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MATHEMATICAL ABILITIES AMONG CLASS–III CHILDREN

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ABSTRACT *An attempt was made in the present investigation Mathematical Abilities among Class-III Students.* ***OBJECTIVES:*** *To study the differences between boys and girls on mathematical abilities of class –III students and to examine the differences between government and private school children on mathematical abilities of class-III students.* ***SAMPLE:*** *The sample of the study consists of 120class-III children were purposefully selected form primary schools of Rangareddy district of Andhra Pradesh.* ***Tool:*** *Mathematical abilities test was developed by the researcher.* ***CONCLUSION:*** *There is no significant difference in their mathematical abilities including all areas. Private school children are high level of mathematical abilities in areas of subtraction, division, basic geometry than government school children. There is no significant difference in their mathematical abilities in areas of addition and multiplication.*

KEYWORDS : Mathematics, Abilities, Gender and Management.

INTRODUCTION

A systemic goal that needs to be underlined and internalized in the entire system is universal inclusion. This means acknowledging that forms of social discrimination work in the context of mathematics education as well and addressing means for redress. For instance, gendered attitudes which consider mathematics to be unimportant for girls, have to be systematically challenged in school. In India, even caste based discrimination manifests in such terms, and the system cannot afford to treat such attitudes by default.

In the Primary Stage any curriculum for primary mathematics must incorporate the progression from the concrete to the abstract and subsequently a need to appreciate the importance of abstraction in mathematics. In the lowest classes, especially, it is important that activities with concrete objects form the first step in the classroom to enable the child to understand the connections between the logical functioning of their everyday lives to that of mathematical thinking. At primary level basic mathematical abilities such as solving problems on additions, subtractions, multifications and division plays vital role. In primary mathematics curriculum which can be broadly divided into number system measurement basic geometric ideas data handling.

Mathematics is not just arithmetic While addressing number and number operations, due place must be given to non-number areas of mathematics. These include shapes, spatial understanding, patterns, measurement and data handling. It is not enough to deal with shapes and their properties as a prelude to geometry in the higher classes. It is important also to build up a vocabulary of relational words which extend the child's understanding of space. The identification of patterns is central to mathematics. Starting with simple patterns of repeating shapes, the child can move on to more complex patterns involving shapes as well as numbers. This lays the base for a mode of thinking that can be called algebraic. A primary curriculum that is rich in such activities can arguably make the transition to algebra easier in the middle grades. Data handling, which forms the base for statistics in the higher classes, is another neglected area of school mathematics and can be introduced right from Class-I.

Children come equipped with a set of intuitive and cultural ideas about number and simple operations at the point of entry into school. These should be used to make linkages and connections to number understanding rather than treating the child as a tabula rasa. To learn to think in mathematical ways children need to be logical and to understand logical rules, but they also need to learn conventions needed for the mastery of mathematical techniques such as the use of a base ten system. Activities as basic as counting and understanding numeration systems involve logical understandings for which children need time and practice if they are to attain mastery and then to be able to use them as tools for thinking and for mathematical problem solving. Working with limited quantities and smaller numbers prevents overloading the child's cognitive capacity which can be better used for mastering the logical skills at these early stages. Operations on natural numbers usually form a major part of primary mathematics syllabi. However, the standard algorithms of addition, subtraction, multiplication and division of whole numbers in the curriculum have tended to occupy a dominant role in these. This tends to happen at the expense of development of number sense and skills of estimation and approximation. The result frequently is that students, when faced with word problems, ask "Should I add or subtract? Should I multiply or divide?" This lack of a conceptual base continues to haunt the child in later classes. All this strongly suggests that operations should be introduced contextually. This should be followed by the development of language and symbolic notation, with the standard algorithms coming at the end rather than the beginning of the treatment.

Review Of Literature

Presto et al., (2009) found that lack of attention control can justify a considerable portion of the problems in all walks of education; therefore, attention control strategies are good predictors of performance in educational tests.

Cowan et al., (2011) showed that there is a close relationship between children's mathematics achievement and their calculation performance in primary school skilled calculation requires pupils to be able to calculate numbers quickly and effectively.

In the development of age appropriate calculation skills, children typically begin to use fact retrieval as the main strategy at the age of nine. The inability to store or retrieve mathematical facts is the most typical feature of mathematic learning disabilities (Koponen et al., 2013).

Sorvo et al., (2017) and less on cultural instructional setting differences Therefore, we aim to explore the development of children's calculation ability by comparing the calculation ability of children in Ghana and China, countries with different instructional environments.

Ampadu & Danso (2018) examined the applied to early-stage mathematics learning, Ghanaian children may spend more time and effort on avoiding challenging mathematics tasks (). In contrast, Chinese children will spend more time on mastery learning and problem solving. This culture of instruction differences would likely influence mathematics learning trajectories of Ghanaian and Chinese school children (Xie et al., 2018).

Maryam Poorghorban et al., (2018) purposed of this study was to understand the relationship between executive functions and mathematical abilities to determine the contribution of these functions to math performance. Results showed that the low-achieving group stood significantly lower than the high-achieving group in shifting, which mirrors the effect of this function in math performance of the students. However, there was no significant difference between the two groups in terms of attention.

When children enter the first grade of primary school, most of them already have certain implicit arithmetic knowledge and calculation ability and can solve simple calculation problems by counting (Zhang et al., 2020).

Hui Zhou, Deku Lawrence Aheto (2021) explored the development characteristics of primary school children's calculation ability in Ghana and China and compared the differences between the two countries. The results revealed that significant differences between Ghana and China in calculation accuracy scores of different grades, with Chinese students scoring higher We speculate differences in the cultural instruction setting to explain these findings, in that Chinese students may have more support from teachers and parents in their mathematics learning.

Peera Wongupparaj and Roi Cohen Kadosh (2021) found that primary school children were superior to preschool children over more complex tests of the domain-specific early mathematics, the number- specific EFs, the mathematics abilities, particularly, for more sophisticated numerical knowledge and the number- specific EFs components. These results highlight the benefits of both the domain- specific early mathematics and the number- specific EFs in mathematical development, especially at the key stages of formal schooling. Understanding the causal effect of EFs in improving mathematical attainments could allow a more powerful approach in improving mathematical education at this developmental stage.

METHODOLOGY

OBJECTIVES

1. To study the differences between boys and girls on mathematical abilities of class-III students.
2. To examine the differences between government and private school children on mathematical abilities of class-III students.

HYPOTHESES

SAMPLE

The sample of the study consists of 120 class-III children were purposefully selected form primary schools of Rangareddy district of Andhra Pradesh.

VARIABLES

Independent Variables

1. Gender (Boys & Girls)
2. Type of Management (Government & Private)

Dependent Variable

1. Mathematical Abilities Test

TOOL

Mathematical abilities test developed by the researcher. This tool having five areas and it consists of 25 statements with multiple answers.

STATISTICAL ANALYSIS

The obtained data were subjected to statistical analysis such as Means, SDs, and 't' tests were used.

RESULTS & DISCUSSION

Table-I: Means, SD's and 't' values for the mathematics ability scores of boys and girls.

Variables	Gender	Mean	SD	t-value
Addition	Boys	2.55	1.08	0.83 @
	Girls	2.53	1.12	
Subtraction	Boys	2.90	1.20	0.70 @
	Girls	2.75	1.12	
Multiplication	Boys	2.80	1.25	1.03 @
	Girls	3.03	1.20	
Division	Boys	2.71	1.16	0.15 @
	Girls	2.75	1.15	
Basic geometry	Boys	2.58	1.21	0.39 @
	Girls	2.66	1.12	
Mathematical Ability	Boys	13.61	5.23	1.03 @
	Girls	13.66	4.84	

Note: @- Not Significant

Hypothesis-1: male and female children would not differ significantly in their mathematics ability of class-III.

Insignificant 't' values of 0.83, 0.70, 1.03, 0.15, 0.39 and 1.03 reveals that there are no significant differences between male and female children with regard to their mathematics ability. Hence, hypothesis-1 which stated that male and female children would differ not significantly in their mathematics ability is accepted as warranted by results.

Table-II: means, SD's and 't' values for the mathematics ability scores of government and private school children.

Variables	Type of Management	Mean	SD	t- value
Addition	Government	2.58	1.07	0.41 @
	Private	2.60	1.12	
Subtraction	Government	2.83	1.18	2.45 *
	Private	4.81	1.15	
Multiplication	Government	2.86	1.24	0.56 @
	Private	3.96	1.23	
Division	Government	1.68	0.12	2.00 *
	Private	3.78	0.19	
Basic Geometry	Government	2.65	1.20	2.05 *
	Private	4.60	0.13	
Mathematical Ability	Government	11.65	3.10	3.81**
	Private	13.73	4.28	

Note: @- Not significant

Hypothesis-2: government and private school children would not differ significantly in their mathematics ability of class-III.

Significant 't' values of 2.45, 1.98, 2.05 and 3.81 reveals that there are significant differences between government and private school children with regard to their mathematics ability (subtraction, division, basic geometry). Where as insignificant t' values of 0.41 and 0.56 reveals that there are no significant differences between government and private school children with regard to their mathematics ability (addition, multiplication).Hence, hypothesis-2 which stated that government and private school children would differ not significantly in their mathematics ability is partially accepted by results. It is proved that when comparison with mean scores, private school children are high level of mathematical abilities in areas of subtraction, division, basic geometry than government school children. The remaining areas are not significant in the areas of addition and multiplication.

CONCLUSIONS

1. There is no significant difference in their mathematical

abilities including all areas.

2. Private school children are high level of mathematical abilities in areas of subtraction, division, basic geometry than government school children.
3. There is no significant difference in their mathematical abilities in areas of addition and multiplication.

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