



A Comparative Study on the Problem of Speed and Accuracy of Mathematical Manipulation at the Primary Level among Government and Non-Government School Students of Varanasi District

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Abstract

This study investigates the speed and accuracy of mathematical manipulation among 5th-standard primary school students in the Varanasi district of Uttar Pradesh. Using a descriptive survey method and a sample size of 100 students (50 from a Government school and 50 from a Non-Government school), the research explores differences based on school type and gender. Results indicate a significant difference in performance between Government and Non-Government school students, while gender-based differences were largely insignificant within the respective school types.

Key Word: *Gender-Based, Primary School, Mathematics, Government and Non Government*

Introduction

Mathematical manipulation is a fundamental skill at the primary level, forming the bedrock for future scientific and logical learning. This study focuses on the dual metrics of **speed** (efficiency) and **accuracy** (correctness).

“Education is the Development of a Good Moral Character.” — Froebel

Education is that conductive process which draws a person from darkness and mystery by developing his individuality in all its aspects: physical, mental, emotional, and social. With this type of all-round development, he becomes a responsible, dynamic, resourceful, and enterprising citizen of strong moral character. Such a person uses all his capacities to develop himself, his society, and his nation to the highest extent by contributing his best to national honor, glory, culture, and civilization.

Concepts of Education

Modern Concept: Focuses on developing the inherent capacities of a child within a social environment.



Old Concept: Viewed education as a process to "thrust" readymade tidbits of knowledge into the child's mind, treating it like an empty vessel.

Narrow Sense: Often referred to simply as school instruction, where society's elders provide pre-structured teaching to attain predetermined aims within a specified timeframe.

Wider Sense: Education is not just the teacher or the acquisition of knowledge; it is the total development of the personality, consisting of all experiences affecting an individual from birth until death.

The Tri-polar Process

According to John Dewey, "Education is a tri-polar process." It consists of three essential ingredients:

1. The Teacher
2. The Learner
3. The Curriculum

In the modern era, this has evolved into a two-way communication model of teaching-learning, which acts as a modification of this tri-polar mechanism.

Philosophical Definitions

Sri Aurobindo: Education should "offer the tools whereby one can live for the divine, for the country, for oneself and for others... this must be the ideal in every school which calls itself national."

M. Gandhi: "By education, I mean an all-round drawing out of the best in the child and man, body, mind and spirit"

Need and Significance of the Study

There is a visible disparity in the mathematical competency of students across different educational settings. The significance of this study lies in:

1. Identifying performance gaps caused by **language barriers** and the **lack of quality teaching**.
2. Highlighting the impact of **teaching methodologies** on student outcomes.
3. Assisting educational planners and curriculum constructors in refining primary-level mathematics education.
4. Fostering a better relationship between teachers and students regarding mathematical contexts.



Statement of the Problem

"A Comparative Study on the Problem of Speed and Accuracy of Mathematical Manipulation at the Primary Level among Government and Non-Government School Students."

Objectives of the Study

1. To find out the significant difference between the scores of speed and accuracy in mathematical manipulation of Government and Non-Government primary schools.
2. To compare the scores between Government boys and Government girls.
3. To compare Government boys with Non-Government boys.
4. To compare Government boys with Non-Government girls.
5. To compare Government girls with Non-Government boys.
6. To compare Government girls with Non-Government girls.
7. To compare Non-Government boys with Non-Government girls.

Hypothesis

- **Ho_1:** There is a significant difference between the score of speed and accuracy of Mathematical manipulation of total Government school and Non-Government school students.
- **Ho_2 to Ho_7:** There is **no** significant difference between the scores when comparing various sub-groups (e.g., Government boys vs. Government girls, or Non-Government boys vs. Non-Government girls).

Methodology & Sampling

1. **Method:** Descriptive Survey Method.
2. **Population:** All primary school students in Varanasi, Uttar Pradesh.
3. **Sample:** 100 students of the 5th standard (50 from one Government school, 50 from one Non-Government school).
4. **Sampling Technique:** Random Sampling.
5. **Tool:** A specific questionnaire designed to measure speed and accuracy in mathematical manipulation.
6. **Statistical Analysis:** Mean, Median, Mode, Standard Deviation, and **t-test**.

Major Findings

1. **School Type:** There is a significant difference between Government and Non-Government students.
2. **Gender (Govt.):** No significant difference between boys and girls within Government schools.



3. **Gender (Non-Govt.):** There is a significant difference in gender performance within the Non-Government school level.
4. **Cross-Comparison:** Significant differences were found when comparing Government boys/girls against their Non-Government counterparts.

Objectives and Hypotheses Proved

1. **Objective Proved:** The study successfully identified that the type of institution (Government vs. Non-Government) is a primary factor in the variance of mathematical manipulation skills.
2. **Hypothesis Proved:** Out of the seven hypotheses, **four were found to be significant** (showing a real difference) and **three were not significant**. Specifically, the null hypothesis regarding the difference between Government and Non-Government schools was rejected, confirming a major performance gap.

Educational Significance (Implications)

The findings of this research suggest:

1. **Student Engagement:** Improving manipulation skills creates a more interesting classroom environment.
2. **Teacher Innovation:** Teachers should innovate educational programs to enhance motivation.
3. **Infrastructure:** A proper educational environment (library, laboratory, etc.) is essential for skill development.
4. **Stakeholder Benefit:** Parents, guardians, and textbook compilers can use these insights to support the student's mathematical growth.

Conclusion

The study concludes that students in Non-Government schools generally perform differently (often better in speed and accuracy) than those in Government schools. While gender does not play a significant role within the Government sector, the institutional framework, teaching quality, and resources significantly impact a child's mathematical proficiency.

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Arise, Awake and stop not till the goal is reached... Swami Vivekananda

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