

# A Study of Intelligence in Relation to Academic Achievement of Secondary School Students

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## Abstract

The present study aimed at evaluating the academic achievement of high school students in relation to their intelligence. The study revealed that there is significant relationship between academic achievements. The study also indicated that there is no significant difference in academic achievement of boys and girls in case of different levels of intelligence achievement differs as a classroom which affects the academic achievement of the students while students with different types of family climate also differs in their achievements.

## Key words

Intelligence, academic achievement, secondary school Students

## Introduction

Intelligence is a very important Key factor to determine the student's academic performance in school. Intelligence is cognitive potentiality which helps to increase the learning abilities in the students. Every Curriculums aim is to test the intelligence level in this way both intelligence and academic achievements inter related object.

## Academic Achievement

Intelligence and academic achievement both are two faces of the same coin. Each child is unique and different in their mental ability. Different level of intelligence leads to increase different level of learning abilities. The present study is focusing on the relation between the intelligence and Academic achievement. Intelligence plays a very important role on their children's academic achievement. Different levels of intelligence are influencing in different level performance and curriculum achievement of the children's.

## Meaning of the Intelligence

Intelligence is defined as general cognitive problem-solving skills. A mental ability involved in reasoning, perceiving relationships and analogies, calculating, learning quickly... etc. Some psychologists have divided intelligence into subcategories. For example Howard Gardner maintained that it is comprised of seven components: musical, bodily-kinesthetic, logical-mathematical, linguistic, spatial, and interpersonal. Other definitions are: "Intelligence is what you do when you don't know what to do." "Intelligence is a hypothetical idea which we have defined as being reflected by certain types of behaviour.

## Definitions

**Definitions of Intelligence:** The word intelligence forms part of our ordinary stock of words which we use every day. In the field of psychology too, the word intelligence finds fairly comprehensive use but it has been defined in a number of ways by the scientists. Some of these definitions are given as follows:

- **Wells:** "Intelligence is the property of recombining our behaviour pattern so as to act better in a novel situation."
- **In William stern's opinion,:** Intelligence is the ability to adjust oneself to a new situation".
- **Ebbinghaus and Thorndike:** "Intelligence as the ability to make profitable use of past experience. in other words

intelligence is the ability of learning. "

- **Garrett:** "Intelligence as including the abilities demanded in the solution of problems which requires the comprehension and use of symbols."

- **Terman's:** "Intelligence is the ability to think abstract

Achievement is the aim of the individual life which includes all the behavioural changes in the experience of teaching-learning phenomena. Intelligence and family climate both are the determining the children's curriculum achievement. Academic achievement is a complex behaviour yet an end product of leaning. There is a huge concern among is determining the heads of the institutions.

Intelligence may be the considered as functional effectiveness of mental process perceiving, remembering, reasoning and helps the individual to adjust and adapt his thinking to changing environment and his conditions of his life.

## Review of the related literature

Kaur (1992: Studied the interrelationship between creativity, intelligence and academic achievement of 11th grade boys and found that relationship between creativity and intelligence was low but positive; academic achievement commonly influenced the correlation between creativity and intelligence; relationship between creativity and intelligence was non linear; low positive relationship existed between creativity and academic achievement; creativity commonly influenced the correlation between academic achievement and intelligence; the relationship between intelligence and academic achievement was linear.

Vyas (2002): Studied learning style, mental ability, academic performance and other ecological correlates of under graduate adolescent girls with the objective to study the effect of ecological correlates on the academic performance of girls students by taking a sample of 545 adolescent girls and found that most of the girls showed academic attainment of average level; no significant difference in the achievement of girls belonging to arts and science group; there was significant difference in the learning style and mental abilities of girls residing in urban and rural area

Diseth (2003): Compared intelligence and academic achievement of adolescent boys and girls of IX and XI class and found that among students of class XI there was no difference in the academic achievement of intellectually superior and intellectually very

superior boys and girls; at other intellectual levels the academic achievement of girls was superior to that of boys. In general the intelligence test scores of boys was higher than those for the girls; in case of boys there was very high correlation between intelligence test scores and academic achievement whereas in case of girls there was average correlation.

Panigrahi (2005): Studied academic achievement in relation to intelligence and socioeconomic status of high school students with the objective to examine the influence of intelligence and socioeconomic status on academic achievement of high school students by taking a sample of 100 students from Bhubaneswar city of Orissa and found that there was significant and positive correlation between academic achievement and intelligence; high intelligence leads to better academic success; a low positive correlation between academic achievement and socioeconomic status; there was no significant difference between boys and girls with respect to academic achievement.

Subramanyam et al. (2008): Studied academic achievement and emotional intelligence of secondary school children and found that there was no significant difference with regard to the impact of gender on emotional intelligence and academic achievement, besides there being no relation between academic achievement and emotional intelligence.

Gafoor et al. (2008): Studied thinking styles and achievement of higher secondary students and found that there was influence of external (positively) and conservative (negatively) thinking on achievement in physics. Also thinking styles had significant influence on achievement in physics.

Pandey et al. (2008): Studied significance of difference between male and female adolescents on academic performance, achievement motivation, intelligence and socio economic status and found that there was no significant difference between male and female adolescents on the measure of academic performance.

Sridevi et al. (2008): Studied relationship of emotional intelligence, adjustment, self concept and scholastic achievement of higher secondary students and found that there was a positive relationship between emotional intelligence, adjustment, self concept achievement of higher secondary students

Dhall et al. (2009): Studied intelligence as related to self confidence and academic achievement of school students with the objective to explore the relationship between intelligence and academic achievement among secondary school students by taking a sample of 1000 students and found that there was a significant relationship between academic achievement and intelligence of secondary school students; there existed a significant difference between boys and girls of secondary school in terms of intelligence; there existed significant difference between boys and girls of secondary school in terms of academic achievement.

Gurubasappa (2009): Studied intelligence and self concept as correlates of academic achievement of secondary school students with the objective to find out the relationship between academic achievement with intelligence and self concept by taking a sample of 400 students and found that there was high significant correlation between academic achievement with intelligence and self concept; there was significant difference in the academic achievement of

students with different levels of intelligence and self concept; there was significant difference in the academic achievement of students in context of gender, type of school, medium of instruction, locality and socio economic status

Singh (2010): Studied mental health in relation to spiritual intelligence, altruism, school environment and academic achievement of senior secondary students and found that male students had significantly higher level of academic achievement than female students; students residing in urban area had significantly higher academic achievement than students residing in rural area; academic achievement of students studying in aided schools was significantly higher than students studying in government schools; academic achievement of students studying in unaided schools was significantly higher than students studying in government school; academic achievement of students studying in aided schools was significantly higher than students studying in unaided schools.

### Significant of the Study

From the above review of the related literature, concluded that Many researchers have not done research at district level as well as combined family climate, Personal adjustment and academic achievement with secondary school students therefore this research is potent significant study topics having combined results with Belgaum District south. In this regard the above selected Problem is more potent to know the different family climate, influencing on the academic achievement towards secondary school students Belgaum south.

### Objectives

1. To find the difference between boys and girls students of secondary schools of Belgaum south with respect to Intelligence.
2. To find the difference between students of rural and urban secondary schools of Belgaum south with respect to intelligence.
3. To find the difference between Kannada and English medium students of secondary schools of Belgaum south with respect to intelligence
4. To find the difference between students of government, aided and unaided secondary schools of Belgaum south with respect to intelligence.

### Hypothesis

1. There is no significant difference between boys and girls students of secondary schools of Belgaum south with respect to intelligence.
2. There is no significant difference between students of rural and urban secondary schools of Belgaum south with respect to intelligence.
3. There is no significant difference between Kannada and English medium students of secondary schools of Belgaum south with respect to intelligence
4. There is no significant difference between students of government, aided and unaided secondary schools of Belgaum south with respect to intelligence.

### Design of the study

The research is based on relationship between the multiple intrinsic objects the researcher has used the descriptive survey method

to find out the correlation exists between the intrinsic objects. The Suitable standard research questioner Schedule and standard research Interview Schedule has been employed based on nature of the study

The purpose of the convenience, the different sections of chapter IV of the study has been organized under the following sections:

1. Descriptive statistics
2. Differential statistics

Correlation analysis of academic achievement scores of students of secondary schools of Belgaum south with other independent variables

Multiple linear regressions analysis of academic achievement scores of students of secondary schools of Belgaum south with other independent variables

Path analysis of direct and indirect effects of independent variables on academic achievement scores of students of secondary schools of Belgaum south

### Population and Sampling Technique

The researcher has applied the stratified and random sampling method to collect the sample from secondary school students at Belgaum South.

**Variables:** This Investigation includes below mentioned variables

- A. Independent Variables: Intelligence
- B. Dependent Variables: Academic Achievement
- C. Moderate Variables: Gender, Type of School, Locality, Medium of Instruction

### Data Collection

By keeping the Objectives and Hypothesis in the Mind with the suitable sampling techniques investigator visited different schools to collect the data with the permission of concern authorities. To collect the data investigator is adopted the survey method.

Academic Achievement questionnaire is prepared by the investigator with the help of the expert and guide after completion of the polite study it was tested to identify the validity and reliability of the questionnaire. Academic achievement questionnaire was self constructed tool.

### Statistical Techniques used

The researcher employed relevant correlation tests such as 't' test, 'P' test other than the suitable statistical techniques employed on the basis of nature of the study. The previous over all percentage of the student is consider as an academic achievement of the students.

**Hypothesis:** There is no significant difference between boys and girls students of secondary schools of Belgaum south with respect to intelligence.

To achieve this hypothesis, the independent t test was applied and the results are presented in the following table.

**Table 1:** Results of t test between boys and girls students of secondary schools of Belgaum south with respect to intelligence

Gender	Mean	SD	SE	t-value	p-value	Signi.
Boys	38.08	6.11	0.48	-1.0357	0.3011	> 0 . 0 5 , NS
Girls	38.82	6.62	0.52			

The results of the above table, clearly shows that, a non-significant difference was observed between boys and girls students of secondary schools of Belgaum south with respect to intelligence scores ( $t=-1.0357$ ,  $p>0.05$ ) at 0.05 level of significance. It means that, the boys and girls students of secondary schools of Belgaum south have similar intelligence.

**Hypothesis:** There is no significant difference between students of rural and urban secondary schools of Belgaum south with respect to intelligence.

To achieve this hypothesis, the independent t test was applied and the results are presented in the following table.

**Table 2:** Results of t test between students of rural and urban of secondary schools of Belgaum south with respect to intelligence.

Location	Mean	SD	SE	t-value	p-value	Signi.
Rural	38.16	6.19	0.49	-0.8070	0.4203	>0.05, NS
Urban	38.74	6.55	0.52			

The results of the above table, clearly shows that, a non-significant difference was observed between students of rural and urban secondary schools of Belgaum south with respect to intelligence scores ( $t=-0.8070$ ,  $p>0.05$ ) at 0.05 level of significance. It means that, the students of rural and urban secondary schools of Belgaum south have similar intelligence.

**Hypothesis:** There is no significant difference between Kannada and English medium students of secondary schools of Belgaum south with respect to intelligence.

To achieve this hypothesis, the independent t test was applied and the results are presented in the following table.

**Table 3:** Results of t test between Kannada and English medium students of secondary schools of Belgaum south with respect to intelligence.

Mediums	Mean	SD	SE	t-value	p-value	Signi.
Kannada medium	38.75	5.91	0.38	1.4823	0.1393	>0.05, NS
English medium	37.54	7.56	0.84			

The results of the above table, clearly shows that, a non-significant difference was observed between Kannada and English medium students of secondary schools of Belgaum south with respect to intelligence scores ( $t=1.4823$ ,  $p>0.05$ ) at 0.05 level of significance. It means that, the Kannada and English medium students of secondary schools of Belgaum south have similar intelligence.

**Hypothesis:** There is no significant difference between students of government, aided and unaided secondary schools of Belgaum south with respect to intelligence.

To achieve this hypothesis, the one way ANOVA test was applied and the results are presented in the following table.

**Table 4:** Results of ANOVA test between students of government, aided and unaided secondary schools of Belgaum south with respect to intelligence.

Sources of variation	Degrees of freedom	Sum of squares	Mean sum of squares	F-value	p-value	Signi.
Between managements	2	70.40	35.20	0.8668	0.4213	>0.05, NS
Within managements	317	12872.80	40.61			
Total	319	12943.20				

The results of the above table, clearly shows that, a non-significant difference was observed between students of government, aided and unaided secondary schools of Belgaum south with respect to intelligence scores ( $F=0.8668, p>0.05$ ) at 0.05 level of significance. It means that, the students of government, aided and unaided secondary schools of Belgaum south have similar intelligence.

### Findings

1. The boys and girls students of secondary schools of Belgaum south have similar intelligence.
2. The students of rural and urban secondary schools of Belgaum south have similar intelligence.
3. The Kannada and English medium students of secondary schools of Belgaum south have similar intelligence.
4. The students of government, aided and unaided secondary schools of Belgaum south have similar intelligence.

### Summary & Conclusion

This study shows that Intelligence fully influences on academic achievement. Intelligence increases learning ability and their Academic Performance. It shows that more intelligence student's performance is always better than other students.

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