

**Analysis of Factors Affecting Academic Achievement among Senior
Secondary School Students**

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Abstract

The present study is concerned with assessing academic achievement and analyzing the main and interaction effect of some factors on the academic achievement of senior secondary school students. The present research has been designed with the survey under a descriptive model. Previous class academic records i.e., class 10 marks are used for measuring the academic achievement of senior secondary school students. A sample of 331 senior secondary school students from various schools of Aligarh and Agra districts of Uttar Pradesh were selected. The statistical techniques utilized mean, standard deviation and factorial ANOVA with three-way design i.e., $2 \times 2 \times 2$. The findings of the present study revealed that – a) significant main interactional effect of type of school and locale on the academic achievement of senior secondary school students whereas b) religion has no significant main interactional effect on academic achievement of senior secondary school students. Similarly, c) significant two-way interaction of school type and religion on the academic achievement of senior secondary school students were found to be significant as F-ratio i.e., $(1, 323) = 5.992$, $p\text{-value} = 0.015 < 0.05$ is significant at 0.05 level of significance.

Keywords: Academic Achievement, Type of School, Locale, Religion and Senior Secondary School Students

Introduction

The future and glory of any nation depends upon the advancement and quality of the educational system as children are the future of a country. Education inculcates the essential and desired abilities, knowledge and skills among the learners. Hence, it leads towards the growth and development of an individual as well as of the nation also. A well-educated citizen accomplishes his desired goals and renders a significant contribution to the progress of the country (Mohamed, Dahie&Warsame, 2018). Thus, the whole education system revolves around academic achievement.

Academic achievement refers to the attainment of academic knowledge, skills developed in the school subjects and refers to the educational assessment and evaluation. It denotes the extent to which a learner, teacher and academic institution have achieved their short as well as long term educational objective. Academic achievement signifies learners' academic abilities and his attitude towards the teaching-learning process. Learning outcomes are measured by academic achievement. Academic success is measured by academic achievement. The outcomes of a teaching-learning process can be evaluated using normative as well as formative processes. Academic achievement is an important indicator of the success and satisfaction of students as well as the effectiveness of the teachers (Martirosyan, Saxon &Wanjohi, 2014; Anticevic, Kardum, Klarin, Sindik&Barac, 2018). It represents performance outcomes that indicate the degree to which students have accomplished general and specific instructional goals determined by teachers, schools and other stakeholders specifically for schools, colleges and universities. It is a major determinant of the future of the students in particular and the future of the nation in general.

Academic achievement of students is affected by several factors including psychological, sociological, demographical etc. (Hijazi&Naqvi, 2006; Kirmani&Siddiquah, 2008; Ray, 2010). In this study, researchers have used high school marks of class 11 students as their academic achievement scores because several studies showed that high school grades are a better predictor of the success of students in comparison to standardized test scores in their later life (Hoffman, 2002; Zheng, Saunders, Shelley & Whalen, 2002).

The Objective of the Study

1. To study the effect of school type, locale, religion and their interaction on academic achievement of senior secondary school students.

The Hypothesis of the Study

1. The effect of school type, locale, religion and their interaction on the academic achievement of senior secondary school students is not significant.

The Rationale of the Study

The present study will analyze differences based on the type of school, locale and religion on academic achievement of senior secondary school students which may help the school administration, teachers, policymakers, parents and other stakeholders. The present study also explores the main and interaction effect of school type, locale and religion on the academic achievement of senior secondary school students.

Academic achievement occupies a prominent place in determining the future of a child. So, it is the responsibility of teachers, school administrators, parents and other stakeholders to provide a favorable conducive congenial learning environment to the students. It helps educational psychologists, teachers, and policymakers etc. to know about the various factors which affect the academic achievement of senior secondary school students and provide possible means of intervention for promoting enhanced academic achievement. Thus, on the basis of results appropriate measures and significant steps can be taken to enhance the level of academic achievement among senior secondary school students.

Methodology

Variables of the Study

1. **Dependent Variable:** Academic Achievement
2. **Independent Variables:** Type of School, Locale and Religion

- **Design:** The present study was a descriptive survey in nature for which senior secondary school students were considered as the population for the study.

- **Sample:** For the present study, the sample consisted of 331 senior secondary school students of Aligarh and Agra districts of Uttar Pradesh, India.

Table 1: Showing the Total Sample and its Distribution

Total Sample	Type of School		Locale		Religion	
	Government	Private	Rural	Urban	Muslim	Non-Muslim
331	187	144	82	249	139	192

- **Research Tool Used:** For data collection, previous class academic record i.e., class 10th result (final marks i.e., board result) of class 11 students were used for measuring the academic achievement of senior secondary school students.
- **Statistical Techniques Used:** For breaking down the data into meaningful results proper statistical techniques were utilized i.e., mean, standard deviation and factorial ANOVA. Statistical Package for Social Sciences (SPSS) version 20 was utilized to analyze the data in the present study.

Analysis, Interpretation and Discussion

Appropriate analysis along with its interpretation and discussion is as follows:

Objective 1: To study the effect of school type, locale, religion and their interaction on academic achievement of senior secondary school students.

To see the differences of school type, locale and religion on academic achievement of senior secondary school students, the following null hypothesis was formulated.

Null Hypothesis 1: The effect of school type, locale, religion and their interaction on the academic achievement of senior secondary school students is not significant.

For testing the above-stated null hypothesis H_0 1 three-way ANOVA ($2 \times 2 \times 2$ factorial design) was used. The description of the results showing the main and interaction effects are presented in table 2.

Table 2: Summary of 2×2×2 (ANOVA) Factorial Design for the Scores of Academic Achievement According to the School Type, Locale and Religion

Source of Variation		Mean	Sum of Squares	df	Mean Squares	F ratio	Sig.	n ²
School Type	Government	68.477	537.942	1	537.942	6.670	0.010**	0.020
	Private	75.332						
Locale	Rural	75.391	556.676	1	556.676	6.903	0.009**	0.021
	Urban	68.417						
Religion	Muslim	70.029	161.049	1	161.049	1.997	0.159	0.006
	Non-Muslim	73.780						
School Type*Locale			195.667	1	195.667	2.426	0.120	0.007
School Type*Religion			483.257	1	483.257	5.992	0.015*	0.018
Locale*Religion			107.100	1	107.100	1.328	0.250	0.004
School Type*Locale*Religion			277.027	1	277.027	3.435	0.065	0.011
Error			26048.544	323	80.646			
Total			1567329.000	331				

**Significant at 0.01 level

*Significant at 0.05 level

From table 2 it is clear that F ratio for senior secondary school students is significant, $F(1, 323) = 6.670$, $p\text{-value} = 0.010 < 0.01$ is significant at 0.01 level of significance, which indicates that school type variation makes difference on the academic achievement. From table 2 we can see mean values of academic achievement for senior secondary students studying in private schools [$M = 75.332$] is higher than that of students studying in government schools [$M = 68.477$].

Similarly, the F ratio for locale $F(1, 323) = 6.903$, $p\text{-value} = 0.009 < 0.01$ is significant at 0.01 level of significance which confirms that the difference in locale (rural and urban) is the real one and not due to the sampling error. The mean value of academic achievement for the senior secondary school students living in rural areas is 75.391 is higher than the senior secondary school students living in urban areas which is 68.417 and these differences are found as statistically significant. From table 2, it is clear that main effect of religion on academic achievement of senior secondary school students is found as not significant, $F(1, 323) = 1.997$,

p-value = 0.159 > 0.05 which is not significant at 0.05 level of significance indicating that religion variation makes no difference in the academic achievement. From table 2 mean values of academic anxiety for Muslims [M = 70.029] and Non-Muslims [M = 73.780] senior secondary school students can be observed.

From the perusal of table 2, the values of two-way interaction between school type and locale with F-ratio = 2.426, p-value = 0.120 > 0.05 which is not significant at 0.05 level of significance. Thus, it can be observed that for government and private senior secondary school students of different locale (rural and urban) significant interaction do not exist on academic achievement. The F-ratio for the interaction between school type and religion as presented in table 2 i.e., F = 5.992, p-value = 0.015 < 0.05 is significant at 0.05 level of significance, indicating that there is significant interactional effect of the school type (government and private) and religion (Muslim and Non-Muslim) on the academic achievement of senior secondary school students. The F-ratio for locale and religion is F = 1.328, p-value = 0.250 > 0.05 which is not significant at 0.05 level of significance, representing that there is no significant interactional effect of locale and religion on the academic achievement of senior secondary school students. Likewise, the three-way interaction i.e., second-order interaction between school type, locale and religion on the academic achievement is also found as statistically not significant which indicates by F (1, 323) = 3.435, p-value = 0.065 > 0.05 which is not significant at 0.05 level of significance.

Further, from table 2, the value of the effect size (0.020) indicates that only 2.0% variation is caused by school type and its error while locale and its error, as well as religion and its error causes 2.1% and 0.6% variations respectively on the academic achievement of senior secondary school students. Further, the value of the effect size for two way interaction i.e., school type × locale, school type × religion and locale × religion indicates only 0.7%, 1.8% and 0.4% of the variance respectively. However, the effect size of three-way interaction (0.011) of the three variables (school type × locale × religion) together causes 1.1% variation among senior secondary school students for their academic achievement.

As in the findings main order interactions i.e., school type and locale are found to be significant except religion. The present finding that there is a significant effect of type of school on academic achievement and students studying in private schools have high academic achievement

is supported by the findings of Okon&Archibong, 2015; Azigwe, Adda, Awuni&Kanyomse, 2016; Islam & Khan, 2017; Rasool, 2018. However, the contradictory finding is reported by Carpenter, 1985 that students of government schools achieve more marks than students studying at non-government schools. No significant difference in the academic achievement of government and private secondary school students is found by Yusuf & Adigun(2010). The present finding that there is a significant difference in the academic achievement of rural and urban students is in harmony with the result of Young, 2006; Chetri, 2014; Onoyase, 2015; Sharma, 2016. However, rural students achieve more is reported by (Ajai&Imoko, 2013; Mir, 2018) and no significant difference in the academic achievement of rural and urban secondary school students is found by (Yusuf & Adigun, 2010; Alokun&Arijesuyo, 2013). In the present study, the locale has a significant interactional effect on academic achievement and this finding is in consonance with the finding of Hasan&Parvez (2019). The present finding that the type of school and locale has a significant interactional effect on academic achievement is supported by the finding of Chetri (2014).

Significant main interactional effect of type of school and locale is found on the academic achievement of senior secondary school students. Significant two-way interaction i.e., first-order interaction of school type and religion is also found on academic achievement, indicated by F-ratio i.e., $F = (1, 323) = 5.992$, $p\text{-value} = 0.015 < 0.05$ is significant at 0.05 level of significance, therefore, the null hypothesis H_0 , “The effect of school type, locale, religion and their interaction on the academic achievement of senior secondary school students is not significant” is partially rejected.

The two way interaction i.e., [school type $\times$ Religion] is found to be statistically significant with $F (1, 323) = 5.992$, $p\text{-value} = 0.015 < 0.05$ is significant at 0.05 level of significance (table 2). To examine the nature of this significant interaction effect school type $\times$ religion for the sake of clarity the researcher showed this in the interaction plot.

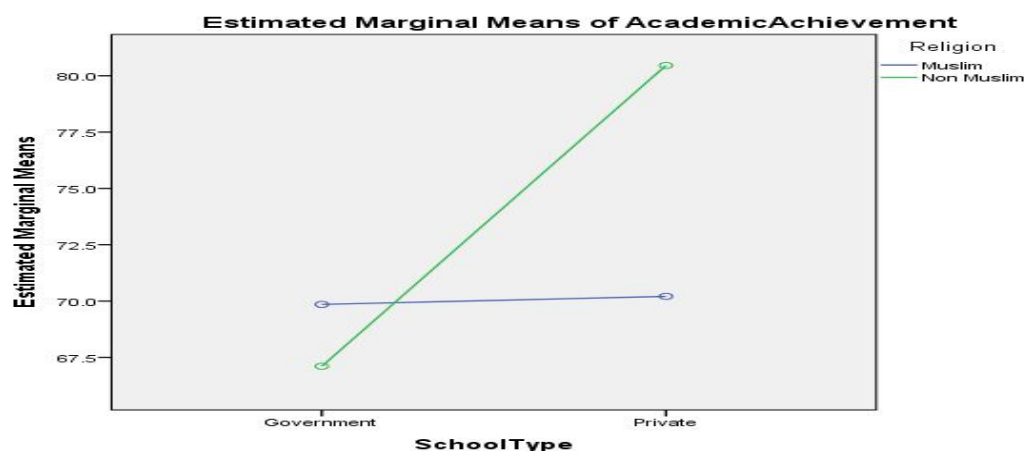


Figure 1: Showing Line Graph of School Type × Religion Interaction for Academic Achievement of Senior Secondary School Students

The horizontal axis of graph 1 shows the type of school i.e., a government school and private school. Line one and line two represent religion-wise variation i.e., Muslim and Non-Muslim senior secondary school students. From the graph, it is quite evident that there is a significant second-order interaction as both the lines are intersecting each other. It also shows that ‘differences of difference’ is large which indicates a significant interaction between religion and school type. The lines of religion and school type are diverging. So, it can be said that these two factors i.e., school type and religion intersect each other and have generated variance upon the academic achievement of the senior secondary school students. In figure 1, disordinal interaction is observed as the lines candidly intersect with each other.

Further, from the graph, it is quite clear that the academic achievement of Non-Muslim senior secondary students studying in private schools is quite higher than the rest of the students either Muslim or Non-Muslim senior secondary students studying in government schools. The graph also alludes that the academic achievement of Muslim senior secondary school students studying in private schools as well as in government schools is lower than the Non-Muslim senior secondary students studying in private as well as in government schools.

Senior secondary school students studying in private schools have more academic achievement than senior secondary school students studying in government schools. The plausible reason is private schools are known for the best quality of teaching-learning process they provide and the high standards they set. Private schools provide challenging exceptional opportunities through co-curricular activities, virtual laboratories, literary activities, scientific activities, remedial class

and diagnostic classes etc. They engage the students actively and creatively in academics and spark the desire to learn and achieve more. Teachers of private schools continuously strive for academic excellence and work hard for the good performance of the students. Continuous training programs for the teaching faculties of private schools for up-gradation of the latest knowledge and developments are taking place around them. Private schools have good communication and rapport with the parents of the students so there is no communication gap and this acts as a bridge between them which directly affects the academic achievement of students. Secondly, Muslim senior secondary school students have lower academic achievement than Non-Muslim senior secondary school students. The probable reason for this may be - Muslim is one of the marginalized community and have suffered from the financial crisis. Muslim parents are not aware of the ways to access education and the benefits of being educated. But now the number of Muslim students in schools and their academic achievement is rising. The reason is nowadays Muslim parents are more concerned about the education and career of their children in comparison to the past.

Conclusion

The conclusion drawn from the study is that type of school i.e., government and private and locale i.e., rural and urban has a significant effect on academic achievement of senior secondary school students whereas religion i.e., Muslim and Non-Muslim has no significant effect on academic achievement of senior secondary school students. Two-way interaction i.e., first-order interaction of school type $\times$ religion is also found significant on the academic achievement of senior secondary school students.

Educational Implications of the Study

Educational implications of the present study are as follows –

1. The government should take steps and give a sufficient amount of funds to enhance the quality and facilities in government schools.
2. Teachers of government schools should take appropriate measures to develop a conducive and congenial learning environment.
3. In government schools, there are first-generation learners with no learning environment at home, so administrators, teachers and other stakeholders keeping this viewpoint in mind,

should provide diagnostic as well as remedial treatment to the students to enhance their academic achievement.

4. Teachers of government schools should strive for continuous self-development and academic excellence because that spirit is reflected in their teaching which caters to the needs of different students in a classroom thus, the better academic achievement of students.
5. Teachers should develop a democratic learning environment in a classroom where students can ask their doubts, questions, problems without any fear. There should be a feeling of every student can learn and help students in connecting concepts/theories with the world around them.
6. The government should give scholarships, rewards, financial aids etc.to the students of disadvantaged groups so that they may feel motivated to learn and achieve more.

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