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Role of Mathematics Education in Sustainable Rural Development

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ABSTRACT: Mathematics education is crucial in the development of any nation. Mathematics is necessary in the field of lifelong learning. This paper discusses the challenges of mathematics education that rural population of India faces. It provides a perspective on the concise and diverse scenery of the subject. The background of mathematics learning in rural India calls for a very broad visualization to take in and figure out. The challenge of providing quality mathematics education for rural India at school stage is enormous and the country has some way to negotiate to accomplish this. It is still not infrequent to find in numerous parts of the country, particularly in rural area, the transmission of mathematical problems as riddles and aphorisms among the people. Nevertheless it does point to a familiar shared customs of problem solving amongst people. Finally some recommendations were made on how to enhance the position of mathematics in the rural development. The results obtained here may be a step towards solving the problems and challenges of mathematics education that rural India faces.

***Keywords**: Mathematics education, problems and challenges, rural Population, rural development, role of Mathematics, Rural India.*

I. INTRODUCTION

Roger Bacon (1214-1294), Franciscan English philosopher, philosopher and scholar of the 13th century, once said,

"Neglect of mathematics works injury to all knowledge, since he who is ignorant of it cannot know the other sciences or the things of the world."

Mathematics is a science related to numbers and their activities. It includes calculating, computing, etc. It's dictionary meaning is "mathematics is Science of numbers and their Space "or" Mathematics is the science of measurement of quantity and value. "The topic is clear, systematic, and logical. Mathematics has revealed hidden patterns that help us understand the world around us.

Now more than arithmetic and geometry, mathematics today is a diverse discipline involving measurement and observations of science, deduction of conclusions and evidence; phenomena, human behavior and social systems. Mathematics is the study of the quantity, the structure, the space, and the change that made history through the use of derivatives and logical reasoning from counting, calculating, measuring and studying the appearance and motion of Physical objects.

To understand the role of mathematics in the development of rural people, or in a broader sense, we need to have a better understanding of the following:

• What is the importance of mathematics?
• What is the status and vision of mathematics education in India?

• Is there any requirement of Mathematics in changing India?

• What is the role of mathematics in sustainable rural development?

II. THE IMPORTANCE OF MATHEMATICS

Mathematics' literal meaning is "something that can be counted." Now as we know that counting plays a major role in our daily life. Just imagine that there is no Mathematics at all, how can we count family members?

The number of students in the school, number of players in cricket, days in a week, or month or year. You must be able to count add, subtract and divide at the basic level. At psychological level, mathematical understanding helps to create thinkers and promote conceptual compilation and ideas. On a more general level far from dealing with high mathematical concepts, the importance of mathematics for ordinary people supports. An ordinary person relies heavily on the use of science and technology for everyday life and the role of mathematics has been predetermined.

Mathematics is around us, representing different forms. Right from the beginning of the morning to notify you for alarm rings, to read a clock, to draw a date in a calendar, pick up a phone, organize a recipe in the kitchen, waiting for pressure cooker whistles, doing money management viz Exchange money while using public transport , just endless Spotting situations when we use mathematics unconsciously.

This makes us scared of life without knowing about calculations or, in other words, mathematics helps a man to accurately interpret his ideas and conclusions. This is the digital and numerical part of human life and knowledge. It plays an important role in our daily life and has become an indispensable factor in the development of our world.

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Even nature includes complete mathematics. We see so much symmetry around us and we have a deep understanding and appreciation of the model. Observe any of the natural thing and find symmetries and patterns in it. Changing days to nights, summer to winter, etc. Plants have countless models of symmetries, shapes and more. Examples of this include animals, objects, images, and everything else. The sun shines and sets at a specific time. Stars appear on certain occasions. Mathematics moves in natural science, such as physics and astronomy. This topic is closely related to the world and natural phenomena. The meaning of mathematics can be understood by the definition given by Galileo. He defined mathematics as "A language in which God has written the world"

III. The Status and Outlook of Mathematics Education in Rural India

The aspect of mathematical education in India requires a broader vision to encompass and understand. This is not just the problem and the size of the number of children and educators that form the system, but there are many more democratic processes in the process that draw social and political candidates from society. Every child needs to learn mathematics and use it. The reality of this decision with millions of children and teachers in a democratic way offers great system competition.

The Indian education system is structured from one level to the next, as shown in Figure 1.

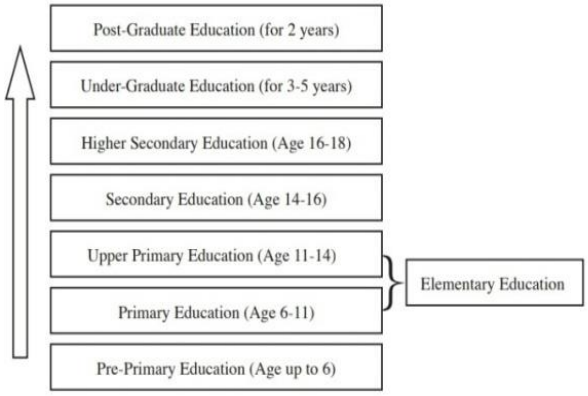

Figure 1: Levels of Education in the Indian System

Basic education (primary and upper primary) is managed separately from secondary(including higher secondary) education Undergraduate education is typically for three years, and 4-5 years for specialized degrees. Universities are synchronized centrally but managed within the state, with a system of allied colleges providing apprentice education. The Ministry of Human Resource Development governs the large Indian education system, with each State government having its individual Education Ministry, and a Central counselling Board on Education providing the stage for interactions between the centre and states (as well as between states). In all 43 Boards of School Education work in the country and they are the ones that prepare syllabus, guide teachers and propose certification.

IV. The Need for Mathematics in Changing India

The need to understand and use mathematics in everyday life and at workplace is never been greater and will continue to grow. For Example:

Mathematics for Life:

Knowing mathematics can be self-fulfilling and empowering. The basis of everyday life is more mathematical and technological. For example, buying, taking decisions, insurance plans or proper healthcare and voting plans need to be complicated.

• Mathematics as a part of cultural heritage:

Mathematics is one of the greatest cultural and intellectual achievements of the human race, and people need gratitude and understanding of this achievement, including aesthetics and entertainment.

• Mathematics at Workplace:

Just the level of mathematics needed for this intelligent citizenship has increased dramatically and the level of mathematical thinking and solving the problem is needed in the workplace in professional fields, ranging from healthcare to design Graphics.

• Mathematics for beterment of science and technology:

Although all professions require a mathematical knowledge base, some of them have a mathematical strength. More students have to follow the education path to prepare them to work as mathematicians, engineers and scientists. In this changing world, people who understand maths have more opportunities to shape their future achievements. Mathematical ability opens the door to a productive future. Lack of math skills keeps these doors shut.

This is usually a suggestion that mathematics is only for selected ones. On the contrary, everyone should understand mathematics. All students should have the opportunity and support needed to learn mathematics with depth and understanding. There is no clash between equality and perfection. Principles and standards require a combination of mathematical concepts that students need to learn. However, this does not mean that all students are the same. Students need to demonstrate talent, abilities, achievements, needs and interests in mathematics.

However, all students should have access to the highest quality mathematics training program. Students who are keen on pursuing a career in mathematics and science should have their talents and interests. Similarly, students with special educational needs should have the opportunity and support they need to gain a critical understanding of critical mathematics. A society with few people who have

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the necessary mathematical knowledge to fulfill the economic, political, and scientific functions essentially falls short of the value of justice.

V. Role of Mathematics Education in Sustainable Rural Development.

Development can be defined as a group of activities of individual societies that aim to reduce perceived constraints to a higher standard of living, thus achieving the highest quality of life for the people. Development is expected to be objective and sustainable for the benefit of society for a long time. Without sustainability, self-development is fraud and consequence.

Sustainable development is a development that fulfills the needs of the present generation, without damaging the ability of the next generation to meet their needs. For the general development of the nation, mathematics plays a central role. Effective math teaching and learning cannot be achieved without enough teachers and motivation in the school system. Although offering classrooms, teaching equipment, facilities, and general management in each school, effective math training cannot be achieved without enough qualified mathematics teachers. Therefore, a clear strategy to ensure sustainable development in all nations is to directly address the problems of producing and retaining skilled math teachers in all societies.

VI. Conclusion

Mathematics is at the heart of any nation's economic and technological development. Mathematics is at all levels of our education system. The most important issue is the quantity and quality of mathematics teachers in our school system. The best way to solve the problem of teaching and learning mathematics is to solve the problems of teachers, especially their state. Under attractive conditions for services, more students will choose to study in this field, more qualified teachers will be available in the school system, and then increase the student's ability.

This paper highlighted the role mathematics playing the attainment of vision in India. Mathematics is a basic requirements for the study of science and technology, it had contributed positively to the development of mankind. Also different quality mathematics equation programs helps to inculcate faith in man's ability to make rational decision for its intrinsic value and its ability to make man reason logically and think critically.

The below recommendations have been made:

1. Mathematics education programmes in rural areas should focus on developing in students' deep and genuine understanding of mathematical ideas through focused students' cognition process.

2. There should be sufficient classroom time to be mandated in the Government schools of rural areas for mathematics instruction each day.

3. professional teachers have to be engaged to educate mathematics at the Primary School level and also increased financial support for mathematics teacher education programmes shoul be given.

4. accomplishment should be put in consign to intentionally improve the salaries and circumstances of service of teachers in rural areas.

5. The learning environment should be made adequate in rural areas for effective learning to take place. Thus necessary infrastructure and facilities should be made available.

6. The programmes and practices of largest economies should be emulated such that policies should be matched with action in the required direction.

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