



**Research Article**

**INFLUENCE OF PARENTAL EDUCATION ON THE PERFORMANCE IN MATHEMATICS**

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Mathematics, performance, Parental qualification.

**ABSTRACT**

Nature versus nurture is an ongoing debate in education. Yet we cannot ignore the influence of the home in the education of the child. Mathematics can be one of the most indispensable and exciting subjects in the school curriculum. This paper attempts to see whether students' acquisition of mathematics is related to their parents' educational qualifications.

The population for the study consisted of Class eleven (XI) students in southern districts of West Bengal. The sample consisted of 784 students.

The Madhyamik Examination (under WBBSE) was used to assess the performance of mathematics. The finding indicated that higher parental qualifications were indeed advantageous to the performance in Mathematics.

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**INTRODUCTION**

Mathematics is an essential aspect of human knowledge and a major contributor to human civilization and development (Kundu & Ghose, 2016). In the modern world, the indispensability of mathematics in everyday life is more than apparent. Mathematics is an instrument that can be used in our daily lives to overcome the difficulties or problems faced therein (Bishop, 1996). Thus Mathematics forms not only a compulsory part of the school curriculum up to the secondary stage, it is often necessary in tertiary stages. The richness of this realization depends on each student's individual environment. To look at the influence of the variety of experience and the immediate environment of the student is almost impossible. Yet an inquiry into these aspects can give valuable ideas about the extent to which students really conceive mathematical ideas. The most important aspect of students' immediate environment that leads to conceptualization of knowledge is the effect of his/her parents' outlook, and by logic, their education. This argument may be seen as an extension of the repeated adage 'An educated mother means an educated family' in our society, usually the father heads the family, and is normally the most educated in therein. Thus he definitely has an effect on the knowledge acquisition of his children.

This investigation therefore has attempted to find out the level of mathematics achievement of Madhyamik Passed students and to relate this to the educational qualifications of their parents.

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This investigation has attempted to relate the extent of mathematics achievement among Class XI students, with Parents' education with the help of the scores of mathematics in Madhyamik Examination.

The study was a survey based on quantitative techniques regarding the population of urban class XI student in southern districts of West Bengal.

**Sample**

The sample consisted of 784 Class XI (just pass out Madhyamik Examination) students drawn up from 25 urban schools of southern districts West Bengal. The schools were selected through purposive sampling. Geographical accessibility, proximity and functionality were some of the factors that influenced the choice of these schools. However, adequate representation of districts covering the population was taken. The participants were mainly from middle income socio-economic communities. Formal approval from the school Head Teachers were obtained in order to conduct this research.

Following administration of a personal data sheet the sample was further detailed according to the participants, gender, streams of study and their parents' educational qualification:

**Table 1** Table showing gender and streams of study

Streams	Science	Arts	Commerce
Male	188	124	095
Female	159	181	037
Total	347	305	132

**Table 2** Table showing parents' educational qualification

Parent's educational qualification	Illiterate	Primary	Madhyamik Standard	Higher Secondary standard	Graduate standard or upper	Total
Father's	024	148	180	131	301	784
Mother's	056	190	213	148	177	784

**Tools**

**The Personal Data Sheet**

'The personal data sheet' consisted of particular information about the participants i.e. Name, Age, Gender, Stream, Name of school, *Obtained marks in Mathematics in Madhyamik examination, Parents educational qualifications, Medium of instruction of school. Transcript of mathematics scores in the Madhyamik Examination.*

**Procedure**

The participants were met in their classes and administered the personal data sheet of the study.

**Data Analysis**

Quantitative techniques were used in the interpret of data using the SPSS 16.0 statistics programs.

**Findings**

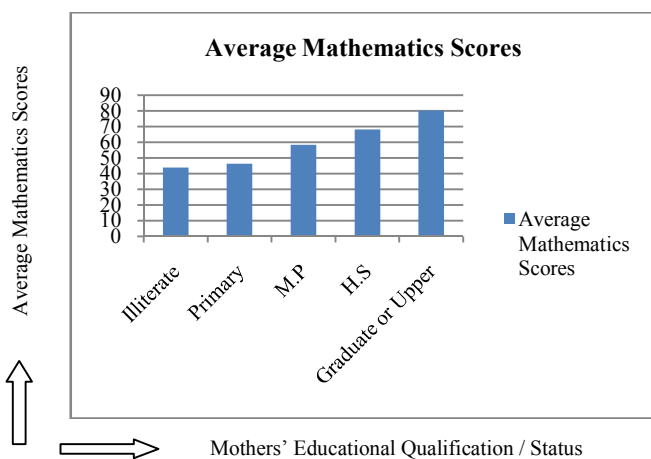
**Fathers' Qualifications**

The following table shows the fathers' educational qualification according to the students' performance in Mathematics scores (Madhyamik Examination).

**Table 3** Students Performance in Mathematics and Father's educational qualification.

Marks of Mathematics in Madhyamik Examination	Fathers' Educational Qualification				
	Illiterate	Primary	M.P	H.S	Graduate or upper
N	24	148	180	131	301
Minimum	24	23	24	25	25
Maximum	91	94	100	100	100
Mean	43.92	46.41	58.32	68.19	80.18
Std. Dev.	20.45	16.94	23.02	21.37	18.76

This has been further illustrated by the following figure:



**Figure 1** Fathers' educational qualification according to the students' performance in Mathematics scores

**The table shows that**

- Only students with comparatively low scores in mathematics had fathers who were illiterate.

- Some of students whose fathers were illiterate achieved better marks but not obtained full marks.
- Student with higher scores in mathematics had a remarkable number of fathers who were graduates or were more qualified.

Thus this indicated that the father's qualifications were related to the students' performance in mathematics.

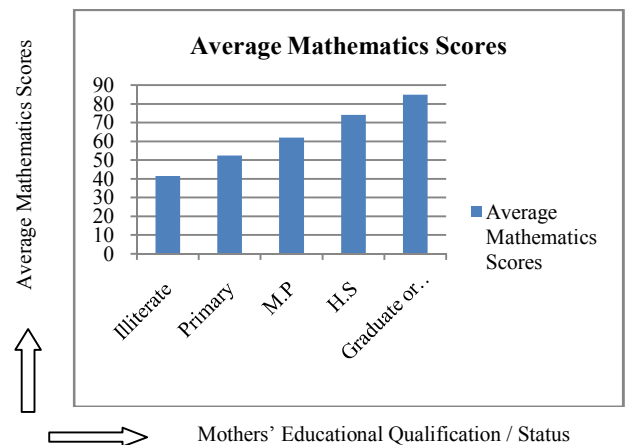
**Mothers' Qualifications**

The following table shows the mothers' educational qualification according to the students' performance in Mathematics scores (Madhyamik Examination).

**Table 4** Students Performance in Mathematics and Mother's educational qualification.

Marks of Mathematics in Madhyamik Examination	Mothers' Educational Qualification				
	Illiterate	Primary	M.P	H.S	Graduate or Upper
N	56	190	213	148	177
Minimum	24	23	24	25	30
Maximum	90	100	100	99	100
Mean	41.55	52.44	61.95	74.11	84.92
Std. Dev.	16.48	21.11	22.39	19.18	16.44

This has been further illustrated by the following figure



**Figure 2** Mothers' educational qualification according to the students' performance in Mathematics scores

**The table shows that**

- Only students with comparatively low scores in mathematics had mothers who were illiterate.
- Some of students whose mothers were illiterate achieved better marks but not obtained full marks.
- Student at high scores a considerable number of mothers who were graduates or were more educated.

Thus this indicated that the mothers' qualifications were related to the students' performance in mathematics.

**CONCLUSION AND RECOMMENDATIONS**

The above analysis shows that the students' performance in Mathematics is impacted by the qualifications of their parents. In other words, the primary source of acculturation, and by reasoning, of attuning to the reception of knowledge by the student is the family (Kundu & Ghose, 2015). In this case, the acquisition of spatial skill and numeracy ideas depends on the educational level of the both father and mother.

Highly educated parents are more likely to be believers of the importance of mathematics on their children's lives. Thus they

transfer their positive feelings and attitudes to their children (Hong, You, & Wu, 2010). Once students are exposed to positive mathematics feelings and attitudes, their intrinsic motivation towards mathematics can increase (Gottfried, Gottfried, & Oliver, 2009) and they want to be more successful in mathematics. Several researchers appear to be in consonance with the present findings. For example, Demir, Kilic and Unal (2010) find that students whose parents are highly educated and exposed to mathematics in their lives tend to show more success in mathematics than their peers whose parents are less educated and not exposed to mathematics. Because highly educated parents know the learning requirements and provide opportunities for the appropriate educational environment for their children (Alomar, 2006), their children are exposed earlier to mathematics in the most effective educational environment.

Even though the majority of the literature on parents' education pertains to the direct, positive influence on achievement (Jimerson, Egeland, & Teo, 1999; Kohn, 1963) Luster, Rhoades, & Haas (1989) also suggest that it influences the beliefs and behaviours of the students, Thus parents' education leads to positive outcomes for children and youth (Eccles, 1993).

Though 'the nurture versus nature' debate has not been resolved, it remains that with the right kind of nurturance children may be able to develop with more awareness and greater logical sense and hence enhanced power of conceptualization. Ergo, children of educated parents have the advantage of being enveloped within an atmosphere of discourse that is directly or indirectly affected by their urbane knowledge.

Educators are constantly concerned with the poor performance of the learners in different branch of mathematics. The results of this research identified a notable factor that could explain why learners experience difficulties with school mathematics in school.

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