

A Study on the Benefits of Mathematics in Societal Development

L. Vijaya Kumar¹, K. Vanama Devi², Sk. Rahamthulla³

^{1,2,3}K.B.N. College (Autonomous), Vijayawada-520001, Andhra Pradesh, India

ABSTRACT

A "society" is a group of individuals who have developed a long-term bond or an immense social gathering that is governed by the same government and cultural standards as the group in question. An economic, social, and/or industrial infrastructure is established as a result of the collaboration of people from many origins and cultures. Because man is a social animal, he and his fellow humans must collaborate in order to survive. A lot of group work helps with social skills. Social skills can be learned by working together on tasks with other people. In order to have a social life, you need to know how to do math. Because of the give and take process, businesses and industries need to know how to do math. Math is the only thing that has changed the way people live because of things like transportation, communication, and science and technology. There are a lot of ways that math has helped us understand how society has changed and how we can help it grow. The goal of this study is to learn more about how math can help society grow. There are a lot of different places where secondary data can be found for this study. For the systematic learning process, this data comes from books, journals, websites, research papers, and newspapers, among other places.

Keywords: Mathematics, Social, Development, Science, society.

INTRODUCTION

Mathematics is a discipline of science that is concerned with the study of numbers and their interactions with one another. Among the many areas that come under this umbrella are mathematics and computer science, to name a few. What is the definition of this word in the dictionary? Mathematics is the scientific subject that deals with numbers and space, and as such, it is referred to as such. Because it is so detailed, comprehensive, and logical, it is critical to comprehend it completely. Analysis techniques like as arithmetic have long been used to examine and classify physical things, and they continue to be employed today. During the evolution of mathematical cognition, abstraction and logical reasoning were important variables to consider (Kenna, 2016).

Mathematics is a discipline of science that is concerned with the study of numbers and their interactions with one another. It offers a diverse selection of courses in subjects such as mathematics, computer science, and more. Mathematics, according to Webster's New World College Dictionary, is a scientific field that deals with the study of numbers and spatial relationships, and as such, it is known as "Mathematics." Because of its clarity, method, and logic, it is critical to understand what is being said. For example, mathematics is concerned with the formation of objects, their movement across space, and their change through time. It all began with counting and measuring and progressed to the study of the forms and movements of physical things via abstraction and logical reasoning as it progressed through the years (Kikas, et. al, 2019).

The use of mathematics allows a person to quickly comprehend their own thoughts and conclusions. Arithmetic is a branch of science that deals with numbers and mathematics. It has become an integral element of our daily life, as well as the development of our global society. Natural phenomena are well-understood thanks to the influence of mathematics. Considering that we're always surrounded with synchronicity and patterning, it's no wonder that we're constantly aware of them. Any natural phenomenon may be analyzed for symmetry or pattern. As the year goes, summer gradually gives way to winter and vice versa. Plants, like animals, may be observed in a variety of forms and patterns. Animals, things, and pictures are all examples of what I'm talking about. It is possible to see a regular cycle of the sun rising and setting. They emerge at a certain time and place. The natural sciences, such as physics and astronomy, are firmly rooted in the use of mathematics. Throughout this theme, the natural and human worlds are intricately connected. It is possible to have a greater understanding of the significance of mathematics, as defined by Galileo. The world, according to him, was written by God in mathematics.

LITERATURE REVIEW

According to Ernest, mathematics education is critical for children's intellectual development (2018). In fact, mathematics is the only subject that requires students to have such a high level of mental processing power. It is a great method to improve one's analytical abilities to spend time solving puzzles and riddles. Solving mathematical problems takes a significant amount of mental effort. When a youngster is presented with an arithmetic issue, the child's brain immediately gets to work trying to solve it. When solving arithmetic problems, there is a certain sequence in which they must be completed in order to generate new things or ideas. In this approach, arithmetic aids in the development of a child's mental talents. The study of mathematics also enhances a person's ability to calculate, enabling them to conserve resources such as money, time, speech, and mental energy by being exceptionally gifted in this area. Improve your willpower, patience, and feeling of self-reliance with the aid of this program. This book will also instruct you on where to hunt for and how to produce certain items.

It's important for kids to learn how to make money and be self-sufficient, Shara says in 2013. For this goal, math is more important than any other subject. It helps students get ready for jobs where math is used, like engineering, architecture, accounting, banking, and business, as well as farming, tailoring, carpentry, surveying, and office work. Geary (2013) feels that morality is really important. In light of the fact that both time and people have a significant impact on this period of life. Inasmuch as math is a topic that may assist students in developing morality and character, it can also assist them in developing their own personalities and personalities. It cultivates all of the characteristics necessary to be a strong individual. During a child's formative years, he or she is taught ideals such as cleanliness and honesty.

Gutiérrez(2013) said in his study that mathematics has an important part in deciding the future potential of young people. A diverse variety of courses, ranging from physics and chemistry to economics and accounting, are taught at schools and universities, all of which need students to have a basic understanding of mathematical concepts and procedures. A solid understanding of mathematics is necessary for almost every topic we study in school and college. Basic mathematical skills are also essential for a wide range of occupations, including tailoring, carpet-making, and cooking, as well as for athletes and farmers who work in agricultural settings. Regardless matter whether you work as a conductor or a merchant, a driver, an artist, or a cashier, you must have a fundamental understanding of mathematics.

According to experts, mathematics is essential in today's culture (Whitehead, 2017). This is the most crucial economic information you should be aware of at this point in your career. This technology is used by a broad number of businesses ranging from business to financial services to a large range of other information technology industries. The study of complexity is also gaining traction in the domains of biology and a broad variety of social sciences, as well as in other fields. The majority of scientific and commercial research and development is based on mathematical principles. Mathematics is the only way to comprehend the complex systems and structures that exist in today's society. In fact, mathematics is used in a significant portion of the design and administration of high-tech systems, as both inputs and outputs.

According to the National Academy of Sciences, mathematics is the language of science, technology, and engineering, and it contributes to their advancement (Lesh et al. 2019). For as long as there has been mathematics, there has been a relationship between mathematics, science, and engineering of some kind. One may argue that arithmetic is vital to both science and engineering, and this is true. Modern civilization is increasingly reliant on mathematical approaches in the social sciences, medicine, and physical sciences, as well as other fields. The importance of mathematics in all school curricula, as well as the strong demand for college-level mathematics instruction, are clearly shown by this example. Demand for mathematics and statistics is driven in large part by the desire to model things mathematically and statistically. This kind of modeling is required in all engineering domains, as well as in biology, medicine, psychology, economics, and business, among other disciplines. It would not have been possible to progress in science and technology throughout the twentieth and twenty-first century without the use of mathematics.

According to some experts, there has been a rise in the relevance of mathematics in science and technology during the last several decades (Layton, 2012). Despite advancements in science and technology, the necessity of mathematics education has not diminished. It continues to be a requirement for both higher education and entry into the workforce. Annually, the shrieks and jubilation that accompany the announcement of math results have become a tradition. Women have performed far better than males in a number of areas, according to postmortem analysis of the findings. In addition, this has had an influence on the kind of courses and positions that women pick when they first enter the labor, as previously stated. They have been accused of failing to fulfill expectations because of a lack of mathematical abilities. It is this recognition that the abilities taught in school have little to do with the skills required by society that has brought about this transformation. Among politicians and academics, women's educational engagement, academic achievement, and success in the workplace were all seen to be causes for worry. More, our societies are getting more technical and mathematical in nature, and the development of mathematical

talents and abilities is becoming increasingly crucial.

According to Mason, despite the fact that mathematics has its own inherent beauty and aesthetic appeal, its cultural relevance is mostly determined by how people feel it may assist them in learning (2003a). Aside from its intrinsic value as one of the most significant intellectual accomplishments of the human race, mathematics is a subject worth studying for its own sake. It is considered a boon to education in a society that sets a high value on logic and reason, hence the fact that mathematics is strongly reliant on it is seen as such. As a consequence, learning mathematics may assist you in improving your wit and problem-solving abilities, which are both key components of knowledge and intelligence.

METHODOLOGY

All of the research that fits into a certain topic or question can be found, looked at, and interpreted by doing a "systematic literature review," which is a way to do this. Systematic reviews are used when people want to make sure they are giving an honest review of some kind of research. They do this by using a trustworthy and rigorous way to do so. "Systematic literature review" is the name for this kind of review. To do a systematic review, you need to have a plan for how to search for information in mind. A lot of this is to make sure there aren't any gaps in current research, look for new research gaps, and lay the groundwork for more new research.

To find out how math helped the world grow, we did a systematic literature review to look at all the different ways math has been used. People who made their information public between 2012 and 2019 are the sources for this study. If we study math, it can do a lot of good things for our society and our minds. People can use it in the real world, so it can be very useful.

RESULT AND DISCUSSION

People in this study say that math is about things that can be counted. If there were no math, how would we be able to count people in our families, students in our class, days in a week or years, rupees in our pockets, runs in a cricket match, or even the number of rupees in our pockets? The first thing you need to do is count, add, subtract, multiply, divide, and count backwards. People who are exposed to math have a more analytical mind, which helps them better organise their thoughts and express their thoughts accurately. There are many reasons why math is important for a person who doesn't know very much about it at a higher level. Science and technology are becoming more and more important in people's daily lives, and the role of math has undoubtedly changed.

Math is all around us. Every time you get up in the morning, an alarm goes off, you look at the time on a watch, or you round a date on a calendar. You pick up the phone, make a recipe in the kitchen, and wait for a stove whistle. You manage your money, travel to a new place, or check your car's mileage. There isn't a lot of thought given to how math can be used on these kinds of things, of course.

A "society" is a group of individuals who have developed a long-term bond or an immense social gathering that is governed by the same government and cultural standards as the group in question. An economic, social, and/or industrial infrastructure is established as a result of the collaboration of people from many origins and cultures. Throughout human history, mathematics has played an important part in the development of civilizations across the world. This demonstrates the importance of mathematics in the progress of civilization, since it is tied to both technology and social structure. Knowing how things operate geometrically allows us to appreciate the importance of mathematics as a tool in the development of human beings. Natural resources are exploited by human beings in civilization to construct infrastructure, such as bridges and roads, from which they benefit. Humans are the ones who put the fragments of civilisation back together again and again and again. So, we'll speak about how math helps individuals develop and how it also helps society grow as a consequence of this discussion:

CONCLUSION

Math plays a very important character in societies, and it's a very important part of the development of the whole world. A society's ability to compute, which is linked to the power of technology and how well people can work together, and its ability to understand the natural patterns of the physical world, show how important math is to its development. Members of the society (human beings) are in charge of the government and use natural resources to build things like roads and bridges. Humans are the ones who build the society. So, we'll talk about how math helps people grow up and how it helps society grow up as well. Math helps a person understand his ideas and conclusions in a way that is very clear. It is the part of man's life and knowledge that deals with numbers and math. It is a big part of our daily lives, and it has become an important part of how our world has changed.

REFERENCES

- [1]. Ernest, P. (2018). The ethics of mathematics: is mathematics harmful?. In *The philosophy of mathematics education today* (pp. 187-216). Springer, Cham.
- [2]. Shara, J. (2013). Benefits from Integrating History of Mathematics into Teaching.
- [3]. Geary, D. C. (2013). Early foundations for mathematics learning and their relations to learning disabilities. *Current directions in psychological science*, 22(1), 23-27.
- [4]. Gutiérrez, R. (2013). The sociopolitical turn in mathematics education. *Journal for research in mathematics education*, 44(1), 37-68.
- [5]. Whitehead, A. N. (2017). *An introduction to mathematics*. Courier Dover Publications.
- [6]. Lesh, R. A., Hamilton, E., & Kaput, J. J. (Eds.). (2019). *Foundations for the future in mathematics education*. Routledge.
- [7]. Layton, A. T. (2012). A mathematical model of the urine concentrating mechanism in the rat renal medulla. I. Formulation and base-case results. *American Journal of Physiology- Renal Physiology*, 300(2), F356-F371.
- [8]. Mason, L. (2019). High school students' beliefs about maths, mathematical problem solving, and their achievement in maths: A cross-sectional study. *Educational psychology*, 23(1), 73-85.
- [9]. Kenna, R., & Mac Carron, P. (2016). Maths meets myths. *Physics World*, 29(6), 22.
- [10]. Kikas, E., Peets, K., Palu, A., & Afanasjev, J. (2019). The role of individual and contextual factors in the development of maths skills. *Educational psychology*, 29(5), 541-560.