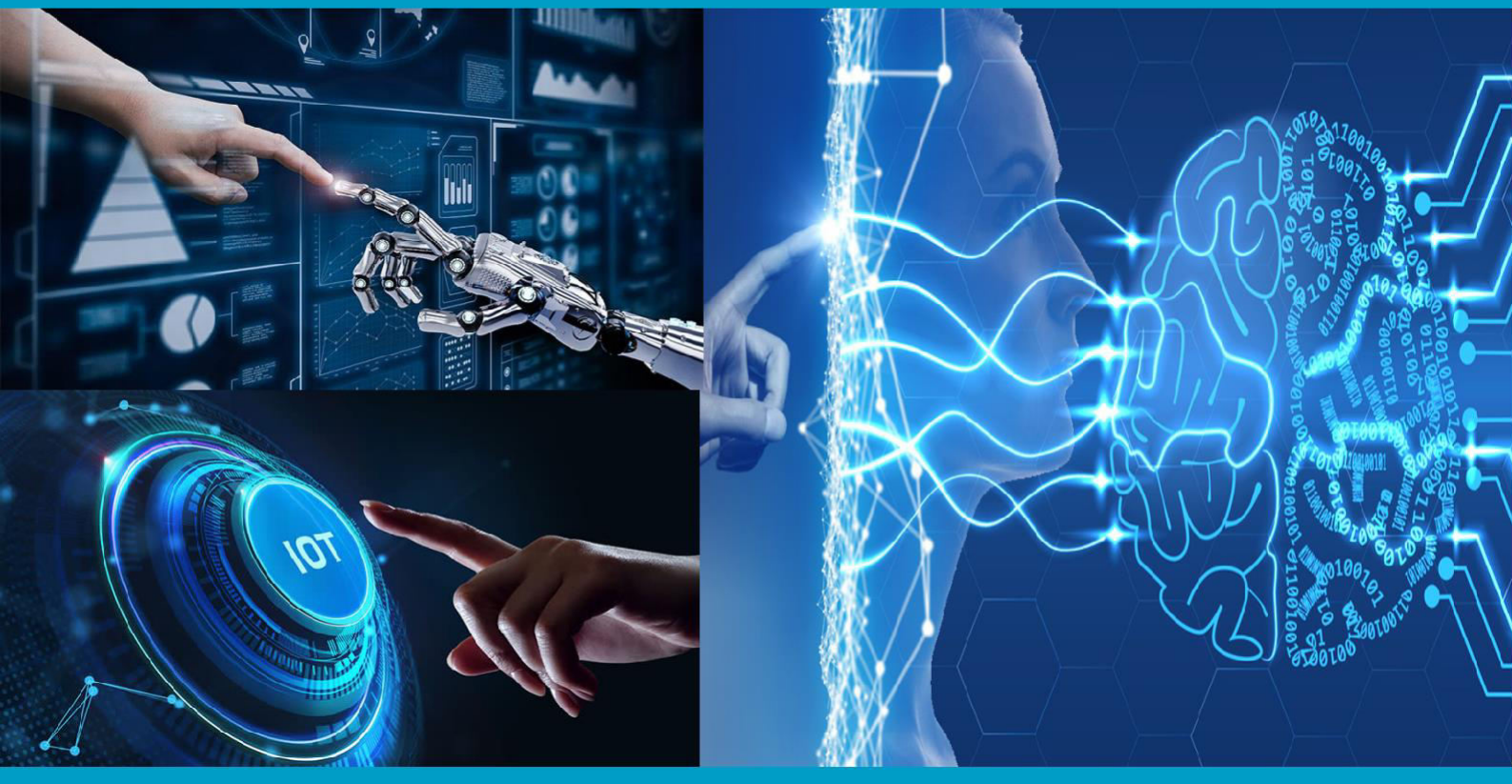
IJMRSETM

e-ISSN: 2395 - 7639



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

IN SCIENCE, ENGINEERING, TECHNOLOGY AND MANAGEMENT

Volume 10, Issue 3, March 2023

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.580

International Journal of Multidisciplinary Research in Science, Engineering, Technology & Management (IJMRSETM)

ISSN: 2395-7639 | www.ijmrsetm.com | Impact Factor: 7.580| A Monthly Double-Blind Peer Reviewed Journal |

| Volume 10, Issue 3, March 2023 |

| DOI: 10.15680/IJMRSETM.2023.1003020 |

Importance of Mathematics Education as a Protagonist in the Advancement of Society

Pallavi Saikia

Former Assistant Professor, Department of Mathematics, Kokrajhar Government College & Research Scholar,

Bodoland University, India

ABSTRACT: Mathematics is an area of attaining knowledge that includes the topics of numbers, formulas and related structures, shapes, quantities and spaces in which they are contained and their relative emerging changes. These topics are represented in modern Mathematics with the major subdisciplines of Number Theory, Algebra, Geometry and Analysis respectively.Mathematics is that branch whichconcerns with numbers and their operations.It involvescalculation, computation, solving of problems etc. It is exact, precise,systematic and a logical subject. In other sense, Mathematics is the study of quantity, structure, spaceand change which has been historically developed by various mathematicians with the use of concept and logical reasoning which are derived from counting,calculation, measurement and the study of the shapes and motions of physical objects.

KEYWORDS: - Mathematics, knowledge, discipline, history, study.

I. INTRODUCTION

Mathematics reveals hidden patterns that help us to understand the world around us. Now muchmore than Arithmetic and Geometry, Mathematics today is a diverse discipline that deals with data, measurementsand observations with scientific efforts, with the extrapolation of deductionand proof, with the implication of mathematical models of naturalphenomena, of human behaviour and of social systems. The literal meaning of Mathematics is things which can becounted by which one can think that counting has a vital role in our day-to-day life. Let us just imagine that there were no Mathematics at all, how would it be possible for us to count members of the family, number of students in the class,
rupees in the pocket, runs in a cricket match, days in a week or in a months or years? On a basic level you need tobe able to count, add, subtract, multiply and divide.Even nature also embraces Mathematics entirely. We see so much of symmetry-around us and have a deep senseof awareness and appreciation of patterns. We observe any natural thing and find out symmetry or pattern in it. Changeof day and night, summer and winter etc. In flora kingdom, there are innumerable examples of symmetry, shapes, patterns,etc. Such examples exist in fauna world also. The sun rises and sets at approximately pre specified calculated moment. The stars appear at fixed time. Mathematics runs in the veins of natural sciences like Physics andAstronomy. This subject is indistinguishably incorporated with world and the natural phenomena.Roger Bacon an English Franciscan priest, philosopher, scientist and scholar of the13th century, once stated:"Neglect of Mathematics works injury to all knowledge, since he who is ignorant of it cannot know the othersciences or the things of the world."A societyis a group of people related to each other through persistent relations, or a largesocial grouping sharing the same geographical or virtual territory, subject to the same political authority anddominant cultural expectations. More generally, a society may be described as an economic, social, or industrialinfrastructure, made up of a varied collection of individuals.

II. ROLE OF MATHEMATICS IN SOCIAL ADVANCEMENT

Role of Mathematics in social developmentof Man is a social animal and human life depends upon the co-operation of each other. Group work helps social skills.The ability to work together on tasks with others can build various social skills. In order to live a social life,mathematical knowledge is needed because of the given and taken process, business and industry depends upon theknowledge of Mathematics. The change in the social structure with regards to the modern facilities like mode oftransport, means of communication and progress in the field of science and technology is due to Mathematics only.In this way mathematics has played an important role in not only understanding the progress of society but also todevelop the society.

ISSN: 2395-7639 | www.ijmrsetm.com | Impact Factor: 7.580| A Monthly Double-Blind Peer Reviewed Journal |

| Volume 10, Issue 3, March 2023 |

| DOI: 10.15680/IJMRSETM.2023.1003020 |

III. ROLE OF MATHEMATICS IN INTELLECTUAL DEVELOPMENT

Mathematics teaching is very important for intellectual development. There is no other subject in the curriculumlike Mathematics which makes students' brain active. Problem solving helps in the development of mentalfaculties. Mental work is needed to solve mathematical problems. If a child, has a mathematical problem her/hisbrain becomes active in solving that problem. Each problem of Mathematics possesses such sequence which isnecessary for constructive and creative process. In this way, all-mental abilities of child are developed through Mathematics.Moreover, Mathematics makes the man very calculating so that she/he can economies time, money, speech,thought etc. It develops a strong will power, patience and self-reliance. It also develops the faculty of discovery andinvention.

IV. ROLE OF MATHEMATICS IN VOCATIONAL DEVELOPMENT

The main aim of education is to help the children to earn their livelihood and to make them self-independent. To achievethis aim Mathematics is the most important subject than any other. It helps to prepare students for technical andother aptitudes where Mathematics is applied e.g.,Engineering, Architecture, Accountancy, Banking, Business, eventhe Agriculture, Tailoring, Carpentry, Surveyingand the office work requires the knowledge of Mathematics.

V. ROLE OF MATHEMATICS IN MORAL DEVELOPMENT

Morality is the important phase of life, which is mostaffected by time, person, situation and place. As a subject, Mathematics can add to students' moral development since mathematical knowledge is helpful in character andpersonality development. It develops all those quantities which a person of strong character must possess. Childdevelops qualities of cleanliness, life, safety, security and reality.

VI.ROLE OF MATHEMATICS IN SPIRITUAL DEVELOPMENT

Mathematics education potentially seems to be developing the skills of reflection and possibly, for the moreamenable, a sense of the beauty of a solution. One gets pleasure in solving mathematical problems, especially whenshe/he gets the correct answers to her/his problem.At that moment every child feels satisfied, confident and self-reliance. The aesthetic quality of an elegant solution is somethingthat may be lost on a dedicated
"Mathematicsmisanthrope". So, the child gets encouragement, satisfaction and happiness in attaining remarkable achievements. Therefore, Mathematics helps to develop their aesthetic sensibility,
meets the varying interests and helps them in the properutilization of their
leisure time.

VII. ROLE OF MATHEMATICS IN CULTURAL DEVELOPMENT

This helps the learner to understand the contribution of Mathematics in the development of civilization and culture.It has enabled the learner to understand the role of Mathematics in fine arts and in beatifying human life.

VIII. ROLE OF MATHEMATICS IN THE DEVELOPMENT OF EDUCATION SYSTEM

In education system, Mathematics plays an important role in shaping the future probability of young people.Education is to develop an individual, to make him self-reliant, wise, asocialcontributor. in our education system, for almost every subject, we study in school and university; we need tostudy mathematics too e.g., Physics, Chemistry, Life-Science, Economics, Business andAccountancy, Geography,History, Psychology, Architect, Designing, Computes, Statistics, Commerce etc. Also, in vocational areas likeTailoring, Carpeting, Cooking, Beauticians, Sportsperson, Farming etc, mathematical knowledge is needed. Eventhe professionals like Conductor, Shop Keeper, Drivers, Musicians, Magicians, Cashiers etc use basic mathematicalconcepts.

IX. ROLE OF MATHEMATICS IN DEVELOPMENT OF ECONOMICS

Mathematics plays fundamental importance to modern society. It provides the vital support in enriching the knowledge ofeconomy. It is essential in the physical sciences, technology, business, financial services and many areas of ICT. Itis also of growing importance in Biology, Medicine and many of the social sciences. Mathematics forms the base ofmost scientific and industrial research and development. Increasingly, many complex systems and structures in themodern

ISSN: 2395-7639 | www.ijmrsetm.com | Impact Factor: 7.580| A Monthly Double-Blind Peer Reviewed Journal |

| Volume 10, Issue 3, March 2023 |

| DOI: 10.15680/IJMRSETM.2023.1003020 |

world can only be understood using Mathematics and much of the design and control of high-technologysystems depends on mathematical inputs and outputs.

X. ROLE OF MATHEMATICS IN DEVELOPMENT OF SCIENCE AND TECHNOLOGY

The "functional" aspect of mathematics stems from its importance as the language of Science, Technology andEngineering and its role in their development. This involvement is as old as mathematics itself and it can be arguedthatwithout Mathematics, there can be neither Science nor Engineering. In modern times, adoption of mathematicalmethods in the social, medical and physical sciences has expanded rapidly, confirming Mathematics as anindispensable part of all school curricula and creating great demand for university-levelmathematical training.Much of the demand stems directly from the need for mathematical and statistical modelling of phenomena. Such modelling is basic to all Engineering, plays a vital role in all physical sciences and contributes significantly to the Biological Sciences, Medicine, Psychology, Economics and Commerce. Mathematics has been successfully used inthe development of science and technology in
20^{th}–21^{st}century.

XI. THE ROLE OF MATHEMATICS EDUCATION IN WOMENEMPOWERMENT

The importance of Mathematics as a tool for science and technology is continually increasing.While Science and Technology have become so persistent, Mathematics education has continued to dominate theschool curriculum and remains a key subject area requirement in higher education and employment sector.The hue and cry which follows the publication of Mathematics results has become an annual ritual. This has also squeezed on courses and careers sought by women in the working world. They have attributed their failure toperform to expected standards to lack of sound background it is the knowledge of Mathematics. It is the is realization that theskills learnt at school have had very little if any, bearing on what society needs in terms of productive citizens. Inthis regard, the gender imbalances in enrolment, achievement at school level, colleges and universities and theemployment sector were also issues of concern. Our societies are becoming more and more technological with amathematical bias, more attention being focused on attainment of mathematical competencies.

XII. ROLE OF MATHEMATICS IN CULTURAL AND MORAL DEVELOPMENT

Mathematics has its own intrinsic beauty and aesthetic appeal, but its cultural role is determined mainly by itsperceived educational qualities. The achievements and structures of mathematics are recognized as being among thegreatest intellectual attainments of the human species and therefore, are seen as being worthy of study in their ownright, while the heavy reliance of mathematics on logical reasoning is seen to have educational merit in a worldwhere rational thought and behaviour are highly valued. Furthermore, the potential for sharpening the witness andproblem-solving abilities fostered by study of Mathematics is also seen as contributing significantly to the generalobjectives of acquiring wisdom and intellectual capabilities.

XIII. ROLE OF MATHEMATICS IN DEVELOPMENT OF MEDICAL SCIENCE AND AGRICULTURAL FIELD

Mathematics is applied to Agriculture, Ecology, Epidemiology, Tumor and Cardiac modelling, DNA sequencing andgene technology. It is used to manufacture medical devices and diagnostics and sensor technology.There are positive senses in which mathematics is special. First, by virtue of its fundamental nature as a universalabstract language and its supporting of the Sciences, Technology and Engineering, Mathematics has a claim to aninherently different status from most other disciplines. Secondly, as we have set out above, Mathematics isfundamentally important in an all-pervasive way both for the workplace and for the individual citizen.

XIV. CONCLUSION

Mathematics occupies a crucial and unique role in the human societies and represents a strategic keyin the development of the whole mankind. The ability to compute, related to the power of technology and to theability of social organization and the geometrical understanding of space timethat is the physical world and itsnatural patterns, show the role of Mathematics in the development of a Society. The society consists of its members(human being)who make

ISSN: 2395-7639 | www.ijmrsetm.com | Impact Factor: 7.580| A Monthly Double-Blind Peer Reviewed Journal |

| Volume 10, Issue 3, March 2023 |

| DOI: 10.15680/IJMRSETM.2023.1003020 |

government and organize the natural resources to develop infrastructure. The humanbeings are the one who develop the society. Therefore, we will discuss the role of Mathematics in the developmentof an individual as well as the development of the society.Mathematics helps the man to give exact interpretation to his ideas and conclusions. It is the numerical andcalculation part of man's life and knowledge. It plays a predominant role in our everyday life and it has become a requisite factor for the progress of our present-day world.

REFERENCES

1. Ashlock, R.B. and Herman Jr. W.L, Current Research in Elementary SchoolMathematics, New York: Macmillan, 1970.
2. James.Anice, Teaching of Mathematics, Neelkamal Publication Pvt.Ltd. Hyderabad.
3. Kulshishtha, A.K. Teaching of Mathematics, R. Lall Book Depot, Meerut.
4. Miglani,R.K. & Singh, D.P. Teaching of Mathematics At Elementary Level Part I & PartII, Arya Book Depot Karol Bagh, New Delhi-110005
5. National Curriculum Framework 2005 (NCF-2005)-A Paradigm Shift-Mathematics(2005); NCERT publications, New Delhi.
6. NCERT, New Delhi, Pedagogy of Mathematics, Textbook for Two-Year B.Ed. Course.
7. Roy Hollands (1990) Development of Mathematical Skills Blackwell Publishers,Oxford, London.
8. Skemp,R.R., The Psychology of Learning Mathematics,Hatmondsworth: PenguinBooks, 1971.
9. Thomas A. Sonnabend (1993) Mathematics for ElementaryTeachers (AnInteractive Approach), HBJ Publishers, Florida.

Impact Factor: 7.580

INTERNATIONAL JOURNAL
OF MULTIDISCIPLINARY RESEARCH
IN SCIENCE, ENGINEERING, TECHNOLOGY AND MANAGEMENT

+91 99405 72462 +91 63819 07438 ijmrsetm@gmail.com