INTELLIGENCE AS A PREDICTOR OF ACADEMIC ACHIEVEMENT: RESULTS FROM CORRELATIONAL PREDICTION ANALYSIS

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ABSTRACT

The current study aimed to research correlation between Intelligence and Academic achievement and examine whether Intelligence as a Predictor of Academic Achievement of students. The study applied Descriptive research in which correlational Predictive Analysis was carried out. Purposive sampling technique was adopted to draw sample. Intelligence test standardized by Raven to measure the Intelligence of students and academic achievement scores of students in English collected from the school were used to collection of data. Correlation and linear regression were used to analysis collected data. The study found that there is a significant correlation between Intelligence and academic achievement of students. It was also found that Intelligence is a significant predictor of Academic Achievement students.

Key Words: Academic Achievement, Intelligence

Introduction

Intelligence is most significant factor influence on academic achievement of students. The relationships between these two variables are often discussed in educational environment. Aggarwal, (2002) rightly expressed that "Intelligence is the most important single variable which affects success in school and in life". Thus, intelligence is important personal variable effect on academic achievement as well as intelligence correlate with academic achievement and also predictor. The present study is an effort to study the correlation between Intelligence and academic achievement and further examine weather Intelligence is predictor of academic achievement.

Related Studies: An Overview

Review of related literature showed that many studies were reported related to intelligence and academic achievement. Mudasir and Yatu, (2013) found that difference in attitude of boys and girls towards intelligence. Nyicyor, Chetia, and Dutta, (2016) revealed that there is Low positive correlation between intelligence and academic achievement. Chandra and Azimmudin, (2013) revealed that no difference in academic achievement of male and female students, significant difference between High and Average IQ, Average and Low IQ, High IQ and Low category secondary school students on academic achievement. Mayuri and Kumari, (2017) reported gender difference exist in intelligence scores of private residential school children and difference is not observed in rural government school. IQ and academic achievement were highly correlated in private residential school and no significant difference correlation between the measures of academic achievement and IQ. Kpolovine, (2016) found that correlation between IQ and academic achievment in Mathematics and IQ and Academic Achievment in English Language. Kaur and Kaur, (2018) reported that there is significant difference in the achievement in mathematics of experimental group students with high and low intelligence. From the above studies it is noted that studies are conducted in refer to Intelligence and academic achievment of students and association between these two variables. These studies are not reported related to prediction of academic achievment based on IQ. Thus, the present study examine whether Intelligence as a Predictor of Academic Achievement

Statement of Problem

The main objective of the research is to study Intelligence as a Predictor of Academic Achievement of students. The study wanted to investigate relationship between Intelligence and Academic Achievement and to find out whether Intelligence as a predicator of academic achievement of students.

Variables of the Study

The study considered Intelligence as independent variable and academic achievement as dependent variable.

Objectives

1. Investigate whether there is any relationship between Intelligence and academic achievement scores of boys.
2. Investigate whether there is any relationship between Intelligence and academic achievement scores of girls.
3. To find out whether Intelligence is a significant predictor of Academic Achievement of boys.
4. To find out whether Intelligence is a significant predictor of Academic Achievement of girls.

Hypothesis

1. There is no significant correlation between Intelligence and academic achievement scores of boys.
2. There is no significant correlation between Intelligence and academic achievement scores of girls.
3. Intelligence is not significant predictor of Academic Achievement scores of boys.
4. Intelligence is not significant predictor of Academic Achievement scores of girls.

Research Method

The study applied Descriptive research in which correlational Predictive Analysis was carried out. The study intended examine the correlation between Intelligence and Academic Achievement and also wanted to investigate Intelligence as a significant predictor of academic achievement of students.

Sample

A total of 76 IX standard students studying in one of the secondary state board school located in Bangalore city selected by purposive sampling was sample of the study.

Tools Used

Intelligence test and academic achievement were tools for the present study. Intelligence test standardized by Raven to measure the Intelligence of students. And academic achievement scores in English collected from the school record.

Statistical Technique Applied

Person Correlation and linear regression were used to analysis collected data. Relation between Intelligence and Academic Achievement analysis using person correlation and Linear regression for analysis whether Intelligence is a predicator of academic achievement.

Analysis and Interpretation

Hypothesis 1: There is no significant correlation between Intelligence and academic achievement scores of boys.

Table 1: *Correlation between Intelligence and Academic Achievement*

Variables	N	Person Correlation	'p' value	S/NS
Intelligence & Academic Achievement	41	.535	.000	S

Table 1 reports r value of .535 and $p = .000$. As $p < .05$, this indicates that there is a significant correlation between Intelligence and Academic Achiemvent scores of boys at .05 level of significance, $r = .535$, $N=41$, $p = .000$. The r value .535 indicates positive correlation between Intelligence and Academic Achievement of students.

Hypothesis 2: There is no significant correlation between Intelligence and academic achievement scores of girls.

Table 2: *Correlation between Intelligence and Academic Achievement*

Variables	N	Person Correlation	'p' value	S/NS
Intelligence & Academic Achievement	35	.355	.036	S

Table 2 reports r value of .355 and $p = .036$. As $p < .05$, this indicates that there is a significant correlation between Intelligence and Academic Achiemvent scores at .05 level of significance, r

= .355, *N*=35 *p* =.036. The *r* value .355 indicates positive correlation between Intelligence and Academic Achievement of students.

Hypothesis 3: Intelligence is not significant predictor of Academic Achievement scores of boys.

Table 3: *Model Summary Showing the Correlation Coefficient for Intelligence and Academic Achievement*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.535	.286	.268	14.16412

Predictors: (Constant), Intelligence

Table 3 reports Correlation Coefficient, R, is .535, which is positive. Therefore Intelligence is positive correlation with Academic Achievement scores. R^2= .286; which indicate that 28.6 % of variance in Academic Achievement scores of boys is explained by Intelligence. The regression equation appears to be very useful for making predictions since r^2 is close to 1.

Table 4: *ANOVA Summary Showing Significance of Regression Model*

Model	*SS*	*df*	*MS*	*F*	*Sig.*
Regression	3135.296	1	3135.296	15.628	.000
Residual	7824.265	39	200.622		
Total	10959.561	40			

Predictors: (Constant), Intelligence, Dependent Variable: Academic Achievement

Table 4 reports F-statistics of 15.628 with 1and 39 degree of freedom and p = .000. As p < .05, this indicates that regression model statistically significant at .05 level of significance, F (1, 39) =15.628, p<.05. Which indicate that Intelligence also explained a significant proportion of variance in Academic Achievement scores of boys.

Table 5: *Coefficient of Regression Equation Resulting from Linear Regression Analysis*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			LB	UB
1	(Constant)	17.690	11.982		1.476	.148	-6.546	41.926
	Intelligent	.722	.183	.535	3.953	.000	.353	1.091

Dependent Variable: Academic Achievement

Table 5 reports linear regression coefficient, indicate that intercept (constant) and slope (Intelligence) are significant at .05 level of significance, t =3.953, p=.000, β =.535, with the

intercept estimate 17.690 and the slope estimate .722. It means, the Intelligence strongly supports the increase in academic achievement scores of boys and Intelligence predicts the academic achievement of students (y). Thus regression equation for predicating academic achievement from Intelligence is Academic Achievement (Y) =17.690+.722 (Intelligence). The results indicate that with 95% of confident that the slope of the true regression line is somewhere between .353 and 1.091.

Hypothesis 4: Intelligence is not significant predictor of Academic Achievement scores of girls.

Table 6: *Model Summary Showing the Correlation Coefficient for Intelligence and Academic Achievement*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.355	.126	.100	12.81511

Predictors: (Constant), Intelligence

Table 6 reports Correlation Coefficient, R, is .355, which is positive. Therefore Intelligence is positive correlation with Academic Achievement scores. R^2= .126; which indicate that 12.6 % of variance in Academic Achievement scores of girls is explained by Intelligence. The regression equation appears to be very useful for making predictions since r^2 is close to 1.

Table 7: *ANOVA Summary Showing Significance of Regression Model*

Model	*SS*	*df*	*MS*	*F*	*Sig.*
Regression	782.054	1	782.054	4.762	.036
Residual	5419.489	33	164.227		
Total	6201.543	34			

Predictors: (Constant), Intelligence,
Dependent Variable: Academic Achievement

Table 7 reports F-statistics of 4.762 with 1and 33 degree of freedom and p = .036. As p < .05, this indicates that regression model statistically significant at .05 level of significance, F (1, 33) =4.762, p<.05. Which indicate that Intelligence also explained a significant proportion of variance in Academic Achievement scores of girls.

Table 8: *Coefficient of Regression Equation Resulting from Linear Regression Analysis*

Model	Unstandardized	Standardized	t	Sig.	95.0% Confidence

		Coefficients		Coefficients			Interval for B	
		B	Std. Error	Beta			LB	UB
1	(Constant)	50.305	9.422		5.339	.000	31.136	69.474
	Intelligent	.329	.151	.355	2.182	.036	.022	.635

Dependent Variable: Academic Achievement

Table 8 reports linear regression coefficient indicate that intercept (constant) and slope (Intelligence) are significant at .05 level of significance, t =2.182, p=.036, β =.355, with the intercept estimate 50.305 and the slope estimate .329. It means, the Intelligence strongly supports the increase in academic achievement scores of girls and Intelligence predicts the academic achievement of students (y). Thus regression equation for predicating academic achievement from Intelligence is Academic Achievement (Y) = 50.305+.329 (Intelligence). The results indicate that with 95% of confident that the slope of the true regression line is somewhere between .022 and .635.

Findings

In this study all the null hypothesis are rejected and accepted the research hypothesis. The study found that 1) significant correlation between Intelligence and academic achievement scores of boys 2) significant correlation between Intelligence and academic achievement scores of girls 3) Intelligence is a significant predictor of Academic Achievement scores of boys 4) Intelligence is a significant predictor of Academic Achievement scores of girls.

DISCUSSION AND CONCLUSION

The findings of the study indicates that significant correlation between Intelligence and Academic achievement scores of boys as well as girls. The direction of relationship is positive, it indicates that Intelligence and Academic Achievement be likely to increase together. The size of association is approximately moderate. The findings of the study also suggest that Intelligence is significant predicator of academic achievement scores of boys as well as girls and indicated few major finding. First, variance in academic achievement scores is explained by Intelligence; second, Intelligence also explained a significant proportion of variance in Academic Achievement scores; third, Intelligence strongly supports the increase in academic achievement scores and lastly Intelligence predicts the academic achievement of students

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