



A Study of Mathematical Reasoning Ability of Primary Teachers in Context to Their Gender and Area

DIVYESHKUMAR D. VAISHNAV

Research Scholar,

Dept. of Education, Ganpat University, Kherva

DR. TEJAL J. SHETH

Research Guide

Head, Dept. of Education, Ganpat University, Kherva

1. Introduction

Maths is all around us. It is everywhere we go. Not only does Maths underline every process and pattern that occurs in the world around us, but also, a good understanding of it will help enormously in our every daily life. Being fast in mental arithmetic can save your money when you go to Market!

The national curriculum frame work (NCF) 2005 recommended that children's life at school must be linked to their life outside the school. This principal marks a departure from the legally of bookish learning which continue to shape our system and causes a gap between the school, home and society. It is necessary to encourage the children to reflect on their own learning and pursue imaginative activities and questions. Mathematics is knowledge loaded with material which can trigger the development of thinking ability particularly reasoning ability. This is because mathematics is knowledge which has deductive axiomatic characteristic, which need thinking ability and reasoning to understand it.

As suggested by Tinggih (In suherman and Winataputra, 1992) that mathematics is knowledge obtained by reasoning. This statement is confirmed by Ansjar and Sembiring, that reasoning is main characteristic of mathematics which cannot be separated from activity of learning and developing mathematics or solve the mathematical problem. Besides, Wahyudin stated that reasoning is thinking habit. This aftereffect of thinking at that point filled deliberately ideas which more edifices and progress even can be utilized to take care of different issues throughout everyday life. Almost in all entrance examination, Mathematical reasoning ability is a major part. The teacher's reasoning ability is a major part. The teachers who have the ability to solve the reasoning questions, those who do well in arithmetic and measuring, can do well as these abilities also help in technical careers and other job like laboratory assistant, books keeper, clerks, in construction work and in many others grade skills. Mathematical reasoning constituent a powerful personal and social tool. Today 's society, characterized by high demands, competitions and constant change related to new scientific and technological developments, require individuals who, in addition to knowledge, have the ability to solve the challenging problems they face in their lives. Many of those challenges are based on mathematics.

2. Statement of Problem

A Study of Mathematical Reasoning Ability of Primary Teachers in Context to Their Gender and Area

3. Definitions of Key Terms

Following terms were defined for research clarification.

3.1 Reasoning

• According to Arno Written (1997), Reasoning means, attempts to solve problem by combining two or more aspects from past experience.

According to R.P. Taneja (1989), Reasoning means, thought process involving influence or problem solving making use general Principles. Reasoning means putting two or more elements of past experience together to Solve a novel problem.

3.2 Mathematical Reasoning

Mathematical reasoning is the critical skill that enables a student to make use of all other mathematical skills. With the development of mathematical reasoning, students recognize that mathematics make sense and can be understood.

4. Importance of Study

In our country different subject science, Mathematics, Accountancy, Economics, Business Administration, statistics and etc. are taught by different teachers and in this, different type of research has been done. Every subject, activates or event has its own importance. In the same way, every research has its own importance. The research shows the work and urgency of the study. Importance of the study indicates clearly how the result of the study can influence educational theory or practice. The importance of the present study is as follows: Mathematical reasoning help learn how to evaluate situations, select problemsolving strategies, draw logical conclusion, develop and describe solution and recognize how those solutions can be applied.

Mathematical reasoners are able to reflect on solution to problems and determine whether or not they make sense. They appreciate the pervasive use and power of reasoning as a part of mathematics. Students must be able to judge for themselves the accuracy of their answer; they must be able to apply mathematical reasoning skills in other subject areas and in their daily lives. Mathematical reasoning can be used in many different reasoning is essential to bridging the gap between basic skills and high order thinking. The literature prepared by this research work can be more useful in various fields of education. The prepared material can be used for the Evaluation of the students by which their problem-solving attitude can be assessed or after identifying their inherent attitude and aptitude for the guidance and counseling of both students and parents to blossom their capacity.

The tool can also be helpful to the other 10 investigators in their research work. It will develop the habit of thinking logically among the students and by that in extracurricular activities, where there is the need of definite (firm) decision making skill, they will be able decide themselves independently. Moreover, the parents will be able to know the reasoning aptitude of their children and they will be able to draw an inference that in which type of field their children will be able to succeed. In schools also various games and sports can be arranged. Competitions like puzzles and problem solving can be arranged on the basis of this.

5. Objective of Research

The objectives of present research are as follows

- 1.To know the mathematical reasoning of primary school teachers in context to Gender.
- 2.To know the mathematical reasoning of primary school teachers in context to Area.

6. Variables of the Research

In present research there were two independent variables are there. In present research Gender and Area are independent variable while Mathematical reasoning is dependent variable.

7. Hypothesis of Research

The hypothesis of present research is as under.

- Ho₁** There is no significant difference between mean score of Male and Female primary school teachers on Mathematical reasoning ability test.
- Ho₂** There is no significant difference between mean score of Rural and Urban primary school teachers on Mathematical reasoning ability test.

8. Population

In present research all the Primary school teachers of Mehsana District are the population.

9. Sample

In present research the researcher has first divide all the primary schools of Mehsana district in two parts then the researcher has selected 3 schools of Rural and 3 Schools of Urban area. All the teachers presented on that day are the sample of present research. Thus the researcher has selected 56 Primary teachers by stratified random sampling method.

10. Research Method

In present research the researcher has to measure mathematical reasoning ability of primary school teachers therefore, Survey method was used as a research method.

11. Research Tool

The researcher has used self-made Mathematical reasoning ability test to measure the mathematical reasoning ability test. for the construction of test the researcher has follow the following steps.

- | | |
|---------------------------|----------------------------|
| 1.Collection of Items | 5.Item Analysis |
| 2.Classification of Items | 6.Final Study |
| 3.Expert' Opinion | 7.Reliability and Validity |
| 4.Piloting Study | 8.To decide Norms |

12. Data Collection

To collect the data the researcher has first divide the schools by area the researcher has divided all school of Mehsana in rural and urban area. The researcher has taken prior permission of Principal of selected schools, then researcher has explained the teachers about objectives of research and gave them self-made test. after completion of test the researcher has thanked everyone.

13. Data Analysis

The researcher has constructed null hypothesis in which there is a comparison of two variables so the researcher has analyzed data by statistical techniques like mean, standard deviation, standard error of mean and t value.

14. Testing of Hypothesis

The researcher has testing null hypothesis are as under

H₀₁ There is no significant difference between mean score of Male and Female primary school teachers on Mathematical reasoning ability test.

Table 1:Statistics of male and female primary teachers

Group	Numbers	Mean	S.D.	t value	Significant level
Male	17	35.65	10.25	0.48	NS
Female	39	34.21	10.54		

From above table we can see that the mean value of male teachers are 35.65 and standard deviation is 10.25 while the mean value of females are 34.81 and standard deviation is 10.54. the t value is 0.48 which is less than tabulated value 1.96 at 0.05 level therefore there is no significant difference and **H₀₁** **There is no significant difference between mean score of Male and Female primary school teachers on Mathematical reasoning ability test.** is accepted.

Table 2: Statistics of rural and urban teachers

Group	Numbers	Mean	S.D.	t value	Significant level
Rural	26	34.25	9.35	0.23	NS
Urban	30	34.84	9.70		

From above table we can see that the mean value of rural teachers is 34.25 and standard deviation is 9.35 while the mean value of urban teachers is 34.84 and standard deviation is 9.70. the t value is 0.23 which is less than tabulated value 1.96 at 0.05 level therefore there is no significant difference and **H₀₂**

There is no significant difference between mean score of Rural and Urban primary school teachers on Mathematical reasoning ability test. is accepted.

15. Findings

The findings of present research are as under

1. There is no significant difference between the mean score of male and female teachers on mathematical reasoning ability test. It means the mathematical reasoning ability of male and female primary teachers are same.
2. There is no significant difference between the mean score of rural and urban primary teachers on mathematical reasoning ability test. It means the mathematical reasoning ability of rural and urban primary teachers are same.

1. Educational Implications

The educational implications or suggestions to increase the mathematical reasoning ability in the students are as under

1. Teach evidences. Mathematical evidences are a functional utilization of numerical thinking.
2. Have understudies cooperate.
3. Reasoning capacity creates with appropriate educating and preparing
4. Encourage understudies to think autonomously and foster their own thoughts
5. Encourage understudies in conversations about an assortment of points, issues, and recent developments
6. Build certainty
7. Encourage addressing and account for interest
8. Emphasize applied comprehension over strategy.
9. Provide genuine issues that expansion students\' drive to draw in with math.
10. Share inspirational perspectives about math.

17. Conclusion

In present research the researcher has studied the mathematical reasoning ability of teachers. In present research the researcher has construct the null hypothesis on the basis of independent variables like gender and area. From the hypothesis testing it can be concluded that there is no effect of gender and area on mathematical reasoning ability.

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