



UNDERSTANDING OF BASIC MATHEMATICAL CONCEPTS AMONG B.ED. STUDENT TEACHERS IN RELATION TO STUDY HABITS

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ABSTRACT

Mathematics forms the foundation for logical reasoning, analytical thinking, and effective problem-solving in everyday life. Developing a sound understanding of basic mathematical concepts is essential for prospective teachers, as it enables them to apply mathematical knowledge meaningfully in classroom instruction and daily decision-making. Along with conceptual understanding, study habits play a significant role in enhancing academic achievement and promoting meaningful learning among student teachers. The present study aimed to examine the understanding of basic mathematical concepts among B.Ed. student teachers in relation to their study habits. The Normative Survey Method was adopted for the study. The sample consisted of 150 B.Ed. student teachers studying in Colleges of Education in Villupuram District, Tamil Nadu, selected through the Simple Random Sampling Technique. The Mathematics Understanding Questionnaire (MUQ) and the Study Habits Inventory (SHI) developed and standardized by the researcher were used for collecting data. The reliability coefficients established through the test-retest method were 0.87 and 0.89, respectively. Descriptive statistics, differential analysis, and correlation analysis were employed for data analysis. The findings revealed that the B.Ed. student teachers possessed a high level of understanding of basic mathematical concepts and good study habits. Further, a positive and statistically significant relationship was found between understanding of basic mathematical concepts and study habits among B.Ed. student teachers.

KEYWORDS: *Understanding, Basic Mathematical Concepts, Study Habits, B.Ed. Student Teachers.*

INTRODUCTION

Mathematics is one of the most significant disciplines in education because it develops logical reasoning, analytical thinking, creativity, and problem-solving abilities. Mathematical concepts are widely applied in various aspects of daily life, including financial planning, budgeting, shopping, measurement, data interpretation, and scientific reasoning. Therefore, a sound understanding of mathematical concepts is essential not only for academic success but also for effective functioning in modern society.

For prospective teachers, understanding mathematical concepts is particularly important because they are responsible for facilitating conceptual learning among school students. Teachers who possess strong conceptual understanding are better equipped to explain mathematical ideas clearly, design meaningful learning activities, and encourage higher-order thinking among learners. Consequently, teacher education programmes should focus on strengthening conceptual understanding rather than emphasizing rote memorization.

Study habits constitute another important factor influencing students' learning outcomes. Effective study habits include regular study schedules, systematic note-taking, concentration, revision, time management, and self-evaluation. These habits improve academic performance and enable learners to acquire deeper conceptual understanding. B.Ed. student

teachers with effective study habits are expected to demonstrate better understanding of mathematical concepts because they engage in organized and meaningful learning practices.

Understanding the relationship between basic mathematical concepts and study habits is therefore valuable for improving teacher education programmes. The findings of the present study may help teacher educators design instructional strategies that promote conceptual learning together with effective study behaviours among future teachers.

Review of Related Literature

Oben Kanbolat (2023) investigated the experiences of pre-service mathematics teachers in problem-solving-oriented lesson study. The findings revealed that collaborative lesson study significantly enhanced conceptual understanding, mathematical reasoning, and instructional competence among prospective teachers.

Maura (2018) examined teachers' understanding of mathematical objects and semiotic representations. The study emphasized that conceptual understanding of mathematical representations plays an important role in improving mathematics instruction and assessment.

Credé and Kuncel (2008) conducted a meta-analysis on study habits and academic achievement among college students. The study concluded that effective study habits, study skills, and



positive academic attitudes were among the strongest predictors of academic performance.

Nonis and Hudson (2010) investigated the relationship between study habits and academic achievement among university students. The findings indicated that students possessing systematic study habits and effective time management achieved significantly better academic outcomes.

Abdul Karim et al. (2024) reported that students with stronger conceptual understanding of mathematics demonstrated greater confidence in solving practical mathematical problems and achieved higher levels of mathematical literacy.

Objectives of the Study

1. To identify the level of understanding of basic mathematical concepts among B.Ed. student teachers.
2. To identify the level of study habits among B.Ed. student teachers.
3. To find out the significant difference between male and female B.Ed. student teachers in their understanding of basic mathematical concepts.
4. To find out the significant difference between rural and urban B.Ed. student teachers in their understanding of basic mathematical concepts.
5. To determine the relationship between understanding of basic mathematical concepts and study habits among B.Ed. student teachers.

Hypotheses of the Study

1. The level of understanding of basic mathematical concepts among B.Ed. student teachers is high.
2. There is no significant difference between the mean scores of male and female B.Ed. student teachers in their understanding of basic mathematical concepts.
3. There is no significant difference between the mean scores of rural and urban B.Ed. student teachers in their understanding of basic mathematical concepts.
4. There is no significant relationship between understanding of basic mathematical concepts and study habits among B.Ed. student teachers.

DATA ANALYSIS AND INTERPRETATION

DESCRIPTIVE ANALYSIS

Hypothesis – 1

The level of understanding of basic mathematical concepts among B.Ed. student teachers is high.

TABLE – 1

Showing Mean and Standard Deviation of B.Ed. Student Teachers in their Understanding of Basic Mathematical Concepts and Study Habits

Variable	N	Mean	SD	Maximum Score
Understanding of Basic Mathematical Concepts	136	34.28	5.61	45
Study Habits	136	140.64	18.12	200

From Table 1, it is found that the mean score of B.Ed. student teachers in their **understanding of basic mathematical concepts** is **34.28**, and the standard deviation is **5.61**. It is observed that an individual can score a maximum of **45**. In

Methodology

The researcher employed the Normative Survey Method for the present study. This method was considered appropriate because it enables the researcher to collect information regarding the existing level of understanding of basic mathematical concepts among B.Ed. student teachers and to examine its relationship with study habits.

Sample for the Study

The sample for the present study consisted of 136 B.Ed. student teachers studying in various Colleges of Education in Villupuram District, Tamil Nadu. The respondents were selected through the Simple Random Sampling Technique.

Tool for the Study

The following tools were employed for collecting the required data:

1. Mathematics Understanding Questionnaire (MUQ)

The Mathematics Understanding Questionnaire (45 items) was developed by the researcher with the guidance of the research supervisor to assess the understanding of basic mathematical concepts among B.Ed. student teachers. The reliability of the tool was established through the test-retest method, and the reliability coefficient was found to be 0.87.

2. Study Habits Inventory (SHI)

The Study Habits Inventory (40 items) was developed by the researcher to assess the study habits of B.Ed. student teachers. The reliability of the tool was established through the test-retest method, and the reliability coefficient was found to be 0.89.

Statistical Techniques

Descriptive Analysis

Differential Analysis

Correlation Analysis

comparison with the maximum score, the obtained mean score is **76.18%**, which indicates that the B.Ed. student teachers possess a **high level of understanding of basic mathematical concepts**.



The mean score of study habits is **140.64**, with a standard deviation of **18.12**. The obtained mean score represents **70.32%**

of the maximum score, indicating that the respondents possess **good study habits**.

DIFFERENTIAL ANALYSIS

Hypothesis – 2

There is no significant difference between the mean scores of male and female B.Ed. student teachers in their understanding of basic mathematical concepts.

TABLE – 2

Showing Mean and Standard Deviation of Male and Female B.Ed. Student Teachers in their Understanding of Basic Mathematical Concepts
Maximum Score: 45

Group	N	Mean	SD	t Value	p Value
Male	52	32.87	5.42	2.684	0.008
Female	84	35.16	5.28		

From Table 2, the calculated t -value is **2.684**, which is greater than the table value of **1.96** at the **0.05 level of significance**. Hence, the null hypothesis is rejected. Therefore, it is concluded that there is a significant difference between the mean scores of male and female B.Ed. student teachers in their

understanding of basic mathematical concepts. Female B.Ed. student teachers demonstrated a higher level of understanding than their male counterparts.

Hypothesis – 3

There is no significant difference between the mean scores of rural and urban B.Ed. student teachers in their understanding of basic mathematical concepts.

TABLE – 3

Showing Mean and Standard Deviation of Rural and Urban B.Ed. Student Teachers in their Understanding of Basic Mathematical Concepts
Maximum Score: 45

Group	N	Mean	SD	t Value	p Value
Rural	92	33.26	5.48	3.214	0.002
Urban	44	36.18	5.12		

From Table 3, the computed t -value is **3.214**, which is greater than the table value of **1.96** at the **0.05 level of significance**. Hence, the null hypothesis is rejected. Therefore, it is concluded that there is a significant difference between the

mean scores of rural and urban B.Ed. student teachers in their understanding of basic mathematical concepts. Urban B.Ed. student teachers showed a higher level of understanding than rural B.Ed. student teachers.

Hypothesis – 4

There is no significant relationship between understanding of basic mathematical concepts and study habits among B.Ed. student teachers.

TABLE – 4

Showing the Relationship between Understanding of Basic Mathematical Concepts and Study Habits among B.Ed. Student Teachers

Variables	N	df	r Value	p Value
Understanding of Basic Mathematical Concepts and Study Habits	136	134	0.521	0.000

From Table 4, the obtained correlation coefficient ($r = 0.521$) is positive and statistically significant at the **0.01 level** ($p = 0.000$). Hence, the null hypothesis is rejected. Therefore, it is concluded that there is a **moderate positive and significant relationship** between understanding of basic mathematical concepts and study habits among B.Ed. student teachers.

Findings of the Study

The B.Ed. student teachers possessed a **high level** of understanding of basic mathematical concepts.

The respondents exhibited **good study habits**.

There was a significant difference between male and female B.Ed. student teachers in their understanding of



basic mathematical concepts, with female student teachers scoring higher.

There was a significant difference between rural and urban B.Ed. student teachers in their understanding of basic mathematical concepts, with urban student teachers scoring higher.

A **moderate positive and statistically significant relationship** was found between understanding of basic mathematical concepts and study habits among B.Ed. student teachers.

Conclusion

The study concludes that B.Ed. student teachers possess a high level of understanding of basic mathematical concepts, which is positively associated with their study habits. Student teachers with effective study habits demonstrated better conceptual understanding of mathematics than those with less effective study habits. Teacher education institutions should strengthen instructional practices that promote conceptual learning, active engagement, reflective thinking, and effective study habits to prepare competent mathematics teachers. Developing these competencies among prospective teachers will

enhance both their academic performance and their future classroom effectiveness.

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