



INTELLIGENT QUOTIENT (IQ) AND ACADEMIC ACHIEVEMENT OF 9th GRADE STUDENTS OF CBSE, ICSE AND SSC BOARD STUDENTS IN THANE CITY – AN ANALYTICAL STUDY

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ABSTRACT

The investigator has undertaken the present study to analyze the Intelligence Quotient and Academic achievement of 9th grade students of CBSE, ICSE and SSC students in Thane city. The sample comprised of 700 students (CBSE, ICSE & SSC). Data for the study were collected using Dr. G. C. Ahuja's Group Test of Intelligence. Students today have a lot of potential and are intelligent enough to understand upcoming technologies and access to a lot of information and knowledge to share. But due to lackadaisical attitude among children, there is sharp fall in learning outcomes and academic levels. So the study was carried out with an attempt to find out how a particular Board's IQ level and Academic achievement is differentiable from one another. For analyzing data 't' test and Pearson's Product moment co-efficient were the statistical technique used. Findings shows that, while comparing the IQ scores of different Boards, the maximum number of students from CBSE Board -74.8% and ICSE Board 84% has been found with normal or average IQ. Whereas the maximum number of SSC Board Students has been found low average IQ-54.8%. No Board has been found very superior whereas less percentage of the students was found mentally defective for all Boards. There is significant difference between IQ and Academic Achievement of different Board Students of Secondary School.

Keywords: IQ, Academic Achievements, CBSE, ICSE and SSC Board Students.

INTRODUCTION

Human beings are the unique product of their creation and evolution. Growth and development or progress in human being is a continuous process. In this process of growth and development, Education plays a vital role. An educated person is a valuable asset to the society than another individual who is illiterate and perhaps ignorant. Education had been looked upon as a tool to pass on the knowledge; skills and wisdom of the past generations to the next generation. Students today have a lot of potential and are intelligent enough to understand upcoming technologies and access to a lot of information and knowledge to share. They are well versed with the latest happenings and curious as they have access to the worldwide web and often have a lot of queries. A 12 year old girl Nicole Barr in the U.K has achieved the highest possible scores of 162 in a Mensa IQ test, which could make her brainer than Albert Einstein and Stephen Hawking. Mensa is an International society and has 1 02 000 members of all occupations and for which membership is accepted from all persons with an IQ (Intelligence Quotient) of 148 or above. There are three aims: social contact amongst intelligent people; research in psychology, and the identification and fostering of intelligence. IQ is the abbreviation for intelligence Quotient. The dictionary definition of quotient is 'the number of times one quantity is contained in another'. The definition of intelligence is 'intellectual skill', 'mental brightness', 'quick of mind'. IQ scores are used as predictors of educational achievement, special needs, job performance and income. They are also used to study IQ distributions in populations and the correlations between



IQ and other variables. It is generally agreed that IQ tests do measure certain skills that are important to school learning, and that IQ scores are highly correlated to school achievement. Many theories of intelligence and most widely used methods of measuring intelligence have focused on school-related tasks and abilities. The first modern intelligence test was developed in France at the beginning of the twentieth century. Lewis Terman of Stanford University published an English version of Binet's test in 1916. This test, called the Stanford-Binet, was designed for children between the ages of 3 and 18. Scoring of the test involved the concept of mental age (MA), the average age at which children correctly answered the same number of items as the tested child. For instance, if a child correctly answered as many questions as the average 12-year old, that child would be said to have a mental age of 12. Mental age was then divided by the child's chronological age (CA) and multiplied by 100 to produce an intelligence quotient, or IQ ($MA/CA \times 100 = IQ$). If our child with a mental age of 12 was also 12 years old, that child would be exactly average and would be assigned an IQ of 100 ($12/12 \times 100 = IQ100$). If, on the other hand, this child was only 10, mental age would be above chronological age and the child's IQ would be higher than average ($12/10 \times 100 = 120$). By the same token, the IQ of a 14 year -old child who had a mental age of 12 would be below average ($12/14 \times 100 = IQ86$). This simple method of computing IQ score is no longer used; a more complex calculation has taken its place. Nevertheless, IQ scores are still determined by comparing an individual's performance with the performance of others who are the same age.

RESEARCH OBJECTIVES

- 1) To find out the significant difference between the IQ of CBSE and SSC Boards of secondary school students.
- 2) To find out the significant difference between the IQ level of CBSC and ICSE Boards of secondary school students.
- 3) To study the significant difference between the IQ level of SSC Board and IQ level of ICSE Board of secondary school students.
- 4) To find out the significant difference between Academic Achievement of CBSE and SSC Boards of secondary school students.
- 5) To find out the significant difference between Academic Achievement of CBSC and ICSE Boards of secondary school students.
- 6) To study the significant difference between Academic Achievement of SSE and ICSE Boards of secondary school students.
- 7) To find out the relationship between IQ and Academic Achievement of CBSE, ICSE and SSC Boards of secondary school students.
- 8) To find out the significant difference in Academic achievement among different Board students (ICSE, SSC and CBCE) of Thane City.

HYPOTHESIS OF THE STUDY

- 1) There is no significant difference between the IQ of CBSE and SSC Boards of secondary school students.



- 2) There is no significant difference between the IQ level of CBSC and ICSE Boards of secondary school students.
- 3) There is no significant difference between the IQ level of SSC Board and IQ level of ICSE Board of secondary school students.
- 4) There is no significant difference between academic achievement of CBSE and SSC Boards of secondary school students.
- 5) There is no significant relationship between the IQ and academic achievement of secondary school students of CBSE, SSC and ICSE Boards.

RESEARCH DESIGN AND METHODOLOGY

SAMPLE

The sample selected for the present study consisted of 9th grade students studying in Thane city. The data was collected from 9th grade CBSC, ICSE and SSC Board of English Medium students. The total sample collected for the present study was 700.

following tools were used by the researcher for the present study:-

- IQ (Intelligence Quotient) test prepared by A.C.Ahuja (Agra) was adopted to study the IQ level of secondary school students of different Boards.
- Academic achievement of STD 9th grade students assessed by the different subject teachers in the form of nine grade points of different Boards.

SAMPLING TECHNIQUE

Stratified Random sampling technique has been used by the investigator in the present study. 700 students of secondary level of different schools of CBSE, SSC & ICSE Boards for the study.

STATISTICAL TECHNIQUES USED IN THE STUDY

As data was being collected the researcher began scoring the tools administered to the students measures of central tendency, measures of variability, 't' value, Pearson's Product Moment Correlation.

ANALYSIS AND INTERPRETATION

For the present study, the researcher presented the descriptive analysis for the variables namely Intelligence quotient (IQ) and academic achievement. The collected data was put to statistical analysis by applying t-test. Then analysis has been undertaken according to the objectives given below;

Objective 1: To find out the significant difference between the IQ of CBSE and SSC Board School Students.

The Researcher systematically done the analysis on the basis of mean score, S.D and 't' value.



Table 1. Descriptive Analysis of Mean, S.D and 't' value for the IQ of CBSE and SSC Board School Students.

Sample	Total No. of students	Mean (M)	Standard Deviation (σ)	Standard Error (SEd)	Degree of Freedom (df)	't' value	level of Significance
CBSE Board Students	250	96.06	10.018	0.876	498	13.15	Significant at 0.05 & 0.01
SSC Board Students	250	84.54	9.57				

From the above table 1, it is clear that the IQ mean score of students studying in CBSE Board is 96.06 and SD is 10.018. The Mean and S.D value of IQ scores of SSC Board students is 84.54 and 9.57 respectively. The value of SEd is 0.876 and obtained value of 't' between the IQ of CBSE and SSC Board students in Thane city is 13.15 which is greater than the tabulated value of 't' i.e. 2.576 at 0.01 level of significance and 1.980 at 0.05 level of significance. It means that there exists significant difference between the Mean values of these two groups'.

Objective 2: To find out the significant difference between the IQ level of CBSE and ICSE Board School Students.

Table .2. Descriptive Analysis of Mean, S.D and 't' value for the IQ of CBSE and ICSE Board School Students.

Sample	Total No. of students	Mean (M)	Standard Deviation (σ)	Standard Error (SEd)	Degree of Freedom (df)	't' value	Level of Significance
CBSE Board Students	250	96.06	10.018	0.878	498	0.444	Significant at 0.05 & 0.01
ICSE Board Students	200	96.45	8.6				

From the above table 2, it is clear that the Mean and the S.D value from IQ scores of CBSE Board students is 96.06 and 10.018 respectively. The Mean and S.D value IQ of ICSE Board students is 96.45 and 8.6 respectively. The value of S.Ed is 0.878 and obtained value of 't' is 0.444. It shows that the obtained value of 't' is less than the tabulated value of 't' (which is 1.980 and 2.576 at 0.05 and 0.01 level of significant respectively.) It shows that there is no significant difference between these two groups

Objective 3: To Study the significant difference between the IQ level of SSC and IQ level of ICSE Board School Students.

Table 3. Descriptive Analysis of Mean, S.D and 't' value for the IQ of SSC and ICSE Board School Students

Sample	Total No. of students	Mean (M)	Standard Deviation (σ)	Standard Error (SEd)	Degree of Freedom (df)	't' value	Level of Significance
SSC Board Students	250	84.54	9.57	0.858	498	13.88	Significant at 0.05 & 0.01
ICSE Board Students	200	96.45	8.6				

From the above table .3, it is clear that the Mean and the S.D value from IQ scores of SSC Board students is 84.54 and 9.57 respectively. The Mean and S.D value of IQ of ICSE Board students is 96.45 and 8.6 respectively. The value of S.Ed is 0.858 and obtained value of 't' is 13.88. It shows that the obtained value of 't' is more than the tabulated value of 't' (which is 1.980 and 2.576 at 0.05 and 0.01 level of significant respectively.). It shows that there is significant difference between the mean values of these groups.

Objective 4: To find out the significant difference between Academic achievement of CBSE and SSC Board School Students.

Table 4. Descriptive Analysis of Mean, S. D and 't' value for the Academic achievement of CBSC and SSC Board School Students.

Sample	Total No. of students	Mean (M)	Standard Deviation (σ)	Standard Error (SEd)	Degree of Freedom (df)	't' value	Level of Significance
CBSE Board Students	250	69.26	12.39	1.675	498	3.629	0.01
SSC Board Students	250	63.18	11.32				

From the above table .4 it is clear that the Mean and the S.D value of Academic achievement of CBSE Board students is 69.26 and 12.39 respectively. The Mean and S.D value of Academic achievement of SSC Board students is 63.18 and 11.32 respectively. The value of SED is 1.675

and obtained value of 't' is 3.629. It shows that the calculated value of 't' is more than the tabulated value of 't' (which is 1.980 and 2.576 at 0.05 and 0.01 level of significance respectively). . It means that there exists significant difference between Students of both the groups.

Objective 5: To find out the significant difference between Academic achievement of CBSE and ICSE Board School Students.

Table.5 Descriptive Analysis of Mean, S.D and 't' value for the Academic achievement of CBSC and ICSE Board School Students.

Sample	Total No. of students	Mean (M)	Standard Deviation (σ)	Standard Error (SEd)	Degree of Freedom (df)	't' value	Level of Significance
CBSE Board Students	250	69.26	12.39	1.442	498	1.986	0.01
ICSE Board Students	200	72.125	3.79				

From the above table .5 it is clear that the Mean and the S.D value of Academic achievement of CBSE Board students is 69.26 and 12.39 respectively. The Mean and S.D value of Academic achievement of ICSE Board students is 72.125 and 3.79 respectively. The value of SED is 1.442 and obtained value of 't' is 1.986. It shows that the obtained value of 't' is equal to the tabulated value of 't' at 0.05 level of significant but the calculated value of 't' is less than the tabulated value of 't' at 0.01 level of significant. It shows that there is significance difference between the mean of these two groups at 0.05 level of significance but there is no significant difference between the mean of these two groups at 0.01 level of significance.

Objective 6: To study the significant difference between the academic achievement of SSC and ICSE Board School Students.

Table.6 Descriptive Analysis of Mean, S.D and 't' value for the Academic achievement of SSC and ICSE Board School Students.

Sample	Total No. of students	Mean (M)	Standard Deviation (σ)	Standard Error (SEd)	Degree of Freedom (df)	't' value	Level of Significance
SSC Board Students	250	63.18	11.32	1.276	498	7.01	0.01
ICSE Board	200	72.125	3.79				



Students						
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From the above table 6 it is clear that the Mean and the S.D value of Academic achievement of SSC Board students is 63.18 and 11.32 respectively. The Mean and S.D value of Academic achievement of ICSE Board students' is 72.125 and 3.79 respectively. The value of SED is 1.276 and obtained value of t' is 7.01. It shows that the obtained value of t' exceeds to the tabulated value. It means the difference between mean of sample is significant at 0.05 levels and 0.01 level of significant. It shows that the significant difference is there between the mean of these two groups.

Objective 7: To find out the significant difference in IQ of ICSE, CBSE and SSC Board students of Thane city.

Table 7. ANOVA

Intelligence Quotient

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20956.872	2	10478.436	119.180	.000
Within Groups	61281.126	697	87.921		
Total	82237.998	699			

The last column is called P-value i.e. level of significance. $P=0.000$ means it is <0.001 . Since $P<0.001$ there is a significant difference in the mean IQ of three Boards.

From the above table 7. We can understand that the Mean Square between groups is 10478.436 whereas its value within groups is 87.921. The F ratio is 119.180 which are significant at .01 level of significant. Hence we can say that there is a significant difference in the Mean Value of IQ of CBSE, SSE and ICSE Board Students of Thane City.

Objective 8: To find out the significant difference in Academic achievement among different Board students (ICSE, SSC and CBCE) of Thane City.

Table 8. ANOVA

Academic Achievement

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12862.202	2	6431.101	65.547	.000
Within Groups	68385.935	697	98.115		
Total	81248.137	699			

From the above table 8 we can understand that the Mean Square between groups is 6431.101 whereas its value within groups is 98.115. The F ratio is 65.547 which are significant at .01 level



of significant. Hence we can say that there is a significant difference in the Mean Value of Academic achievement of CBSE, SSE and ICSE Board Students of Thane City.

CONCLUSION OF THE STUDY

The study is concluded with the following conclusions: The IQ mean score of CBSC and SSC students studying in Secondary Schools were found not same. The mean value of CBSC Board is more than the SSC Board. It reveals that CBSE Board students have Normal or Average IQ than SSC Board Students.

1. The IQ mean score of CBSC and ICSE students studying in Secondary Schools were found to be same. It reveals that CBSE Board Students and ICSE Board Students have same level of Intelligence Quotients.
2. The IQ mean score of SSC and ICSE students studying in Secondary Schools were found not same. It reveals that ICSE Board Students have Normal or Average IQ than SSC Board Students.
3. The Academic Achievement mean score of CBSE and SSC students studying in Secondary Schools were found not same. The Academic Achievement mean score of CBSE Board Students was marginally more than the mean score of SSC Board students studying at Secondary level.
4. The Academic Achievement mean score of CBSE and ICSE students studying in Secondary Schools were found not same. The Academic achievements mean score of ICSE Board Students was more in comparison to the CBSE Board Secondary Students.
5. The Academic Achievement mean score of SSC and ICSE students studying in Secondary Schools were found not same. It reveals that the academic achievement mean score of ICSE Board Students was marginally more than the mean score of SSC Students studying at Secondary level.
6. The correlation has been found between academic achievement on one hand and IQ on the other hand is significant. The contribution of IQ on achievement has been found significant.
7. The significant correlation has also been found between IQ and Academic Achievement of CBSE, ICSE and SSC Board students of Secondary School.

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Norms for Academic Achievement score:

The academic achievement of the concerned students was collected from their respective schools and the result was recorded in the form of grade point. The students were classified into nine categories, i.e., on the basis of grade point obtained by them as given below.

Grade point score of all the Boards i.e. CBSE, SSC and ICSE

Range of percentage	Grade pt Norm	CBSE Board	SSC Board	ICSE Board
91-100	A1	4	-	10
81 -90	A2	34	13	53
71 - 80	B1	87	50	54
61 - 70	B2	48	75	45
51- 60	C1	58	76	26
41 - 50	C2	15	30	10
33 - 40	D	4	6	2
21 - 32	E1	-	-	-
00 - 20	E2	-	-	-
Total		250	250	200

From the above table we come to know the following conclusion:

- As there is a significant difference has been found between the Mean value of Academic Achievement of CBSE, ICSE and SSC Board of secondary school students, modification in the teaching methodology is required to improve the academic achievement of SSC Board Secondary School students.