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# A Study of Influence of Personal And familial Factors on Academic Achievement in Mathematics of Secondary School Students

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***Abstract:*** *The present investigation has been conducted to study the influence of gender, mothers' qualification and with respect to their types of family on academic achievement in mathematics of secondary school students. To achieve this aim, the researcher has adopted survey method. Self-constructed tool of mathematics achievement test was used for the collection of data using random sampling techniques. This tool was administered on 195 secondary school students of Patna and Vaishali districts. For the analysis, t-test, Pearson Product Moment Correlation was used. The finding revealed Mathematics achievement test has positive effect on the students with respect to their gender, mothers' qualification and type of family.*

***Keywords :*** *Academic Achievement, Mathematics, Secondary school students.*

## 1. INTRODUCTION

Academic achievement in mathematics is a critical milestone in a student's educational journey, serving as a key determinant for future academic and career opportunities. High levels of performance in the subject build analytical thinking and problem-solving skills necessary for modern education. Unfortunately, many students face struggles that interfere with their performance, causing them to avoid challenging mathematical tasks and leading to lower confidence levels. Mathematical achievement is the competency shown by the students in the subject mathematics. Its measure is the score on an achievement test in mathematics. It's a tool or device of measurement that helps in ascertaining the quantity and quality of learning attained in a subject of study or group of subjects after a period Mathematical achievement is the competency shown by the students in mathematical. It is the result of knowledge or information, understanding skills and techniques developed in the subject of mathematics in a particular stage. Students' mathematical achievements in secondary school have an influential effect on their performance in college and their future careers. Having a solid background in mathematics helps students develop sophisticated perspectives and offers more career options. Until teachers and parents recognize what factors influence their students' mathematics achievement and improvement, they will be unable to help them make substantial academic progress.

This is a problematic condition not only in the classroom situation but it also causes students discomfort in giving their best in academics, directly impacting their overall achievement. Thus, the investigator will make an attempt to find out the level of academic achievement in mathematics among secondary school students and examine the factors influencing their performance to see how it shapes their school life.

This study may bring forth key insights into students' performance levels and highlight serious issues concerning their academic progress. The findings may act as a helpful guide for educational authorities to improve learning outcomes and support secondary school students. Therefore, the investigator has chosen the topic " A study of influence of personal and familial factors on academic achievement in mathematics of secondary school students'' for the study.

## 2. Review of the related literature

- **Singh (2016)** conducted a study on the Academic Achievement in Mathematics in Relation with Study-Habits and Home- Environment in his paper, effort has been made to find a significant relationship between academic achievement in mathematics with study-habits, home-environment and their combined effect. The major finding of study includes a significant relationship between academic achievement in mathematics and combined effect of study-habits and home environment.

- **Lazarides, et al (2018)** conducted a study entitled **"Reciprocal Effects between Self-Efficacy and Achievement in Mathematics and Reading."** The study was undertaken to examine the reciprocal relationship between academic self-efficacy and academic achievement, particularly in the domain of mathematics.
- **Lebens, Graff, Mayer (2010)** conducted a study on the affective dimensions of mathematical difficulties in School children with an aim to study the relationship between different affective motivational variables and their impact on mathematical achievement in different age and achievement bands. The results indicated that children with mathematical difficulties are more anxious about learning mathematics than their average ability peers. Moreover, the results also suggest that anxiety seems to develop differently between classes five and eight as anxiety increases from class five to eight in children.

- **Bora and Ahmed (2018)** conducted a study entitled **"**Effects of Parental Involvement on Secondary School Students' Mathematics Achievement in Assam, India." The study was undertaken to examine the effect of parental involvement on the academic achievement in mathematics of secondary school students.

**3. Research questions**

1. What is the academic achievement of students in mathematics at secondary school level with respect to their gender, family type and educational qualification?

**4. Objectives of the Study:-**

- To study the significant differences among students in mathematics achievement at secondary school level with respect to gender
- To study the significant differences among students in mathematics achievement at secondary school level with respect family type.
- To study the significant differences among students in mathematics achievement at secondary school level with respect to their mothers' educational qualification.

**4.1 Hypotheses of the study:**

- There is no significant difference in the academic achievement in mathematics among secondary school students on the basis of gender.
- There is no significant difference in academic achievement in mathematics among secondary school students on the basis of family type.
- There is no significant difference in academic achievement in mathematics among secondary school students on the basis of mothers' qualification.

**5. Methodology of the study**

The Descriptive Survey method has been used in the present study. Self-developed Mathematics Achievement Test (MAT) was used. The reliability of the tool is…..

**Participants of the study**

The population of the study comprise of all the private secondary school students of Patna and Vaishali districts. The sample constitutes 195 students of Secondary School by using simple random sampling technique.

**Statistical Techniques Used:** Descriptive measures like mean, S.D etc. and inferential statistics like t-test has been used for the analysis of the data.

**6. Results & Discussion**

**Ho 1: There is no significant difference in academic achievement in mathematics of secondary school students with respect to gender.**

***Table No.- 01. Mathematics achievement on the basis of gender***

| Academic Achievement in Mathematics | | | | | |
|---|---|---|---|---|---|
| **Gender** | **Mean** | **SD** | **Number** | **t-ratio** | **Remarks** |
| Female | 10.79 | 2.98 | 107 | 4.545 | S |
| Male | 8.81 | 3.04 | 88 | | |

*(At 0.01% level of significance, the table value is 2.576)*

From the above table it is inferred that the calculated value of 't' is 4.545 which is more than the table value of 't' (2.576) at 0.01% level of significance. Hence, the null hypothesis is rejected. It means there is a significant difference in academic achievement in mathematics of secondary school students with respect to gender.

**Ho 2: There is no significant difference in academic achievement in mathematics of secondary school students with respect to family**.

***Table No.2 Academic Achievements on the basis of type of family***

| Academic Achievement in Mathematics | | | | | |
|---|---|---|---|---|---|
| **Family** | **Mean** | **SD** | **Number** | **t-ratio** | **Remarks** |
| Joint | 9.89 | 3.25 | 68 | 0.017 | NS |
| Nuclear | 9.91 | 3.13 | 127 | | |

*(At 0.05% level of significance, the table value is 1.96)*

It is inferred from the table no-02 that the calculated value of 't' is 0.017 which is less than the table value of 't' (1.96) at 0.05% level of significance. Hence, the null hypothesis is accepted. It means there is no significant difference in academic achievement in mathematics of secondary school students with respect to their family.

**Ho: 3. There is no significant difference in academic achievement in mathematics of secondary school students with respect to their mothers' qualification.**

***Table No.3 Academic Achievement on the Basis of Mothers' Qualification***

| Academic Achievement in Mathematics | | | | | |
|---|---|---|---|---|---|
| **Mothers' Qualification** | **Mean** | **SD** | **Number** | **t-ratio** | **Remarks** |
| Above Intermediate | 9.82 | 3.24 | 148 | 0.643 | NS |
| Intermediate and Below Intermediate | 10.14 | 2.93 | 47 | | |

*(At 0.05% level of significance, the table value is 1.96)*

It is inferred from the table no-03 that the calculated value of 't' is 0.643 which is less than the table value of 't' (1.96) at 0.05% level of significance. Hence, the null hypothesis is accepted. It means there is no significant difference in academic achievement in mathematics of secondary school students with respect to their mothers' qualification.

## 7. Implications of the study

The findings of this study suggest the following recommendations for future research:

- Results of this study could be used by researchers to plan further studies around mathematics achievement at different middle schools around the state of Bihar. Extensive research at the middle school level is missing in current research.
- A study examining the culture and climate of math classrooms and how teachers are teaching mathematical concepts to the students.
- A further study on current student data examining mathematics academic achievement between female and male middle school students.
- A qualitative study such as interviews with teachers, principals, counsellors, parents, and with participants may lead to better understanding of mathematics achievement.

## 8. Conclusion

The present study was conducted to study the influence of personal and familial factors on the academic achievement in Mathematics of secondary school students. The study highlights that students' academic achievement is influenced by various personal factors such as motivation, interest, attitude, self-concept and study habits, as well as familial factors such as parental support, home environment and socio-economic conditions. It can be concluded that a positive personal attitude towards Mathematics and a supportive family environment can help students in improving their academic achievement. Therefore, teachers and parents should work together to provide students with proper guidance, encouragement and a positive learning environment. The study may also be useful for educational planners and future researchers in understanding and improving students' achievement in Mathematics.

**REFERENCES**

1. Singh, P. (2016). Study of academic achievement in mathematics in relation with study-habits and home-environment. *International Journal of Innovative Science, Engineering & Technology, 3*(1), 107–119. https://ijiset.com/vol3/v3s1/IJISET_V3_I1_16.pdf
2. Bora, A., & Ahmed, S. (2018). Effects of parental involvement on secondary school students' mathematics achievement in Assam, India. *Research Review International Journal of Multidisciplinary, 3*(7), 275–281.
3. Lazarides, R., Buchholz, J., & Rubach, C.(2018).Reciprocal effects between self-efficacy and achievement in mathematics and reading. *Learning and Individual Differences, 63*, 1–11. https://doi.org/10.1016/j.lindif.2018.01.008\
4. Lebens, M,Graff, M., & Mayer, P. (2011).The affective dimensions of mathematical difficulties in school children. *Education Research International, 2011*, 1–13. https://doi.org/10.1155/2011/487072