

A Study on Intelligence and Academic Achievement Among Higher Secondary Students

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ABSTRACT

The aim of the study was to find out Intelligence and Academic Achievement among higher secondary students in Selam district. The sample for the study comprised of 300 higher secondary students selected randomly from Government, Government Aided and Private schools. The investigator has used descriptive survey method. Descriptive analysis, inferential analysis and correlation analysis had been utilized for this study. Null hypothesis were framed and tested by the researcher. To assess the Intelligence, a standardized tool i.e questionnaire constructed by J.C. Ravan was used. To assess the Academic Achievement quarterly and half yearly marks were calculated. The reliability of Intelligence was 0.6 and validity was 0.8. The tool was found to be highly reliable and valid. The findings were that there exist a positive relationship between Intelligence and Academic Achievement.

Keywords: *Academic achievement, Intelligence, secondary school students, relationship*

Introduction

Life is a long continuous process of learning and adjustment, of interaction between the individual and his environment. Education is something that takes place in society, for the society and by the society. If our education from all directions does not fit in changing circumstances, we say, it is unrealistic. It is useless, meaningless and farther away from life. Education is growth and development. "It is a process in which and by which, the knowledge, character and behavior of the young are shaped and moulded". The problem of education in relation to social change comprises adjustment to the changing conditions, and creation of a new order or in other words education for social progress. In day to day conversation we often says that a particular child or individual is very intelligent or is not intelligent. All such comments are based on observation of the performance or behavior of the individual concerned in comparison to others of his group. Interest, attitude, the desire for knowledge, communicative skills and similar attributes contribute towards his performance or behavior. However, there is something else which is also responsible to a large degree. Academic achievement is related to the acquisition of principles and

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generalizations and the capacity to perform efficiency. Assessment of academic performance has been largely confined to the evaluation in terms of information, knowledge and understanding. Education is unavoidably intellectual in which knowledge is the dominating feature of educational outcomes. It is perhaps the only accepted basis for performance or fulfilment or requirements for a degree. Thus, this study mainly aims to find out the Intelligence and Academic Achievement among higher secondary students.

Need for the Study

Intelligence has been one of the most popular psychological terms used in identifying individual differences. It has helped to explain why people differ from each other in their ability to understand complex ideas, to learn from experience and so on. Based on these characteristics, judgments are made of an individual intellectual capacity.

Even though intelligence is considered a very important human characteristic, very few people understand what it really means to be intelligent. When one is asked to consider the question “what makes a person intelligent” the most common responses will often note a person’s ability to solve problems, use logic, think critically, memorize and so on. Different approaches have been put forward in understanding and assessing intelligence. Many tests have been developed to assess different aspects of intelligence.

Objectives of the Study

- To find out whether there is a significant difference in intelligence of higher secondary students based on
 - ❖ Type of school management
 - ❖ Parent’s qualification.
- To find out whether there is a significant difference in Academic Achievement of higher secondary students based on
 - ❖ Type of school management
 - ❖ Parent’s qualification.
- To find out whether there is a significant relationship between intelligence and academic achievement among higher secondary students.

Hypotheses of the study

- There is no significant difference in intelligence of higher secondary students based on
 - ❖ Type of school management
 - ❖ Parent’s qualification
- There is no significant difference in Academic Achievement of higher secondary students based on
 - ❖ Type of school management
 - ❖ Parent’s qualification
- There is no significant relationship between intelligence and academic achievement among higher secondary students.

Methods and Procedure

In this present study, the normative survey method was employed. The present study was conducted on 300 higher secondary school students in Selam District of Tamil Nadu. So, the sample of 300 higher secondary school students of Selam district was selected by using random sampling technique. The reliability of the Intelligence scale had been found out by the researchers by using the split half method. It was found to be 0.6 showing the tool to be highly reliable and validity was 0.8.

Tools Used

1. Intelligence test by J.C. RAVEN'S progressive matrices.
2. Academic achievement –Average of quarterly & half-yearly marks of students

Description of the tool – Intelligence Scale

The tests consist of 60 problems divided into 5 sets. Each problem has a sample figure with a portion missing. Below the sample are given alternative answers among which only one is correct. This can be given as a group test. It is a culture free test.

Table 1 Scoring Procedure for Intelligence Scale

GRADE-I	Intellectually superior	Above 95 th percentile
GRADE-II	Definitely above the average in intellectual capacity	Above 75 th percentile and 90 th percentile
GRADE-III	Intellectually average	Lies between 25 th and 75 th percentile
GRADE-IV	Definitely below average in intellectual capacity	Below 25 th percentile
GRADE-V	Intellectually impaired	Below 5 th percentile

Analysis and Interpretation

Table 2: ANOVA for Intelligence of Higher Secondary Students based on type of School management

Variable	Grade	Source of variation	df	SS	MSS	F-value	L.S
Intelligence	I	Between	2	0.7	0.35	1.45	N.S
		Within	7	1.7	0.24		
	II	Between	2	9.71	4.85	2.50	N.S
		Within	99	192.61	1.94		
	III	Between	2	32.91	16.45	2.93	N.S
		Within	145	814.39	5.61		
	IV	Between	2	1.49	0.74	2.75	N.S
		Within	37	102.01	2.75		
	Over all	Between	2	407.41	203.70	5.63	0.01
		Within	297	10737.59	36.15		

From the above table it is observed that the grade wise analysis of intelligence shows no significant difference among groups. With respect to overall intelligence, F-value (5.63) is significant at 0.01 level. Hence it is inferred that there is significant difference among groups. t-test is further calculated to find out the significance of difference between groups. Mean, S.D, and t- value is calculated and presented in **Table 3**.

Table 3: Overall Intelligence mean scores of Higher Secondary students based on type of School Management wise

Variable	Grade	Type of Management	N	Mean	SD	t. value	L.S
Intelligence	Over all	Aided	100	45.16	7.08	3.12	0.01
		Private	100	43.21	5.24		
		Private	100	43.21	5.24	1.10	N.S
		Government	100	42.38	5.54		
		Government	100	42.38	5.54	2.24	0.05
		Aided	100	45.16	7.08		

From the above table it is observed that with respect to the overall intelligence of higher secondary students significant difference is observed between Aided and Private school students at 0.01 level. Significant difference is also observed between Government and Aided school students at 0.05 level.

Table 4: ANOVA for intelligence of Higher Secondary students based on parent's qualification

Variable	Grade	Sources of Variation	Df	SS	MSS	F-value	L.S
Intelligence	I	Between	2	0.03	0.015	0.045	N.S
		Within	7	2.37	0.33		
	II	Between	2	2.48	1.24	0.61	N.S
		Within	99	199.84	2.01		
	III	Between	2	4.38	2.19	0.42	N.S
		Within	145	842.92	5.81		
	IV	Between	2	1.23	0.615	0.22	N.S
		Within	37	102.27	2.76		
	Over all	Between	2	185.16	92.58	2.43	N.S
		Within	297	11303.08	38.05		

From the above table it is observed that the F- value for Grade wise analysis of intelligence of higher secondary students is not found to be significant. F ratio for overall intelligence is also not significant indicating difference among groups.

Table 5: ANOVA for Academic Achievement of Higher Secondary students based on Type of School Management

Variable	Category	Source of variation	df	SS	MSS	F-value	L.S
Academic Achievement	Low	Between	2	63.46	31.73	2.59	N.S
		Within	37	452.1	12.21		
	Moderate	Between	2	279.8	139.9	2.90	0.05
		Within	214	10304	48.1		
	High	Between	2	126	63	1.61	N.S
		Within	40	1564	39		
	Over all	Between	2	770	385	2.38	N.S
		Within	297	478899	161.27		

From the above table it is observed that there is no significant difference among low and high achievers from different types of management. Overall achievement also shows no significant difference among students from different managements. However moderate achievers exhibit significant difference among groups. Further analysis using t- test is used to find out the groups that differ. The results are given in **Table 6**

Table 6: Showing mean scores of Moderate achiever based on Type of School Management

Variable	Category	Type of management	N	Mean	S.D	t-value	L.S
Academic Achievement	Moderate	Private	80	50.33	6.46	1.41	N.S
		Aided	76	51.84	6.97		
		Aided	76	51.84	6.97	2.30	0.05
		Government	61	48.98	7.47		
		Government	61	48.98	7.47	1.12	N.S
		Private	80	50.33	6.46		

From the above table it is observed that no significant difference is observed between Private & Aided, Government & Private school students. Significant difference in achievement is observed between Aided and Government school students as the t- value is significant at 0.05 level.

Table 7: ANOVA for Academic Achievement of Higher Secondary students based on parent's qualification

Variable	Grade	Source of variation	df	SS	MSS	F-value	L.S
Academic Achievement	Low	Between	2	13	6.5	0.47	N.S
		Within	37	502.6	13.58		
	Moderate	Between	2	392.2	196.1	4.11	0.05
		Within	214	10188.7	47.6		
	High	Between	2	174.4	87.2	2.30	N.S
		Within	40	1515.6	37.89		
	Over all	Between	2	478	239	1.47	N.S
		Within	297	48191	162		

From the above table it is observed that there is no significant difference among low and high achievers based on parent's qualification. Over all achievement also shows no significant difference among students. However moderate achievers exhibit significant difference among groups. Further analysis using t- test is used to find out the groups that differ. The results are given in **Table 8**.

Table 8: Showing mean scores of Moderate Achiever based on Parent's qualification

Variable	Category	Parent's qualification	N	Mean	S.D	t-value	L.S
Academic Achievement	Moderate	Graduate	57	50.50	8.02	0.60	N.S
		School level	122	51.24	7.02		
		School level	122	51.24	7.02	3.44	0.01
		Uneducated	38	48	4.36		
		Uneducated	38	48	4.36	1.95	N.S
		Graduate	57	50.50	8.02		

From the above table it is observed that no significant difference is observed between students of Graduate & School level educated parent's; Uneducated & Graduate Parents. Significant difference in achievement is observed between students of School level & Uneducated parents as the t- value is significant at 0.01 level.

Table 9: Correlation between Intelligence and Academic Achievement among Higher Secondary school students

Variable	N	Correlation	L.S
Intelligence	300	0.16	0.01
Academic achievement			

From the above table it is inferred that significantly positive relationship exists between Intelligence and Academic Achievement among higher secondary students.

Recommendations

- Variations among children become more pronounced with advancement in age. If the teacher is conscious of the differences in different levels of the learners, he can understand them better and do much more for the learners accordingly.
- Some schools may use a method of teaching that enables the learners to learn at their own individual pace.
- The individualized method of instruction to a great extent helps the individual to adjust his programmer of study according to his ability to progress in the different subjects.
- There are some children whose abilities are rather irregular owing to heredity and environmental factors. Their habits, interests, purpose etc. do differ considerably.
- Ideally, it is the responsibility of the school to discern not only each child's intellectual level, but to discover his special aptitudes or weakness.
- It is a major responsibility of the schools to discover and cultivate mentally superior and creative individuals through enrichment of curriculum, pressing the services of specially selected teachers and using the methodology in line with the interests and aptitudes of the learn.

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