

A study of the relationship between Academic Achievement and Multiple Intelligences of Secondary School Students

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ARTICLE INFO ABSTRACT

The present study aimed at studying the relationship between Academic Achievement and Multiple Intelligences of secondary school students of Lucknow city. The Descriptive Survey research method has been used in this study. A sample of 462 secondary school students (IX class) includes 225 male students and 237 female students from government, aided and private schools affiliated with U.P. Board using a simple random sampling technique. Academic achievement was assessed using the final year percentage marks of the students in the previous year. Researchers developed their own 'Multiple Intelligence Scale' to assess the multiple intelligences of secondary school students. This scale consists of 116 statements related to all nine intelligences. The study revealed that the percentage of girls with high academic achievement was higher than that of boys. The percentage of students from private schools had higher academic achievement than government and aided school students. A significant and positive correlation was found between academic achievement and all eight intelligences except musical intelligence. Musical Intelligence and Academic Achievement

Keywords: Academic achievement, gender, multiple intelligences, school type, secondary school students.

Introduction

Every learner's ability to succeed academically depends on how their innate talent has been nurtured and developed. We all are very well equipped with the fact that no two individuals can be the same. In other words, every learner is unique with different abilities, motivations, aspirations, learning styles, needs, interests and potential. The degree of achievement of each learner reveals this disparity. It makes sense that everyone involved in education—parents, teachers, and other stakeholders seeks to help students reach their maximum potential and enhance their intellectual capacities. Although there may have been many other expectations from the system, it will not be out of place for the aims of education to be centered around strengthening students' academic achievement. Recent studies have demonstrated that cognition-related characteristics are crucial to their academic success. On the other hand, intelligence- a highly esteemed and formidable force, is one of the learner-related determinants of academic accomplishment. To enhance students' academic performance, researchers are now particularly interested in identifying and studying the multiple intelligence profiles of students from different educational classes.

Frames of Mind: The Theory of Multiple Intelligences, written by Howard Gardner in 1983, offers a novel definition of intelligence that constituted a challenge to the conventional understanding of intelligence. This theory proposed the pluralistic view of Intelligence which asserts that each individual possesses several Intelligences. In 1983, Gardner described the existence of seven types of Intelligence - Linguistic Intelligence, Logical-mathematical Intelligence, Spatial Intelligence, Bodily-Kinesthetic Intelligence, Musical Intelligence, Interpersonal Intelligence and Intrapersonal Intelligence. Later on, in 1999 he added one more Intelligence named 'Naturalist Intelligence' and also discussed the possibility of one more Intelligence named 'Existential Intelligence'. All of these intelligences can be developed to an optimum level. According to Gardner (1999), "It is of the utmost importance that we recognize and nurture all of the varied human intelligences and all of the

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combinations of intelligences. We are all so different largely because we have different combinations of intelligences. If we recognize this, I think we will have at least a better chance of dealing appropriately with the many problems that we face in the world" (p.24). Sarah Murray (2012, p. 2) pointed out that Multiple Intelligences can be used as mediators to differentiate how students access the content. Multiple Intelligencesbased lesson planning makes it easier for learners to understand and assimilate concepts by tapping into their preferred intelligence and developing other intelligences as well. Incorporating Multiple Intelligences into differentiated instructions promotes an inclusive classroom environment. Gomma (2014) investigated the effects of Multiple Intelligences-based differentiated instruction on the science achievement and attitudes of middle school students with learning disabilities. The results showed that Multiple Intelligences-based differentiated instruction was effective in improving students' performance and attitudes. Lazer (2004) found that incorporating Multiple Intelligences into lesson plans makes lessons more interesting because students are more likely to focus on lessons, focus more, remember more and thereby improve their grades. According to Mourad Ali & Amal Mostafa (2013), differentiating instructions by integrating Multiple Intelligences has been proven to be an effective way to improve the performance and attitude towards mathematics of students with learning disabilities. From the above studies, it is clear that MI theory can prove to be a better approach to address the diverse needs of learners. According to Hopper and Hurry (2000), the Multiple Intelligences approach curriculum is effective when it helps students become more aware of the learning process, prioritize their learning, and initiate active learning. From the above discussion, it was clear that Multiple Intelligences and the academic performance of students might have some link. Because of this reason, an insight was developed in the researcher's mind to conduct a present study.

Objectives

Objectives of the study are as follows:

1. To assess the Academic Achievement of secondary school students.

2. To study the correlation between Academic Achievement and Multiple Intelligences of secondary school students.

Hypotheses

The hypotheses of the study are as follows:

1. There is no significant correlation between Academic Achievement and Multiple Intelligences of secondary school students.

a. There is no significant correlation between Academic Achievement and Linguistic Intelligence of secondary school students.

b. There is no significant correlation between Academic Achievement and Logical-mathematical Intelligence of secondary school students.

c. There is no significant correlation between Academic Achievement and Bodily-kinesthetic Intelligence of secondary school students.

d. There is no significant correlation between Academic Achievement and Musical Intelligence of secondary school students.

e. There is no significant correlation between Academic Achievement and Spatial Intelligence of secondary school students.

f. There is no significant correlation between Academic Achievement and Interpersonal Intelligence of secondary school students.

g. There is no significant correlation between Academic Achievement and Intrapersonal Intelligence of secondary school students.

h. There is no significant correlation between Academic Achievement and Naturalist Intelligence of secondary school students.

i. There is no significant correlation between Academic Achievement and Existential Intelligence of secondary school students.

Research Methodology

Type of Research

The study under investigation intends to collect data from secondary school students to assess their Academic Achievement and Multiple Intelligences. Hence, this study belongs to the Descriptive Survey method.

Population and sample

All students studying in IX class of U.P. Board secondary schools of Lucknow city constitute the population of the present study.

Initially, a list of Lucknow city's U.P. Board-affiliated schools has been obtained from the DIOS office in Lucknow. Twenty schools (three government schools, nine aided schools and eight private schools) were randomly selected using the lottery method. Contact with teachers was initiated after obtaining authorization from the principals and discovered that in each school, there was more than one section of IX class. Out of all the sections that may be chosen, one section was chosen by the Lottery method. In this way, four hundred and

sixty-two Secondary School Students (225 male students and 237 female students) composed the current study's sample.

Tool used for the study

Academic Achievement was assessed using the previous year's final year percentage marks of students. The researchers developed their own 'Multiple Intelligences Scale' for the assessment of Multiple Intelligences of secondary school students. The scale consists of 116 statements related to all the nine intelligences and each statement consists of five alternatives like Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree with a weightage of 5,4,3,2,1 for positive statements and 1,2,3,4,5 for negative statements.

Techniques used for data analysis

The researcher used statistics like Mean, Standard Deviation, Percentage and Pearson's Product Moment Correlation for the analysis of data.

Results

Objective 1: To assess the Academic Achievement of secondary school students.

Table 1.1 Gender-wise number and percentage of Secondary School Students having low, average and high Academic Achievement

	Levels	Gender					Total	
		Male S	Male Students Female Students		Students			
		Ν	%	Ν	%	Ν	%	
Academic Achievement	High	31	13.78	45	18.99	76	16.45	
	Average	159	70.67	158	66.67	317	68.61	
	Low	35	15.56	34	14.35	69	14.93	



Graph 1.1: A Bar Diagram showing the percentage of male and female students with low, average and high levels of Academic Achievement

From the above Table 1.1 and Graph 1.1, it can be seen that 13.78% of the total male students possess high level, 70.67% possess average level and 15.56% possess low level of Academic Achievement whereas 18.99% of the total female students possess high level, 66.67% possess average level and 14.35% possess low level of Academic Achievement.

Table 1.2 School-type wise number and percentage of Secondary School Students having low, average and high levels of Academic Achievement

	Levels	School	School-type					Total	
		Government School Students		Aided School Students		Private School Students			
Academic		Ν	%	Ν	%	Ν	%	Ν	%
Achievement	High	07	7.86	25	14.70	44	21.67	76	16.45
	Average	59	66.29	117	68.82	141	69.46	317	68.61
	Low	23	25.84	28	16.47	18	8.87	69	14.93



Graph 1.2: A Bar Diagram showing the percentage of government, aided and private school students with low, average and high levels of Academic Achievement

From the above Table 1.2 and Graph 1.2, it can be seen that 7.86% of the total Government Secondary School Students possess a high level, 66.29% possess an average level and 25.84% possess a low level of Academic Achievement. 14.70 % of the total Aided Secondary School Students possess a high level, 68.82% possess an average level and 16.47% possess a low level of Academic Achievement. In the same manner, 21.67% of the total Private Secondary School Students possess a high level, 69.46% possess an average level and 8.87% possess a low level of Academic Achievement.

Objective 2: To study the Correlation between Academic Achievement and Multiple Intelligences of Secondary School Students

		Secondary School Student	.5
Group	Ν	Correlation Coefficient (r)	Result
Academic Achievement	462	0.35**	Significant and weak positive correlation
Linguistic Intelligence	462		
Academic Achievement	462	0.30**	Significant and weak positive correlation
Logical-mathematical	462		
Intelligence			
Academic Achievement	462	0.30**	Significant and weak positive correlation
Bodily-kinesthetic	462		
Intelligence			
Academic Achievement	462	0.06	No significant correlation
Musical Intelligence	462		
Academic Achievement	462	0.26**	Significant and weak positive correlation
Spatial Intelligence	462		
Academic Achievement	462	0.19**	Significant and very weak positive
Interpersonal Intelligence	462		correlation
Academic Achievement	462	0.33**	Significant and weak positive correlation
Intrapersonal Intelligence	462		
Academic Achievement	462	0.35**	Significant and weak positive correlation
Naturalist Intelligence	462		
Academic Achievement	462	0.31**	Significant and weak positive correlation
Existential Intelligence	462	1	

Table 2.1 Correlation between Academic Achievement and Multiple Intelligences of
Secondary School Students

**Significant at 0.05 level

From Table 2.1, it is evident that the correlation coefficient between Academic Achievement and Linguistic Intelligence is 0.35 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Linguistic Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Linguistic Intelligence of

Secondary School Students is rejected. Further, the percentage of commonness between Academic Achievement and Linguistic Intelligence is 12.25% which is low. Thus, it can be concluded that a significant and weak positive correlation was found between Academic Achievement and Linguistic Intelligence of Secondary School Students.

It is evident from Table 2.1 that the correlation coefficient between Academic Achievement and Logicalmathematical Intelligence is 0.30 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Logical-mathematical Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Logicalmathematical Intelligence of Secondary School Students is rejected. Further, the percentage of commonness between Motivational CQ and Linguistic Intelligence is 9.00% which is low. Thus, it can be concluded that a significant and weak positive correlation was found between Academic Achievement and Logical-mathematical Intelligence of Secondary School Students.

It can be seen from Table 2.1, that the correlation coefficient between Academic Achievement and Bodilykinesthetic Intelligence is 0.30 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Bodily-kinesthetic Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Bodilykinesthetic Intelligence of Secondary School Students is rejected. Further, the percentage of commonness between Academic Achievement and Bodily-kinesthetic Intelligence is 9.00% which is low. Thus, it can be concluded that a significant and weak positive correlation was found between Academic Achievement and Bodily-kinesthetic Intelligence of Secondary School Students.

It is evident from Table 2.1, that the correlation coefficient between Academic Achievement and Musical Intelligence is 0.06 which is positive but not significant at 0.05 level with df=460. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Musical Intelligence of Secondary School Students is retained. It may, therefore, be said that Academic Achievement and Musical Intelligence of Secondary School Students were not significantly correlated.

It can be seen from Table 2.1, that the correlation coefficient between Academic Achievement and Spatial Intelligence is 0.26 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Spatial Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Spatial Intelligence of Secondary School Students is rejected. Further, the percentage of commonness between Academic Achievement and Spatial Intelligence is 15.6% which is low. Thus, it can be concluded that a significant and weak positive correlation was found between Academic Achievement and Spatial Intelligence of Secondary School Students.

From above Table 2.1, it is clear that the correlation coefficient between Academic Achievement and Interpersonal Intelligence is 0.19 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Interpersonal Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Interpersonal Intelligence of Secondary School Students is rejected. Further, the percentage of commonness between Academic Achievement and Interpersonal Intelligence is 3.61% which is low. Thus, it can be concluded that a significant and very weak positive correlation was found between Academic Achievement and Interpersonal Intelligence of Secondary School Students.

It can be seen from Table 2.1 that the correlation coefficient between Academic Achievement and Intrapersonal Intelligence is 0.33 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Intrapersonal Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Intrapersonal Intelligence of Secondary School Students is rejected. Further, the percentage of commonness between Academic Achievement and Intrapersonal Intelligence is 10.89% which is low. Thus, it can be concluded that a significant and weak positive correlation was found between Academic Achievement and Intrapersonal Intelligence of Secondary School Students.

It is evident from the Table 2.1 that the correlation coefficient between Academic Achievement and Naturalist Intelligence is 0.35 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Naturalist Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Naturalist Intelligence of Secondary School Students is rejected. Further, the percentage of commonness between Academic Achievement and Naturalist Intelligence is 12.25% which is low. Thus, it can be concluded that a significant and weak positive correlation was found between Academic Achievement and Naturalist Intelligence of Secondary School Students.

It can be seen from Table 2.1, that the correlation coefficient between Academic Achievement and Existential Intelligence is 0.31 which is positive and significant at 0.05 level with df=460. It shows that Academic Achievement and Existential Intelligence are positively and significantly correlated. Thus, the null hypothesis that there is no significant correlation between Academic Achievement and Existential Intelligence of Secondary School Students is rejected. Further, the percentage of commonness between Academic Achievement and Existential Intelligence is 9.61% which is low. Thus, it can be concluded that a significant and

weak positive correlation was found between Academic Achievement and Existential Intelligence of Secondary School Students.

Conclusions

The conclusions of the study are as follows:

• More than 66 percent of males and females had an average level of Academic Achievement.

• More percentage of female students show higher Academic Achievement in comparison to male students.

• More than 66 percent of government, aided and private school students had an average level of Academic Achievement.

• More percentage of private school students had high Academic Achievement in comparison to aided school students followed by government school students.

• Significant and weak positive correlations were found between Academic Achievement and the seven types of intelligence named Linguistic Intelligence, Logical-mathematical Intelligence, Bodily-kinesthetic Intelligence, Spatial Intelligence, & Intrapersonal Intelligence, Naturalist Intelligence and Existential Intelligence. This means that Academic Achievement contributes little to the development of all seven intelligences mentioned above in Secondary School Students.

• A significant and very weak positive correlation was found between Academic Achievement and Interpersonal Intelligence. This means that Academic Achievement contributes very little to the development of Interpersonal Intelligence in Secondary School Students.

• The correlation between Musical Intelligence and Academic Achievement was not statistically significant. Accordingly, academic success has no bearing on a student's development of Musical Intelligence in Secondary Schools.

Discussion

It was found that sixty-eight percent of the total students had an average level of Academic Achievement. This means that most of the Secondary School Students had an average level of Academic Achievement. This finding is in agreement with the results of Thangapappa (2014) who revealed that most of the zoology undergraduate students had an average level of Academic Achievement. The main plausible reason is that the learning environment that prevails in classrooms is not very motivating. Teachers might not pay attention to individual differences while using teaching methodologies, fewer opportunities for students to learn in labs, study habits of students, etc. A higher percentage of female students had high Academic Achievement in comparison to male students. The reason behind this might be teacher and family support gained by female students, their good study habits and their standard of dedication are factors which are responsible for this finding. Additionally, it was discovered that a greater proportion of students attending private schools achieved better academic results than students attending government and aided schools. The main plausible reason might be the difference in the learning environment of the school. Private schools had infrastructure and facilities compared to government and aided schools. Teachers of private schools were much more updated in advanced teaching methodologies and uses of various ICT tools than teachers of government and aided schools. Also, family support matters a lot in the academic performance of students. The majority of private school students might belong to well-to-do families and they were not burdened with any kind of household chores whereas most of the students of government and aided schools were from middle-class families and therefore they had to participate in many household stuff to help their parents. This prevented them from focusing more on their academics.

Academic Achievement was significantly and positively correlated to various intelligences- Linguistic Intelligence, Logical-mathematical Intelligence, Bodily-kinesthetic Intelligence, Spatial Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence, Naturalist Intelligence and Existential Intelligence. This finding was supported by studies conducted by Torreon and Sumayana (2021), Vadivukarasi and Gnanadevan (2020), Kezo (2021), Thangapappa et al. (2014) and Laei and Ahmadyan (2013) who reported a significant and positive correlation between Academic Achievement and multiple intelligences. Babatunde and Ayoola (2020) reported that only logical intelligence and Intrapersonal Intelligence were significantly and positively correlated to Academic Achievement. Also, Suryalatha and Bhavani (2021) conducted a study to determine the relationship between Academic Achievement and Multiple Intelligences of prospective teachers. They found no significant correlation between Academic Achievement and multiple intelligences. From the above discussion, it can be concluded that there is no consensus regarding the relationship between Academic Achievement and multiple intelligences. The reason might be the inadequacy of achievement tests that are unable to measure all kinds of intelligence. Also, intelligence is a very complex construct, to which various skills are associated and it is not possible to assess all skills completely. The reason behind the findings of the present study might be the opportunities and environment that are available to students to nourish all kinds of intelligence except Musical Intelligence. Thus, it can be concluded that Academic Achievement to some extent is related to Multiple Intelligences.

Educational Implications

The present study has the following educational implications:

• The study infers that most of the secondary-level students had average levels of academic achievement and recommends employing teaching methodologies that cater to the needs of all students. It also suggests that assessment techniques must not be limited to only paper-pencil tests. Various innovative methods like observation, interviews, project work, journal writing, etc. must be used to assess the academic achievement of students.

• The study also suggests that there must be an arrangement and compulsion of training sessions for secondary school teachers to update themselves with new teaching methodologies, appropriate use of various ICT tools and get familiar with different types of assessment techniques to felicitate students' different intelligences.

• The present study suggests that the concept of Multiple Intelligences and their benefits must be discussed with students, teachers, principals, parents and other stakeholders in various educational programs like webinars, seminars, classroom discussions and training sessions, etc.

• Teachers should use different types of assessment techniques to evaluate their real achievement in studies. Assessment techniques used by teachers should assess various types of intelligence to have complete information about levels of intelligence in students.

References

- 1. Abdi, A., Laei, S. &Ahmadyan, H. (2013). The effect of teaching strategy based on MTs on student's academic achievement in science course. Universal Journal of Educational Research, 1(4),281-284.
- 2. Babatunde, E.O. & Ayoola, R. (2020). Investigation of relationship between Multiple Intelligences of Higher Degree Students on Academic Performance in the University of IBADAN. International Journal of Engineering Technologies and Management Research, 7(2), 66-72.
- 3. Gardner, H. (1999). Intelligence Reframed: Multiple intelligences for the 21st century. Basic Books.
- 4. Gomaa, O.M.K. (2014). The Effect of Differentiating Instruction using Multiple Intelligences on Achievement in and Attitudes towards Science in Middle School Students with Learning Disabilities. International Journal of Psycho-Educational Sciences, 3(3),109-117.
- 5. Hopper, B. & Pamela, H. (2000). Learning the MI way: The effects on student's learning of using the theory of Multiple Intelligences. Pastoral Care, 18(4), 26-32.
- 6. Kezo, V. (2021). Assessment of Multiple Intelligence among Secondary Students in Kohima Town. International Journal of Innovation and Research in Educational Sciences, 8(1),1-11.
- 7. Lazer, D. (2004). Higher-order thinking the multiple intelligence way. Zephyr Press.
- 8. Mourad A. E. & Amal, A.M. (2013). The effects of differentiated instruction by integrating multiple intelligences and learning styles on solving problems, achievement in and attitudes towards math in six graders with learning disabilities in co-operative groups. International Journal of Psycho-Educational Sciences, 3(3), 32-44.
- 9. Murray, S. & Moore, K. (2012). Inclusion through multiple intelligences. Journal of Student Engagement: Education Matters, 2(1),42-48.
- 10. Thangapappa, R., Thamodharan, V. &Kanakraj, T. (2014). Influence of the Multiple Intelligences on Achievement of Under Graduate Zoology Students. Indian Journal of Applied Research, 4(2),15-17.
- 11. Torreon, L.C. &Sumayang C.I. (2021). Multiple Intelligence-based classroom activities and Learners' Academic Achievement. American Journal of Multidisciplinary Research & Development, 3(2), 37-41.
- 12. Vadivukarasi P.M., &Gnanadevan, R. (2022). Influence of Multiple Intelligences on academic achievement on higher secondary students. International Journal of Health Sciences, 6(55),721-726.
- 13. Suryalatha, A. & C.P., B. (2021). Multiple Intelligences and Academic Achievement of prospective teachers. Journal of Educational Research and Extension, 58(2), 33-40.