



Basic Knowledge Of Mathematics Among Students Who Have Taken Mathematics Teaching Methods In A B.Ed. College In Dharashiv City: A Study

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Introduction

Mathematics plays a crucial role in the school curriculum, and a teacher's own mathematical understanding directly influences teaching quality. B.Ed. students who choose Mathematics Teaching Methods are expected to possess adequate basic mathematical knowledge. However, many studies in Indian teacher education institutions show gaps in fundamental concepts such as arithmetic, algebra, geometry, and problem-solving.

This study investigates the basic mathematics knowledge of B.Ed. students in a selected college in Dharashiv (Osmanabad) city, aiming to highlight strengths, weaknesses, and factors affecting their performance.

Objectives of the Study

1. To assess the level of basic mathematical knowledge among B.Ed. students.
2. To identify areas of strength and weakness in basic mathematics.
3. To examine whether mathematical knowledge varies with gender, academic background, and previous educational qualification.
4. To provide suggestions for improving mathematics teaching-learning at the B.Ed. level.

Hypotheses

H1: There is no significant difference in basic mathematical knowledge between male and female B.Ed. students.

H2: There is no significant difference in mathematical knowledge based on students' academic background (Arts/Commerce/Science).

H3: Students who have studied mathematics at the higher secondary level perform better than those who have not.

Methodology

Research Design: Descriptive survey method.

Population:

All B.Ed. students who have opted for Mathematics Teaching Method in Dharashiv city.

Sample: A sample of 80 students was selected using simple random sampling from one B.Ed. college.

Tools Used:

1. Mathematics Basic Knowledge Test (prepared by the researcher) covering:
Arithmetic (10 items)
Algebra (10 items)
Geometry (10 items)
Pedagogical Understanding (5 items)
2. Personal Data Sheet (Gender, Academic Stream, HSC Mathematics background)

Scoring: Each correct answer = 1 mark.

Total score = 35.

Statistical Techniques: Mean, Percentage, Standard Deviation, t-test, ANOVA

Data Analysis and Interpretation

Table 1: Overall Performance of Students (N = 80)

Component	Max Marks	Mean Score	% Score	Interpretation
Arithmetic	10	6.2	62%	Moderate
Algebra	10	5.4	54%	Below average
Geometry	10	6.8	68%	Good
Pedagogy	5	3.1	62%	Moderate
Total	35	21.5	61%	Moderate

Interpretation:

Students showed moderate overall knowledge, with weakness in algebra.

Table 2: Gender-wise Comparison (t-test)

Gender	N	Mean	SD	t-value	Result
Male	32	22.1	3.4		
Female	48	21.2	3.1	1.15	Not Significant

Interpretation:

No significant gender difference. Both groups performed similarly.

Table 3: Academic Background (ANOVA)

Stream	N	Mean Score
Arts	30	19.8
Commerce	18	20.4
Science	32	23.5

ANOVA result: Significant difference at 0.05 level.

Science students performed better due to stronger prior exposure to mathematics.

Table 4: Effect of HSC Mathematics Background

Group	N	Mean	t-value	Result
Studied Mathematics	50	23.1		
Did not study Mathematics	30	18.9	4.52	Significant

Interpretation: Students with HSC mathematics clearly performed better.

Major Findings

1. Overall basic mathematical knowledge of B.Ed. students is moderate (61%).
2. Students show weakness in algebra.
3. No significant difference between male and female students.
4. Science background students scored significantly higher than Arts and Commerce students.
5. Students who studied mathematics at HSC level perform better.
6. Pedagogical understanding is moderate, indicating need for improvement in teaching methods.

Recommendations

1. Conduct bridge courses in algebra and arithmetic before starting the B.Ed. course.
2. Provide remedial classes for non-science background students.
3. Use ICT tools, mathematical models, and games to improve conceptual clarity.
4. Improve teaching practice with micro-teaching and activity-based learning.
5. Organize mathematics workshops for B.Ed. trainees.
6. Introduce continuous assessments to monitor progress.

References

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