Original Research Paper

Education

A STUDY ON INTELLIGENCE AND ACADEMIC ACHIEVEMENT

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ABSTRACT The main purpose of the study is to investigate the association between Intelligence and Academic Achievement of Intermediate students. Survey method is used in the present study. The participants of the study consisted of 1200 Intermediate II year students selected by simple random sampling method from six districts of Andhra Pradesh, India. The researchers used standardized tool namely G.C. Ahuja Group Test of Intelligence for 13 to 17years+ students.The validity and reliability of the tool was well established. The Intermediate board examination results were considered for measuring the Academic Achievement of Intermediate students. Chi square test, t -test and Tukey's post hoc test are the statistical techniques employed to draw results. The findings of the study revealed that there is a significant strong association between Intelligence and Academic Achievement. Significant difference was found in the Academic Achievement of Intermediate students belonging to three Intelligence groups. Based on the findings, suggestions were made that same study may be extended to Intermediate students of 13 Districts in the state of Andhra Pradesh.

KEYWORDS : Intelligence, Intermediate students, Academic Achievement

INTRODUCTION

Education is a product of experience. It is the process by which knowledge, skills and attitudes are transmitted to the members of the community. It proceeds from birth to death and educational institutions exert a powerful influence in educating the child. Man is considered to be endowed with certain cognitive abilities, which make him a rational being. He can reason, discriminate, understand, adjust and face a new situation. Hence, he is definitely superior to animals.

There are wide individual differences. Individuals differ in their intellectual capacities. Intelligence is an ability to learn a wide variety of intellectual skills i.e. ability to process information efficiently, recall knowledge quickly and solve problems accurately. Intelligence is one of the most important variable on which Academic achievement of a student depends.

In current years, academic achievement is considered as a key criterion to judge one's total potentialities and capacities. Academic achievement may be defined as the performance of the students in the subjects they study in the school and college. Academic achievement also denotes the knowledge attained and skill developed in the school and college subject, usually designed by test scores. High intelligence results in high academic success. Hence, there is a direct relationship between Intelligence and Academic Achievement.

PREVIOUS STUDIES

Jadab Dutta et.al.(2016) conducted a study on Academic Achievement, Emotional Maturity and Intelligence of Secondary School Students in Assam.The study revealed that there is a positive relationship between academic achievement and intelligence among the secondary school students of whole sample in Lakhimpur and Sonitpur districts in general.

Neha Sharma and Poonam Chauhan (2015) carried out a research on academic achievement of intellectually gifted students in relation to their gender and intelligence. The result of this study revealed that there is positive and significant relationship between academic achievement and intelligence of intellectually gifted students.

Parveen, Danista (2014) in their study found significant and positive correlation between Intelligence and Academic Achievement. The study revealed that there is significant gender difference in academic achievement of intellectually gifted students in favour of girls and there is no significant gender difference in intelligence of intellectually gifted students.

According to Watkins, Lei & Canivez (2007), some researches show intelligence and academic achievement as as highly correlated.

Deary, Strand, Smith & Fernandes (2007) found a strong and positive relationship between Intelligence and academic achievement.

Archana Agarwal (2002) studied some correlates of academic achievement and a significant positive relationship was found between academic achievement and intelligence.

OBJECTIVES OF THE STUDY

1. To study and find out the association between Intelligence and Academic Achievement of Intermediate students.
2. To study and find whether there is any significant difference in the Academic Achievement of Intermediate students belonging to three different Intelligence groups.

HYPOTHESES OF THE STUDY

1. There would be no significant association between Intelligence and Academic Achievement of Intermediate students.
2. There would be no significant difference in the Academic Achievement of Intermediate students belonging to three different Intelligence groups.

METHODOLOGY

In the present study, survey method was adopted. Simple random sampling method was employed by the researchers to obtain the desired sample.

Location and sample used in the study

The sample for the present study consisted of 1200 Intermediate II year students from 24 Junior colleges of six districts in the state of Andhra Pradesh.

Variables of the study

The independent variable used in the present study is Intelligence. The dependent variable used in the present study is Academic Achievement.

Tool used for data collection

• Personal Data Sheet.
• Marks obtained by students in Intermediate Board examinations were considered for measuring the Academic Achievement.
• G.C. Ahuja group test of intelligence is meant for assessing the

general mental ability of pupils of age group 13 to 17$^+$. It is a standardized tool and its validity and reliability are well established.

Method of Data collection

The personal data sheet was used to gather information. Intelligence test was administered to Intermediate students. Before administration of the tool, the principals of Junior colleges were requested to give permission for the collection of data. The researchers first explained the importance of investigation to them. Certain instructions were given to Intermediate students for getting appropriate responses.

DATA ANALYSIS AND INTERPRETATION

Data was analysed by employing the following tests.
• Chi square test
• t -test
• Tukey's post hoc test.

Hypothesis – 1

"There would be no significant association between Intelligence and Academic Achievement of Intermediate students."

Table 1: chi square test to find the association between Intelligence and Academic Achievement

Intelligence		Achievement Grades					X^2
		Very High Achievers	High Achievers	Average Achievers	Low Achievers	Total	
Above to Normal or Average	N	32	1	0	0	33	586.35**
	%	2.67	0.08	0.00	0.00	2.75	
Normal or Average	N	365.00	290.00	15.00	0.00	670.00	
	%	30.42	24.17	1.25	0.00	55.83	
Below to Normal or Average	N	25.00	199.00	251.00	22.00	497.00	
	%	2.08	16.58	20.92	1.83	41.42	
Total	N	422.00	490.00	266.00	22.00	1200.00	
	%	35.17	40.83	22.17	1.83	100.00	

** Significant at 0.01 Level

From the above table, the chi square value ($x^{2)}$ for Intelligence and academic achievement is found to be 586.35 which is significant at 0.01 level. Therefore, the above hypothesis - 1 is rejected. Hence, it is concluded that there is significant association between Intelligence and academic achievement of Intermediate students.

Hypothesis – 2

"There would be no significant difference in the Academic Achievement of Intermediate students belonging to three different Intelligence groups."

Table 2: Results of t – test for Intelligence Groups on Academic Achievement

	Intelligence Groups	N	Mean	Std. Deviation		t-value
Academic Achievement Scores	1 Above Normal	33	960.88	47.056	t_{12}	9.097**
	2 Normal	670	803.99	98.473	t_{13}	17.652**
	3 Below Normal	497	585.55	121.451	t_{23}	33.897**

** Significant at 0.01 Level

It is observed from the above table 2 that the t – values for three Intelligence groups namely Above Normal Intelligence group, Normal Intelligence group and Below Normal Intelligence group are significant at 0.01 level which indicate that students belonging to three Intelligence groups differ significantly in regard to their Academic Achievement.

In order to find out specifically which groups differ significantly from one another, Tukey HSD post hoc test was applied and the results were shown in the table 3.

Table 3: Results of Tukey HSD post hoc test for students belonging to three different Intelligence Groups on Academic Achievement
(Dependent Variable: Academic Achievement Scores)

Test	(I) Intelligence Groups	(J) Intelligence Groups	Mean Difference (I-J)
Tukey HSD	Above Normal	Normal	156.89
		Below Normal	375.33
	Normal	Above Normal	156.89
		Below Normal	218.43
	Below to Normal or Average	Above Normal	375.33
		Normal	218.43

Based on observed means. The error term is Mean Square (Error) = 11347.568.

The mean difference is significant at the .05 level.

A perusal of above table indicates that there is a statistically significant difference between all three different Intelligence Groups namely – 'Normal & 'Below Normal'; 'Above Normal' & 'Below Normal'; and 'Above Normal' & 'Normal'.

MAJOR FINDINGS OF THE STUDY
• There is significant association between Intelligence and academic achievement of Intermediate students.
• There is significant difference in the academic achievement of Intermediate students belonging to three different Intelligence groups.

EDUCATIONAL IMPLICATIONS

Every systematic educational research has some bearings for educational planners, designers, practitioners, teachers, lecturers and students. In the present study also base on the findings, some educational implications are spelled out.

• Lecturer should try to create democratic and interactive environment in the classroom.
• The college should take necessary steps to enlighten the parents so that they provide stimulating environment to their children at home. This will improve intelligence level and thereby academic achievement of the students.
• Remedial teaching should be conducted to slow learners. This will enhance their academic performance.
• Appropriate teaching methods and strategies need to be selected on the basis of intelligence level of students in order to improve them academically.

SUGGESTIONS FOR FURTHER RESEARCH

The same study may be extended to Intermediate students of 13 Districts in the state of Andhra Pradesh. The study may also be extended to Degree and Post Graduate students. Different socio demographic variables like gender, management, locality, group of study, medium of instruction, community, occupation of parents, annual income etc. can be included.

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