



Intelligence Wise Comparative Analysis of Academic Achievement of Secondary School Students

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ABSTRACT This is school education related research sought to study the Intelligence Wise Comparative Analysis of Academic Achievement of Secondary School Students in Language Subjects. By applying purposive sampling technique data was collected from one of the private secondary school located in Bangalore city. Mid-term academic achievement scores of IX standard students were collected from the school. Ravens Intelligence test was administered to collect Intelligence scores. Descriptive statistics and One Way Analysis of Variance were used to analysis of data. Hypothesis is tested at .05 level of significance. The study found that there is a significance difference in the academic achievement among the students of different level of Intelligence in 1st Language, 2nd Language and 3rd Language subject.

Key Words: Academic Achievement, Intelligence

Introduction

Intelligence and Academic Achievement are the important gauges of success of students. Academic achievement denotes achievement of students in academic course. According to Shamshuddin, Reddy, and Rao, (2007). "Academic achievement refers assessing achievement of student in school subject. Academic achievement is defined as the specified level of attainment of proficiency in academic work designed by test scores. Both physical maturation and mental readiness facilitate academic achievement". The society, parent, teachers and school agree with the students' progress in the light of their academic achievement. Performance of Higher level achievement motivates the students and engage them effectively in schooling. On the contrary "low achievement and failure cause lack of self-confidence in students making them skeptical of their abilities and causing inferiority complex in them" (Sharma,1985). Thus, academic achievement is considered as not only a pointer for effectiveness of school education but also major determinant of future of youth and nation in general (Dev, 2016). But accomplishment of academic achievement is influenced by personal, family and school related factors (Kumari, Devi, & Mayuri, 2017). In relation to this, intelligence is most important personal factor which influence on academic achievement of student. However, intelligence of child is determined by hereditary and environmental factor. Since we cannot control or

modify the genetic factor, hence a conducive environment must be provided for the intellectual development of the children (Chandra & Azimmudin, 2013). Askari and Rahim, (2017) also rightly claimed that “IQ scores have repeatedly proved to be the best tool in predicting success across a wide spectrum of phenomena”. Whether development of Intelligence due to hereditary or environment or combination of both, Intelligence constantly significant predictors of academic achievement of child. Aggarwal (2002) also rightly expressed that “Intelligence is the most important single variable which affects success in school and in life”. Based on above discussion it is evident that Academic achievement and Intelligence of students frequently addressed variable in education and research. Thus, the study sought to extend to find out Intelligence wise comparative study of academic achievement of secondary school students in Language subjects.

Statement of Problem

The main objective of the research is to study the Intelligence wise Comparative Analysis of Academic Achievement of Secondary School Students in Language subjects.

Objective

To study Intelligence wise difference in academic achievement of IX standard students in Language subjects.

Hypothesis

1. There is no significance difference in the academic achievement among the students of different level of Intelligence in 1st Language.
2. There is no significance difference in the academic achievement among the students of different level of Intelligence in 2nd Language.
3. There is no significance difference in the academic achievement among the students of different level of Intelligence in 3rd Language.

Method

The study was descriptive quantitative research method, in which intend to know the difference in academic achievement among IX standard students of different levels of Intelligence. The study considered academic achievement as a dependent variable and Intelligence as an independent variable.

Sample

Purposive sampling technique was employed to collect data. The sample comprised of 76 IX standard students of one of the unaided secondary school affiliated to state board located in Bangalore city.

Tools Used

Tools used were: personal data sheet to collect data on class and gender of the student and Intelligence test standardized by Raven was used to gather data about Intelligence of the students. And academic achievement in Languages were measured through the mid-term academic scores collected from the school record.

Statistical Technique

Data were analyzed using descriptive statistics and inferential statistic. In descriptive statistic mean, SD and percentage analysis were used and One Way ANOVA and Post hoc test for testing the hypothesis. The data is interpreted at .05 level of significance.

Analysis and Interpretation of Data

Analysis of Distribution of Level of Intelligence among IX Standard Students

Table 1: Levels of Intelligence Among IX Standard Students

Levels of Intelligence	Number	Percentage
High Intelligence	14	18.4
Average Intelligence	50	65.8
Low Intelligence	12	15.8
Total	76	100.0

The table shows distribution of secondary students in different levels of Intelligence. N and percentage value for; higher Intelligence level are N= 14 with 18.4%, average Intelligence are N = 50 with 65.8% and Low Intelligence are N= 12 with 15.8%. It indicates that maximum number students are in Average Intelligence followed by High intelligence and Low intelligence.

Hypothesis 1: There is no significance difference in the academic achievement among the students of different level of Intelligence in 1st Language.

Table 2: *Indicates sum of squares, df, mean square, f-value and p-value for difference in the academic achievement among students of different levels of Intelligence in 1st Language*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2488.326	2	1244.163	5.806	.005
Within Groups	15643.609	73	214.296		
Total	18131.934	75			

ANOVA table reports an F-statistics of 5.806 with 2 and 73 degree of freedom and $p = .005$. As $p < .05$, this indicates that there is a significance difference in the academic achievement among the students of different level of Intelligence in 1st Language at

.05 level of significance, $F(2, 73) = 5.806$; $p < .05$. It means there is an influence of levels of Intelligence on academic achievement. Further multiple comparisons are performed using Post hoc test procedure.

Table 2.1: Post hoc test for mean difference in academic achievement among different levels of Intelligence students in 1st Language

(I) Intelligence Level	(J) Intelligence Level	(I-J) Mean Difference	Std. Error	Sig.	95% CI	
					Lower Bound	Upper Bound
High Intelligence	Average Intelligence	8.15143	4.42637	.163	-2.4384	18.7412
	Low Intelligence	19.57143*	5.75889	.003	5.7936	33.3492
Average Intelligence	High Intelligence	-8.15143	4.42637	.163	-18.7412	2.4384
	Low Intelligence	11.42000*	4.70573	.046	.1618	22.6782
Low Intelligence	High Intelligence	-19.57143*	5.75889	.003	-33.3492	-5.7936
	Average Intelligence	-11.42000*	4.70573	.046	-22.6782	-.1618

*. The mean difference is significant at the 0.05 level.

From the above table, it is evident that, the p value for difference in academic achievement of High Intelligence and Average Intelligence students is higher ($p = .163$) than .05 level of significance. The obtained p value for difference in academic achievement of High Intelligence and Low Intelligence students is less ($p = .003$) than .05 level of significance. Whereas the obtained p value for difference in academic achievement of Average Intelligence and Low Intelligence students is less ($p = .046$) than .05 level of significance. Hence, it can be conclude that there is no significance difference in the academic achievement of High Intelligence and Average Intelligence students and difference exist in the academic achievement of High Intelligence and Low Intelligence students and Average Intelligence and Low students in 1st Language.

Hypothesis 2: There is no significance difference in the academic achievement among the students of different level of Intelligence in 2nd Language.

Table 3: Indicates sum of squares, df, mean square, f-value and p-value for difference in the academic achievement among students of different levels of Intelligence in 2nd Language

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2203.766	2	1101.883	5.139	.008
Within Groups	15653.115	73	214.426		
Total	17856.882	75			

ANOVA table reports an F-statistics of 5.139 with 2 and 73 degree of freedom and $p = .008$. As $p < .05$, this indicates that there is a significance difference in the academic achievement among the students of different level of Intelligence in 2nd Language at

.05 level of significance, $F(2, 73) = 5.139$; $p < .05$. It means there is an influence of levels of Intelligence on academic achievement. Further multiple comparisons are performed using Post hoc test procedure.

Table 3.1: Post hoc test for mean difference in academic achievement among different levels of Intelligence students in 2nd Language

(I) Intelligence Level	(J) Intelligence Level	(I-J) Mean Difference	Std. Error	Sig.	95% CI	
					Lower Bound	Upper Bound
High Intelligence	Average Intelligence	11.56857*	4.42772	.029	.9755	22.1616
	Low Intelligence	17.59524*	5.76064	.009	3.8133	31.3772
Average Intelligence	High Intelligence	-11.56857*	4.42772	.029	-22.1616	-.9755
	Low Intelligence	6.02667	4.70716	.411	-5.2349	17.2882
Low Intelligence	High Intelligence	-17.59524*	5.76064	.009	-31.3772	-3.8133
	Average Intelligence	-6.02667	4.70716	.411	-17.2882	5.2349

*. The mean difference is significant at the 0.05 level.

From the above table, it is evident that, the p value for difference in academic achievement of High Intelligence and Average Intelligence students is less ($p = .029$) than .05 level of significance. The obtained p value for difference in academic achievement of High Intelligence and Low Intelligence students is also less ($p = .009$) than .05 level of significance. Whereas the obtained p value for difference in academic achievement of Average Intelligence and Low Intelligence is higher ($p = .411$) than .05 level of significance. Hence, it can be concluded that there is a significance difference in the academic achievement of High Intelligence and Average Intelligence students, High Intelligence and Low Intelligence students and difference is not exist in the academic achievement of Average Intelligence and Low students in 2nd Language.

Hypothesis 3: There is no significance difference in the academic achievement among the students of different level of Intelligence in 3rd Language.

Table 4: Indicates sum of squares, df, mean square, f-value and p-value for difference in the academic achievement among students of different levels of Intelligence in 3rd Language

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3270.536	2	1635.268	5.196	.008
Within Groups	22974.345	73	314.717		
Total	26244.882	75			

ANOVA table reports an F-statistics of 5.196 with 2 and 73 degree of freedom and $p = .008$. As $p < .05$, this indicates that there is a significance difference in the academic achievement among the students of different level of Intelligence in 3rd Language at

.05 level of significance, $F(2, 73) = 5.196$; $p < .05$. It means there is an influence of levels of Intelligence on academic achievement. Further multiple comparisons are performed using Post hoc test procedure.

Table 4.1: Post hoc test for mean difference in academic achievement among different levels of Intelligence students in 3rd Language

(I) Intelligence Level	(J) Intelligence Level	(I-J) Mean Difference	Std. Error	Sig.	95% CI	
					Lower Bound	Upper Bound
High Intelligence	Average Intelligence	9.97143	5.36415	.158	-2.8620	22.8048
	Low Intelligence	22.48810*	6.97898	.005	5.7913	39.1849
Average Intelligence	High Intelligence	-9.97143	5.36415	.158	-22.8048	2.8620
	Low Intelligence	12.51667	5.70270	.079	-1.1267	26.1600
Low Intelligence	High Intelligence	-22.48810*	6.97898	.005	-39.1849	-5.7913
	Average Intelligence	-12.51667	5.70270	.079	-26.1600	1.1267

*. The mean difference is significant at the 0.05 level.

From the above table, it is evident that, the p value for difference in academic achievement of High Intelligence and Average Intelligence students is higher ($p = .158$) than .05 level of significance. The obtained p value for difference in academic achievement of High Intelligence and Low Intelligence students is less ($p = .005$) than .05 level of significance. Whereas the obtained p value for difference in academic achievement of Average Intelligence and Low Intelligence is higher ($p = .079$) than .05 level of significance. Hence, it can be conclude that there is no significance difference in the academic achievement of High Intelligence and Average Intelligence, Average Intelligence and Low Intelligence students and difference exist in the academic achievement of High Intelligence and Low Intelligence students in III Language.

Findings of the Study

The study rejected all the three null hypothesis and accepted the research hypothesis and find that there is a significance difference in the academic achievement among the students of different level of Intelligence in 1st Language subject [$F(2, 73) = 5.806$; $p < .05$], 2nd Language [$F(2, 73) = 5.139$; $p < .05$] and 3rd Language [$F(2, 73) = 5.196$; $p < .05$].

Discussion and Conclusion

In the present study one way ANOVA confirmed that there is a significance difference in the academic achievement among the students' of different levels of Intelligence in 1st Language, 2nd Language and 3rd Language. It means there is influence of Intelligence on the academic achievement of IX standard students in 1st Language, 2nd Language and 3rd Language. Further Post hoc test of pairwise comparison showed that difference is not exist in the academic achievement of High Intelligence and Average Intelligence students and differences exist in academic achievement of High Intelligence and Low Intelligence and Average Intelligence and

Low Intelligence in 1st Language. With respect 2nd Language difference exist in academic achievement of High Intelligence and Average Intelligence, High Intelligence and Low Intelligence students and difference is not exist in the academic achievement in Average Intelligence and Low Intelligence students. Whereas difference is not exist in the academic achievement of High Intelligence and Average Intelligence students, Average Intelligence and Low Intelligence students and difference exist in the academic achievement of High Intelligence and Low Intelligence students with respect to 3rd Language. Overall study found that there is influence of Level of Intelligence on Academic achievement of students in languages.

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