EFFECT OF INTELLIGENCE AND GENDER ON SCHOOL PERFORMANCE OF STUDENTS IN BIOLOGY

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ABSTRACT:

The study examined the effect of Intelligence and gender on school performance of students in biology. . The Experimental method was used for this study. The stratified random sampling was employed to select 120 senior secondary school (standard XI) students from the urban areas of the Meerut District of UP. The sample of the study consisted of 120 students (60 males and 60 females). Two instruments used to collect data viz: (1) Verbal Intelligence Test (VIT) of R.K. Ojha and K. Roy Chaudhary was used to measure intelligence of students. (2) School performance test of biological science was prepared by the researcher for measuring the school performance of students in Biology . The findings of the study shows that there is a significant difference among high, average and low level of intelligence on school performance of student's in Biology, but there is no significant difference between male and female on school performance of students in Biology. On the basis of the findings it can be concluded that there was a significant effect of intelligence on school performance of students in biology whereas gender had not significantly influenced on the school performance of students in biology.

Key words: intelligence, gender, school performance

INTRODUCTION:

Education plays a vital role in our life. It gives us the opportunity to become a productive member of a civilized society. Today teaching of science has become an avoidable part of general education. Science is a cumulative and endless series of empirical observations, which result in the formation of concept and theories. Therefore, the science is both a body of knowledge and the process of acquiring it. Due to great importance of science, it is an important school subject. Intelligence is a very important aspect to determine the school performance of students in science. It is a cognitive process. It gives the cognitive abilities like learning, understanding, reasoning, concept formation; think abstractly, concise thought, awareness, insight etc. Every individual differ from each other in their ability to understand complex ideas, to learn from experience and to remove obstacles by taking concise thought. Intelligence helps to increase the learning abilities in the students. The objective of each curriculum is to test the intelligence level. Hence intelligence and academic achievements are interrelated to each others. Every student is unique and different in their mental and intellectual abilities. The present study is an attempt to study the effect of intelligence and gender on school performance of students in biological science.

LITERATURE REVIEW:

A review of literature shows that, through there are so many studied has been done to compare the effect of intelligence on   school performance of students. Archana (2002) studied the relationship between academic achievement and intelligence and found a positive correlation between academic achievement and intelligence and found a positive correlation between academic achievement and intelligence. Panigrahi (2005) studied the effect of intelligence and socioeconomic status on academic achievement of high school students. For this study he taking a sample of 100 students from Bhubaneshwar city and found a positive and significant correlation between academic achievement

and intelligence, high intelligence students perform better in academics. The correlation between academic achievement and socioeconomic status was found to be a low positive correlation. There was no significant difference between boys and girls with regard to academic achievement. Herbert & Stipek (2005) studied and found there was no gender difference in achievement. Deary, Strand, Smith & Fernandes (2007) found a positive relation between intelligence and academic achievement. Naderi, Abdullah, Hamid and Sharer (2008) studied and found that intelligence and gender is not the predictors of academic achievement of students.

OBJECTIVES:
Present study has been conducted with following objectives:
1. To study the effect of gender on school performance of 11th class students in biology.
2. To study the effect of intelligence on school performance of 11th class students in biology.

HYPOTHESES:
1. There was no significant difference between school performance of boys and girls students of 11th class in biology.
2. There was no significant difference between school performance of high and average intelligent students of 11th class in biology.
3. There was no significant difference between school performance of average and low intelligent students of 11th class in biology.
4. There was no significant difference between school performances of high and low intelligent students of 11th class in biology

METHODOLOGY:
In order to achieve these objectives an **Experimental method** was used for this study.

POPULATION:
The target population for the study comprised all the students of science stream studying in senior secondary school (standard XI) of Meerut District of U.P. State, India. Using stratified random sampling technique 120 students were selected from four schools (two girls' schools and two boys' schools).

SAMPLE:
The sample of present study consists of 60 male and 60 female students of science stream who has been selected randomly belonging to Meerut city.

TOOLS USED:
In the present study following tools were used:
1. **Intelligence Test-:** Verbal Intelligence Test by R.K. Ojha and K. Ray. Chaudhary has been used for assessment of intelligence.
2. **School Performance Test-:** A school performance test of biological science was constructed and standardized by the researcher .This test was used by the researcher to measure the school performance of senior secondary students in biological science.

ANALYSIS AND INTERPRETATION OF DATA:
The data was analyzed on the basis of school performance, intelligence and gender using statistics (descriptive & inferential). Table - 1 shows that there is no significant difference between school performance of boys and girls students in biology.

Table-1
Comparison of school performance of girls and boys students in biology

Gender	Sample(N)	Mean	S.D	Obtained t-value	Tabulated t-value (*df*=118)	
					0.05 level	0.01 level
Boys	60	10.85	3.12	1.92		
Girls	60	10.33	2.55		1.98	2.62

The above table shows that the total no. of boys is 60 and the mean score of school performance of boys is 10.85 and S.D is 3.12. The total no. of girls is also 60 and the mean score of girls is 10.33 and S.D is 2.55. The obtained t-value between boys and girls is 1.92 at 118 degree of freedom, which is less than the tabulated value at 0.05 and 0.01 level. . Hence hypothesis -1 is accepted, to conclude that there is no significant difference between school performance of boys and girls in biology.
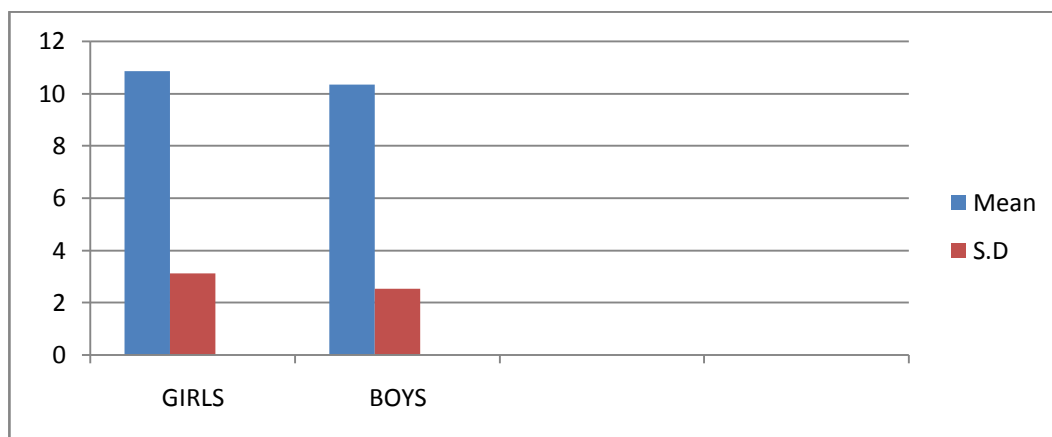

Fig.1 Comparison of school performance of girls and boys students in biology

Table 2
Comparison of School Performance of High Intelligence and Average Intelligence Students in Biology

Variable (intelligence)	Sample(N)	Mean	S.D	Obtained t-value	Tabulated t-value (*df*=118)	
					0.05 level	0.01 level
High intelligence	40	`12.87	2.46	4.35	1.99	2.64
Average intelligence	40	10.52	2.35			

The above table shows that the total no. of high intelligence students is 40 and the mean score of high intelligence students is 12.87 and S.D is 2.46. The total no. of average intelligence students is also 40 and the mean score of average intelligence students is 10.52 and S.D is 2.35. The obtained t-value between high and average intelligence students is 4.35 at 78 degree of freedom, which is greater than the tabulated value at 0.05 and 0.01 levels. . Hence hypothesis -2 is rejected, to conclude that there is a significant difference between school performance of High intelligence and average intelligence students in biology.
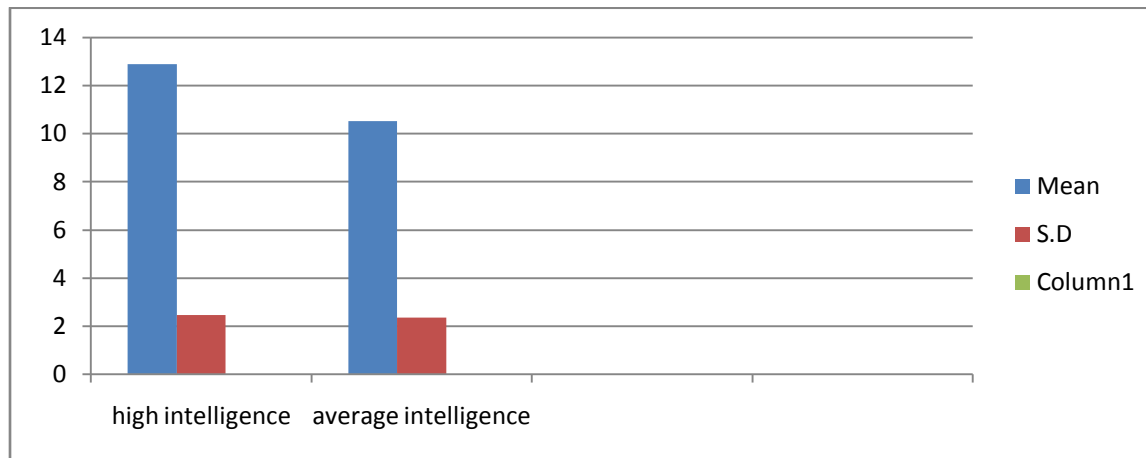
Fig.2 Comparison of school performance of High intelligence and average intelligence students in biology

Table 3
Comparison of school performance of Average intelligence and Low intelligence students in biology

Variable (intelligence)	Sample (N)	Mean	S.D	Obtained t-value	Tabulated t-value (df=118)	
					0.05 level	0.01 level
Average intelligence	40	10.52	2.35	4.42	1.99	2.64
Low intelligence	40	8.4	1.97			

The above table shows that the total no. of average intelligence students is 40 and the mean score of average intelligence students is 10.52 and S.D is 2.35. The total no. of low intelligence students is also 40 and the mean score of low intelligence students is 8.4 and S.D is 1.97. The obtained t-value between average and low intelligence students is 4.42 at 78 degree of freedom, which is greater than the tabulated value at 0.05 and 0.01 levels. Hence hypothesis -3 is rejected, to conclude that there was a significant difference between school performance of average intelligent and low intelligent students in biology.
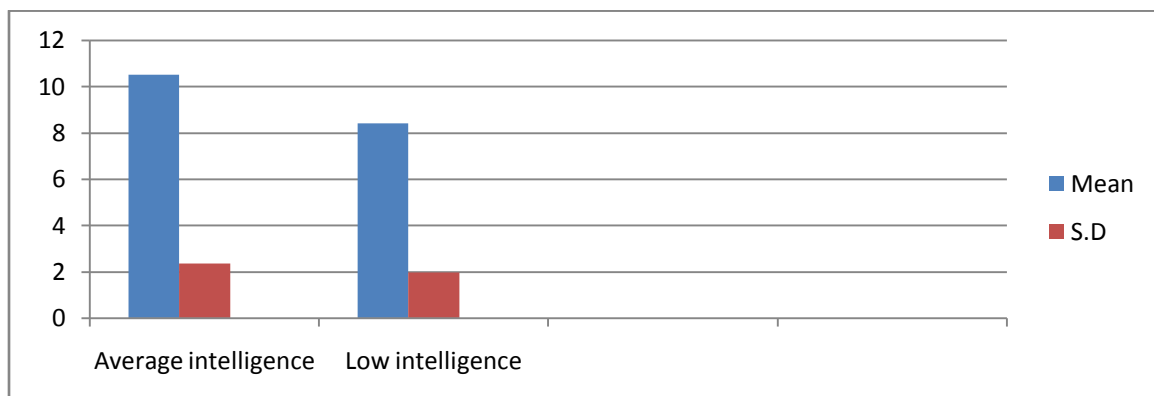

Fig. 3 Comparison of school performance of Average intelligence and Low intelligence students in biology

Table 4
Comparison of school performance of High intelligence and low intelligence Students in Biology

Variable (intelligence)	Sample(N)	Mean	S.D	Obtained t-value	Tabulated t-value (df=118)	
					0.05 level	0.01 level
High intelligence	40	12.87	2.46	8.94	1.99	2.64
Low intelligence	40	8.4	2.35			

The above table shows that the total no. of high intelligence students is 40 and the mean score of high intelligence students is 12.87 and S.D is 2.46. The total no. of low intelligence students is also 40 and the mean score of low intelligence students is 8.4 and S.D is 2.35. The obtained t-value between high and low intelligence students is 8.94 at 78 degree of freedom, which is greater than the tabulated value at 0.05 and 0.01 levels. Hence hypothesis -4 is rejected, to conclude that there is a significant difference between school performance of high intelligent and low intelligent students in biology.
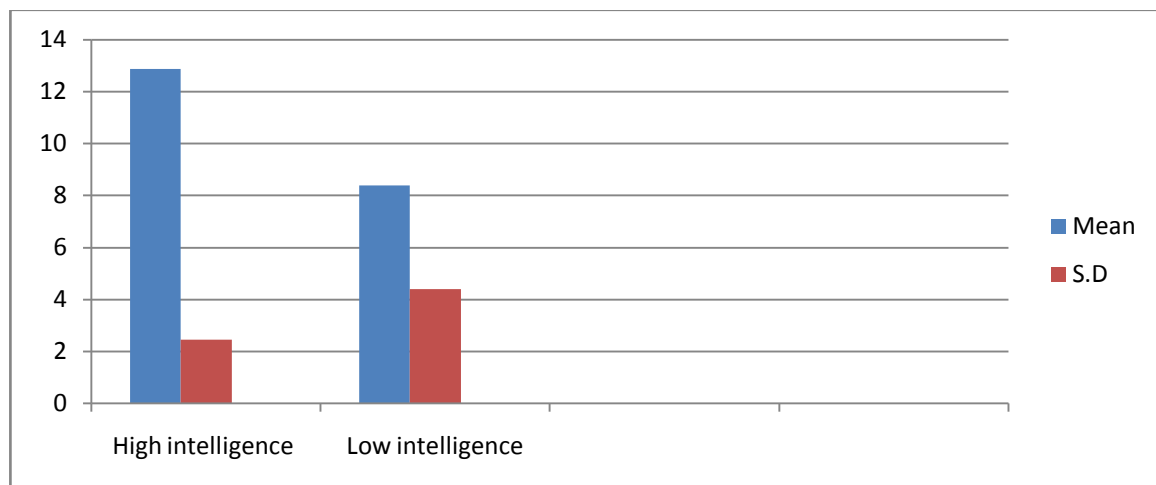

Fig.4 Comparison of school performance of High intelligence and low intelligence Students in Biology

FINDINGS OF THE STUDY:
On the basis of analysis and interpretation of data the findings of research are presented here in the sequence of hypothesis.
1. There is no difference between school performance of boys and girls students in Biology.
2. The high intelligent students have better school performance than the average intelligent students in Biology.
3. The average intelligent students have better school performance than the low intelligent students in Biology.
4. The high intelligent students have better school performance than the low intelligent students in Biology.

CONCLUSIONS OF THE STUDY:
On the basis of findings of the study the conclusions of the research are presented here.
1. There is no influence of gender on school performance of students in science.
2. Intelligence influences the school performance of the students. The high intelligent students will have better grasping power, retention and understanding than the average and low intelligent

students. They will get good marks and show good performance. The average intelligent students perform better than the low intelligent students. The average intelligent student will be better learner in comparison to the low intelligent students. So it can be conclude that school performance needs intelligence.

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