words:-Achievement Motivation, Achievement, Science, Secondary School Students.

### **INTRODUCTION**

Education is a process of acquiring and being able to apply knowledge. Education leads to the broadening of mental horizons and refinement of the thought process. Education, more specifically formal education, is a deliberate attempt of influencing an immature person by a more mature person. This influence tries to refine a child of man and makes him a human being. This deliberate influence is made on all the three domains namely cognitive, conative and affective of a child and makes him a perfect man. Education may also be referred to the delivery/process of learning. Self awareness is a process of knowing about personal potentials, faculties, dreams, and desires. Knowledge is an awareness of self and surroundings. Knowledge also means knowing surroundings with its realities, structures, requirements, usages and their relationships to the self, once information is blended with personal vision, it becomes knowledge.



Achievement motivation is an essential element which affects the behavior of an individual. Achievement motivation is a drive to do well. The achievement drive in fact required to large extent for success in any field. Achievement geared person is one who sincerely tries to improve the conditions of life. As almost any activity, from gardening to managing an industrial organization, can be viewed in terms of competition and success versus failure, the need to achieve influences behavior in a large number of diverse situations, and because it is a learned motive, there are wide differences among individuals with respect to achievement. It is this difference in the strength of motivation to achieve that is important in understanding the development of the child. Both achievementsmotivation and motivation for competence are useful but effort is essential to accomplish both and learning probably comes faster to persons with high achievement motivation than to those with low achievement motivation. "The achievement motivation is conceived as a talent disposition which is manifested in over striving only when the individual perceives performance as instrument to a sense of personal accomplishment." **Atkinson and Feather(1966)**

The term academic achievement is made of two words - academic and achievement. The word "academic" has been derived from "academy" which means the school where special instructions are imparted. The word "academic" thereby means any activity or action that is scholastic in nature. Achievement means the proficiency of performance of an individual in a given skill or body of knowledge. Achievement may be the overall change in behaviour or attitude of a person after a long process of learning. Achievement is equivalent to attainment or aptitude and potential of an individual in a given assignment task or job. It is the status or level of person's skill, the range and depth of his knowledge or his proficiency in a designated area of learning or behaviour. Academic is used to describe things that relate to the work done in schools, colleges, and universities, especially work which involves studying and reasoning rather than practical or technical skills.

Hawes and Hawes, (1982) defined the word, academic referring to the institutional system of formal education, within a school, college or university, theoretical and not of practical importance, a scholarly person who works in higher education.

The importance of science education in Jharkhand is being reflected in every field of life. Science in Jharkhand industries have been grown up and it is full of minerals, science education is very much important in this state to explore and harness the potentiality of the state with regard to industrial and scientific development. Awareness of education in general and science education in particular is not much in this state. As a result science education is not in much progress. So state government should influence



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science education and people should take more interest in science to attain the goal of brightest lifestyle. The study of science must be a definite part of school and college for all interested students. Thus, science teaching should be taken up with a positive attitude and then we will surely get positive achievement in science.

Across the world science is increasingly being recognized as a subject of lifelong utility to students, whether or not they enter science related careers. In this world of 21<sup>st</sup> century it is the necessity to move to have more and more better equipped science literate populace for better economic development and social welfare, continuous new innovation and techniques in science forced educational planner and decision makers appropriate change in teaching and learning of science. Therefore, all over the world which contributes to high achievement in science are of utmost importance.

Bakhtiarvand, Ahmadian, Delrooz and Farahani (2011) undertook an investigation in order to find out the moderating role of achievement motivation on the relationship of learning approaches and academic achievement. Simple random sampling was used to collect the sample of 200 college students. Out of which 100 were males and 100 were females. Moderated hierarchical multiple regression was used. The results of the study revealed that achievement motivation moderated the effect of learning approaches on academic achievement significantly.

Baloria (2018) conducted a study to assess the achievement motivation of rural youth of Kathua District in Jammu and Kashmir and also to see the gender difference among them. Data comprises of 100 participants (50 girls and 50 boys). All the participants taken were in the age group of 18-21 and from all the semesters of B.A/B.Sc. course. Deo-Mohan achievement motivation scale (1985) was used to measure the achievement motivation of the participants. The t-test was used to find the gender differences among the students. The study found that there is significant difference among male and female participants. Females scored higher on achievement motivation as compared to their counterparts.

The present investigation is basically focused to study the achievement in science of the secondary school students in relation to achievement motivation as well as to study the difference of achievement in science with respect to gender and type of school. The study also intended to find out the difference of achievement motivation of secondary school students with respect to gender and type of school. Although several studies have been conducted with these variables individually yet the main focus of the present study is to investigate the interaction effect of these variables on



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academic achievement and how these variables are linked to each other and to academic achievement.

### **STATEMENT OF THE PROBLEM**

Study of achievement motivation and achievement in science of the secondary school students.

### **OBJECTIVES OF THE STUDY**

The study will have following objectives-

1. To study the achievement motivation and achievement in science of secondary school students.
2. To study the achievement motivation in science of secondary school students with respect to gender.
3. To study the achievement in science of secondary school students with respect to gender.
4. To study the achievement motivation in science of secondary school students with respect to management.
5. To study the achievement in science of secondary school students with respect to management.

### **HYPOTHESES OF THE STUDY**

1. The relationship between achievement motivation and achievement in science of secondary school students would be high.
2. There would be no significant difference in achievement motivation in science among male and female of secondary school students.
3. There would be no significant difference in achievement in science among male and female of secondary school students.
4. There would be no significant difference in achievement motivation in science among government and private secondary school students.
5. There would be no significant difference in achievement in science among government and private secondary school students.

### **DELIMITATION OF THE STUDY**

Extensive research is always desirable but due to time and resource constraint the study will be delimited to

- Jamshedpur city of Jharkhand only
- Secondary Schools of class X only

### **METHODOLOGY**

#### **Design of the Study**



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Methodology is a systematic way to solve a problem. It is a science of studying how research is to be carried out. Essentially, the procedures by which researchers go about their work of describing, explaining, and predicting phenomena are called research methodology. In other words methodology can be said to be one which give the work plan of research. The investigators have adopted the survey method for investigation of the problem. This helps to find out the real conditions, which are prevailing in the training institution. This study was a descriptive survey.

### **Sample**

A sample is a small proportion of a population selected for observation and analysis. A sample is a finite part of a static population whose properties are studied to gain information about the whole (Webster, 1985). When dealing with people it can be defined as a set of respondents (People) selected from a larger population for the purpose of the survey. So it can be said that sampling is a process of selecting units (e.g. People, Organizations) from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen. As a researcher I realized that optioning information from every person in a population is next to impossible. So instead of trying to collect the everyone's information, a collect of sample the population.

In the present study, the sample will consists of 160 secondary school students. Around 80 from each type of schools. For this random sampling method will be used.

### **TOOLS**

To carry out any type of research investigations, data must be gathered with which the hypothesis can be tested. A researcher will require a variety of research tools which may vary in their complexity, design, administration and interpretation. Each tool is appropriate for the collecting certain type of evidence or information. The researcher therefore has to select from the available tools which will provide data he seeks for testing hypothesis. Deo-Mohan Achievement Motivation (n-Ach) Scale developed by Pratibha Deo and Asha Mohan (1990) is used for this study.

### **ACHIEVEMENT MOTIVATION SCALES**

Achievement motivation can be defined as the need for success or the attainment of excellence. Individuals will satisfy their needs through different means, and are driven to succeed for varying reasons both internal and external. Motivation is the basic drive for all of our actions.

Achievement motivation has most often been measured through the scoring of fantasy elicited in story from by TAT and TAT like Stimule(1,2,3,4 ) A recent review of the evidence (9) Casts doubt on the position that fantasy n-Ach provides a reflection of a regnant achievement motive.



Self-report measures of achievement motivation are available, but are embodied in questionnaires measuring a variety of personality traits. Since research workers often only requires scores on an achievement motivationscale, a less time consuming method of obtaining such scores seemed to be needed. The results of the study to be reported suggest that for reasons other than the saving of time the scales may be of value to researchers.

### **ACHIEVEMENT SCALE**

Achievement is something that has been done or achieved through effort, a result of hard work, the act of achieving something, the state or condition of having achieved or accomplished something. Academic is used to describe things that relate to work done in school, colleges and universities, especially work which involves studying and reasoning rather than practical or technical skills, relating to studies such as language, philosophy, and pure science rather than applied, technical or professional studies.

### **PROCEDURE OF THE DATA COLLECTION**

Data will be collected by the researcher by personally visiting the schools and with prior permission of the heads of the school. The achievement motivation will be administered to the secondary school students with proper instructions . The exam scores of science subject are collected to know the academic achievement of the students.

### **ANALYSIS AND INTERPRETATION OF DATA**

### **ANALYSIS OF THE ACHIEVEMENT MOTIVATION AND ACHIEVEMENT IN SCIENCE OF SECONDARY SCHOOL STUDENTS**

#### **Test of Hypothesis 1**

The relationship between achievement motivation and achievement in science of secondary school students would be high.

In order to test this hypothesis the mean score of achievement motivation and achievement in science of secondary school were computed. In order to see the relationship between the achievement motivation and achievement Karl Pearson product moment correlation was computed using statistical package and this result is shown in table -1.

#### **Table-1: Product moment correlation between achievement motivation and achievement**



Variables	N	df	Correlation 'r' (Pearson Product Moment Correlation)
Achievement Motivation	160	158	0.0516
Achievement	160		

The Table – 1 reveals the coefficient of correlation to be 0.0516. This shows that the correlation is positive and is significant. Hence there exist a positive and significant relationship between achievement motivation and achievement. It can be said that achievement motivation has an impact upon achievement. Hence this hypothesis is accepted. The above result shows that achievement motivation and achievement is strive to get success and the attainment of individual desire to achieve the goal. In the present fast moving environmental conditions or personal surrounding, the individual desire has been many folded. However, it is very challenging to maintain the balance between the personal desire and own capacity. These stimulation enhances all the potentialities to achieve high level success. And achievement has depending upon a no. of factors in and around of the child. There are many factors which affects achievements. The school and home environment, social and economic background, intelligence attitudes, capacity and learning habits. These factors influence the motivation and achievement level of the students would be high.

## **ANALYSIS OF ACHIEVEMENT MOTIVATION IN SCIENCE OF SECONDARY SCHOOL STUDENTS WITH RESPECT TO GENDER**

### **Test of Hypothesis 2**

There would be no significant difference in achievement motivation in science among male and female of secondary school students.

In order to test this hypothesis mean scores of achievement motivation in science among male and female of secondary school students were computed. Mean, standard deviation and t-value of mean scores in achievement motivation were computed and presented in table-2.

**Table-2 Mean, standard deviation and t-test of achievement motivation of the students with respect to gender**

Gender	Mean	Standard Deviation	t-value	Degree of Freedom(N-2)	Level of Significance
Male	99.27	32.98	0.9287	158	0.05
Female	103.84	28.71			

\*Not Significant at 0.05 Level

**Figure-1 Mean, and Standard Deviation of Mean Scores of Achievement motivation of Male and Female Secondary School Students**

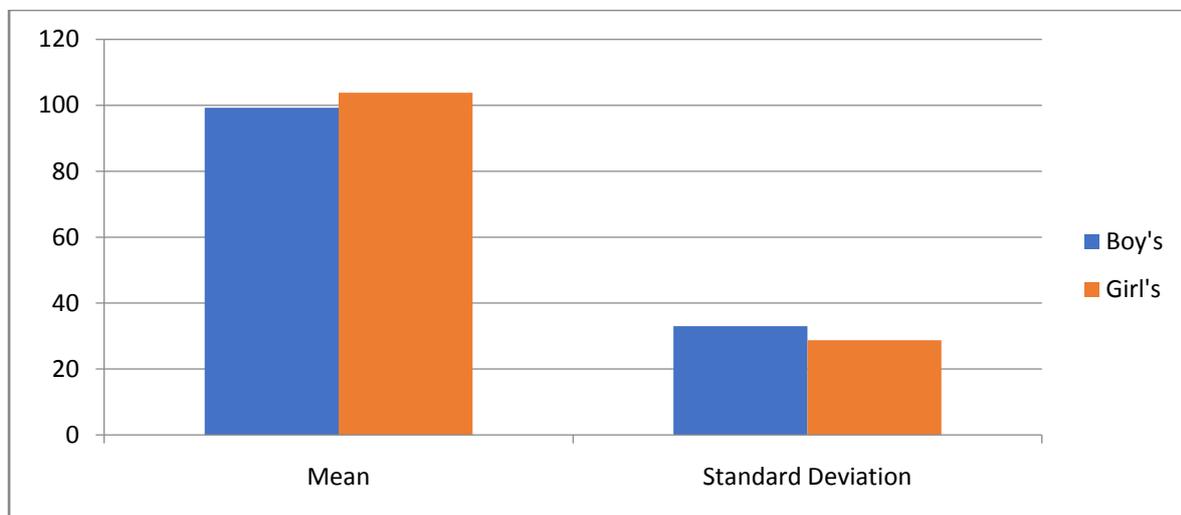


Table-2 and figure 1 reveals that the mean scores in achievement motivation of male and female were 99.27 and 103.84 respectively. Standard deviation of male and female that is average distance of score from mean are 32.98 and 28.71. Further t-value is 0.9287, which is lesser than the table value at given degree of freedom 1.96 at 0.05 level of significance. Thus hypothesis-2 “achievement motivation of secondary school students would not differ with respect to gender,” is accepted. In the context of mean scores, it is found that mean scores of achievement motivation of male (99.27) and female (103.84) are almost similar. Hence achievement motivation of the stdxth students coming from same sociological and economical area, not differs with respect to gender.



The result of this study goes with the finding of Prakash Chandra Jena (2011) has made study on to compare the memory and achievement motivation of male and female students of secondary school in Sikkim state. The finding were there was no significant difference in the memory of rural boys and girls; there was no significant difference in achievement motivation of urban boys and girls, there was no significant difference in achievement motivation of rural boys and girls.

## **ANALYSIS OF ACHIEVEMENT IN SCIENCE OF SECONDARY SCHOOL STUDENTS WITH RESPECT TO GENDER**

### **Test of Hypothesis 3**

There would be no significant difference in achievement in science among male and female of secondary school students

In order to test the hypothesis mean scores of achievement in science of secondary school students were computed. Mean, standard deviation and t-test of mean scores in achievement were computed and presented in table-3

**Table-3; Mean, standard deviation and t-test of achievement with respect to gender**

<b>Gender</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>t-value</b>	<b>Degree of Freedom(N-2)</b>	<b>Level of Significance</b>
<b>Male</b>	11.01	3.54	0.5117*	158	0.05
<b>Female</b>	10.73	3.31			

\*Not Significant at 0.05 Level

**Figure-2 Mean, and Standard Deviation of Mean Scores of achievement of Male and Female Secondary School Students**

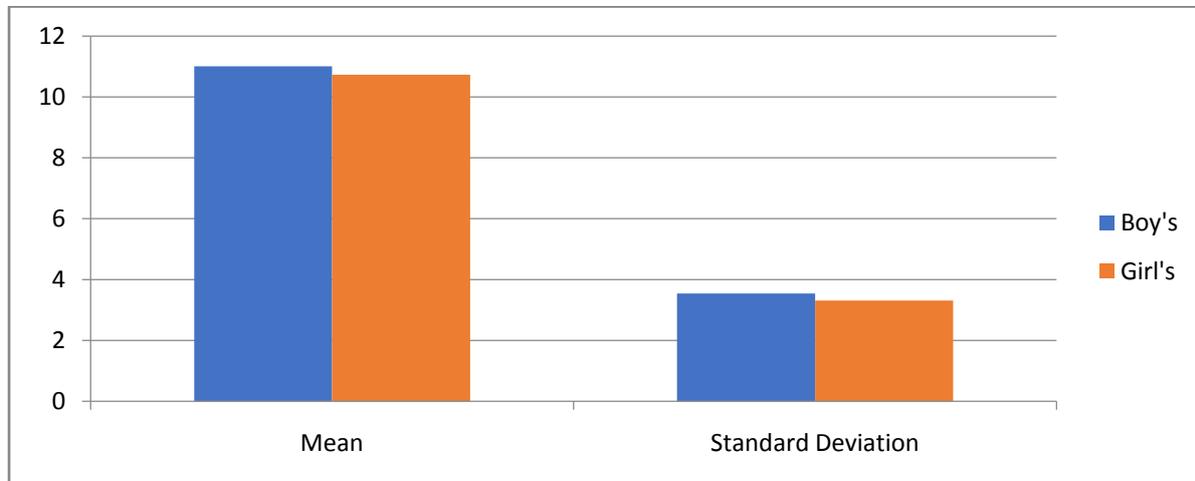


Table-3 and figure- 2reveals that the mean scores in academic achievement of male and female are11.01 and 10.73 respectively. Standard deviation of male and femalethat is average distance of score from mean are 3.54 and 3.31.The calculated t-value is 0.5117, which is lesser than table value at given degree of freedomDf(158) 1.96at 0.05 level of significance. Thus hypothesis-3 “Achievement of secondary school students would not differ with respect to gender ” is accepted .In the context of mean scores, it is found that the mean scores of achievement of male (11.01) and female (10.73) are similar. Hence achievement of the stdxthstudents coming from same socio-economical area, not differs with respect to gender.

The result of the finding goes to Vanita, N.K. (2011)carried out a study to infer whether intelligence and gender as predictors of academic achievement on a sample of 153 undergraduate students of Malaysian University. Cumulative grade point average scores were taken as measures of academic achievement. The results indicated that there was no significant difference between the academic achievement of male and female students.

## **ANALYSIS OF THE ACHIEVEMENT MOTIVATION IN SCIENCE OF SECONDARY SCHOOL STUDENTS WITH RESPECT TO MANAGEMENT**

### **Test of Hypothesis 4**



There would be no significant difference in achievement motivation in science among Government and Private secondary school students

In order to test this hypothesis mean scores of achievement motivation in science of secondary school students were computed. Mean, standard deviation, and t-value of mean scores in achievement motivation were computed and presented in table-4.

Table-4 Mean, standard deviation and t-test of achievement motivation with respect to management

Gender	Mean	Standard Deviation	t-value	Degree of Freedom(N-2)	Level of Significance
Govt.	96.69	35.56	2.0908*	158	0.05
Private	106.88	24.17			

\*Significant at 0.05 level

Figure – 3 Mean and Standard Deviation of Mean Scores of Achievement Motivation of Government and Private Secondary School Students

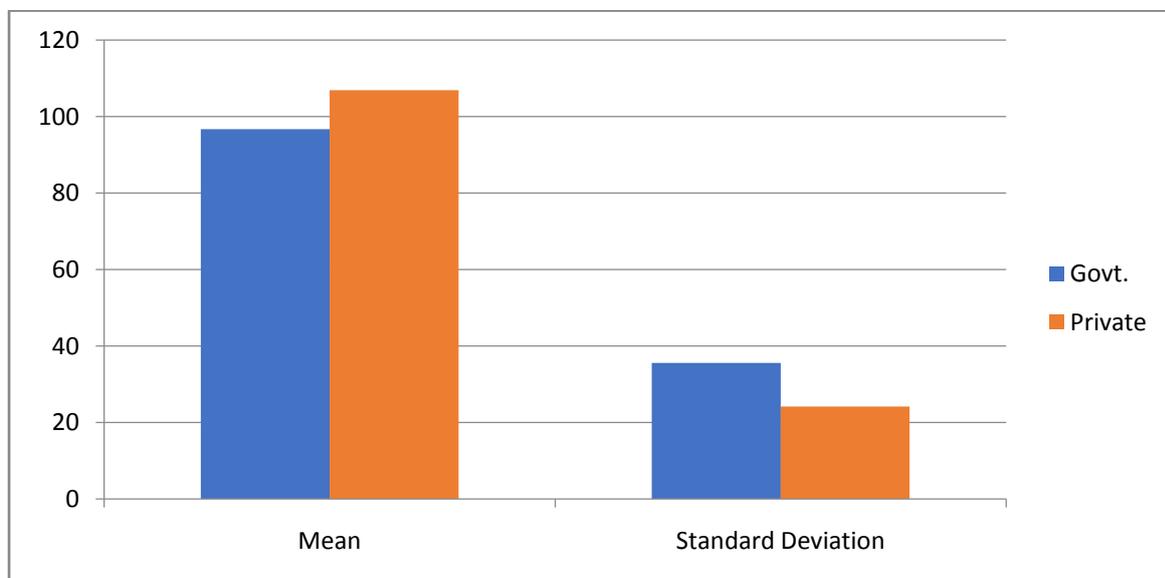




Table-4 and figure- 3 reveals that the mean scores in achievement motivation of the students studying in Government and Private secondary schools are 96.69 and 106.88 respectively. Standard deviation are 35.56 and 24.17. Further, calculated of t-value 2.0908 is higher than the t-value of 1.96 for 158 degree of freedom at 0.05 level of significance. Hence the hypothesis is rejected.

This study shows that there is significant difference of achievement motivation in private and government secondary schools within science discipline in relation to management. The students of private schools are highly achievement motivated in comparison to government schools. On the one hand, the private management is very market competitive and provides better infrastructure including teachers, according to the need of the student and aspirations of the parents. On the other hand, parents are demanding the result oriented education and monitored day to day activities of students because they are paying for it. However, the socio-economic background and environment of students are better in comparison to govt school students.

## **ANALYSIS OF ACHIEVEMENT IN SCIENCE ON SECONDARY SCHOOL STUDENTS WITH RESPECT TO MANAGEMENT**

### **Test of Hypothesis 5**

There would be no significant difference in achievement in science among Government and Private secondary school students.

In order to test this hypothesis mean scores of achievement in science among Government and Private secondary school students were computed. Mean, standard deviation and t-value of mean scores in achievement were computed and presented in table-5.

**Table-5 Mean, standards deviation and t-value of mean scores of achievement in science among Government and Private secondary school students.**

<b>Gender</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>t-value</b>	<b>Degree of Freedom(N-2)</b>	<b>Level of Significance</b>
<b>Govt.</b>	9.52	2.91	06.5388*	158	0.05
<b>Private</b>	12.61	3.08			

\* Significant at 0.05 level

**Figure – 4 Mean and Standard Deviation of Mean Scores of Achievement of Government and Private Secondary School Students**

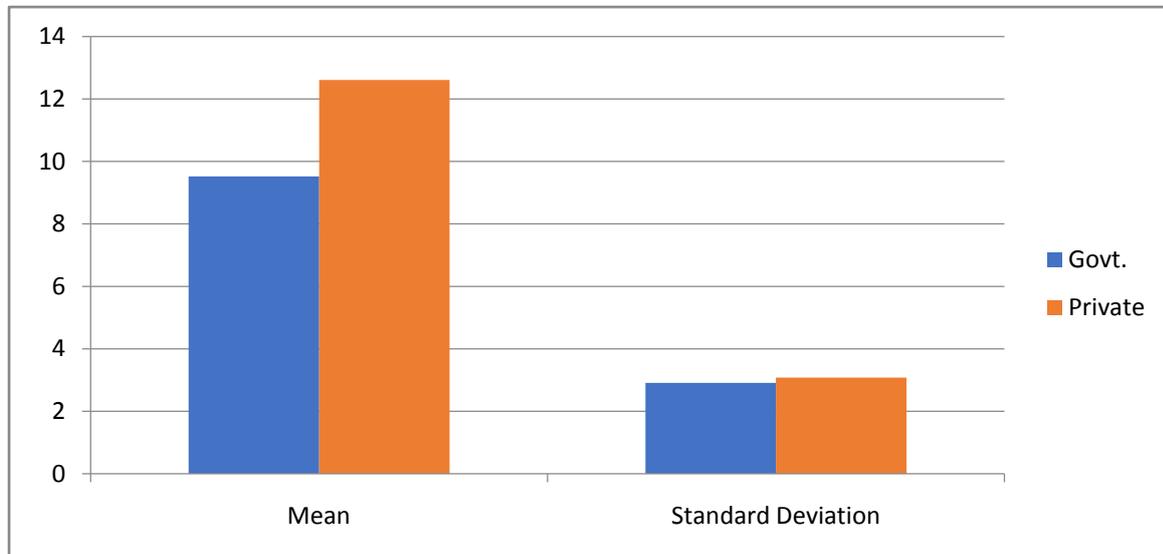


Table-5 and figure - 4 reveals that the mean scores in achievement in science of students studying in Government and Private schools are 9.52 and 12.61 respectively. Standard deviation is 2.91 and 3.08. Further t-value is 6.5388 greater than t-value of 1.96 at 0.05 level of significance. Hence it is found that there is a significant difference between students studying in Government and Private school in achievement. The hypothesis is rejected. This study shows that there is significant difference of achievement in private and government secondary schools within science discipline in relation to management. The students of private schools are having high achievement in comparison to government schools. On the one hand, the private management is very market competitive and provides better infrastructure including teachers, according to the need of the student and aspirations of the parents.

### Major Findings of the study

The main finding of the study have been listed below-

- (i) There is positive correlation between achievement motivation and achievement in science of secondary school students.
- (ii) It is found that there is no significant difference in achievement motivation in science among male and female secondary school students.



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- (iii) It is found that there is no significant difference in achievement in science among male and female secondary school students.
  - (iv) There is no significant difference in achievement motivation in science in relation to government and private school students.
  - (v) There is a significant difference in achievement in science in relation to government and private school students.

## EDUCATIONAL IMPLICATION

### School Administrator

The study of achievement motivation and achievement in science of secondary school students will help the school administrator to know the importance of both the attributes. The school administrator will include such activities which will enhance the achievement motivation and achievement of the students.

### Teacher

The study will help the secondary school teachers to understand the content of science, so that the teacher can bring changes in relation to the teaching method of science and therefore which can help in developing achievement motivation and achievement power of science and can enhance the knowledge of the teacher.

### Students

The students will not only be dependent to the bookish knowledge. Their knowledge will not be limited or confined to the information found in books, instead their knowledge and ideas will relate to the real life and situations. They may also have extra knowledge through society, social media. Achievement of students can change with respect to Achievement Motivation. So that they can utilize and analyze these ideas and knowledge in real situations.

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