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# **Quranic Perspective on Mathematics and Computer Science**

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**ABSTRACT:** the Quran, as the primary source of Islamic teachings, provides guidance and principles that can be applied in various fields of science, including mathematics and computer science. This paper explores the Quranic perspective on mathematics and computer science. The paper also examines the Quranic approach to the concept of *'Ilm* (knowledge) and its importance as well as the role it plays in human development; the author is of the view that the study of mathematics and computer science are the crux of human knowledge. The objectives of this research paper are to:

1. Explore the Quranic perspective on mathematics and computer science.
2. Identify a better method to be used in the process of applying Quranic teachings in the fields of mathematics and computer and examine the relevance of Quranic teachings in these fields.
3. Identify the impact of the Quranic perspective on the advancement of mathematics and computer science.
4. Provide insights and recommendations for the integration of Quranic principles into these fields for the benefit of the society.

the lack of understanding regarding the relationship between Quranic perspective and the fields of mathematics and computer science is a problem that should be addressed in an academic manner. Despite the increasing relevance of these fields in modern times, there is a need for further research that explores how the Quranic themes as well as the larger principles of Islamic teachings relate to these subjects.

To study these dynamics, the paper investigates the Quranic references to numbers and their significance, as well as its encouragement to understand the ecosphere of integrating sciences. The research, therefore, looks at the Quran's emphasis on exactitude and accurateness. The paper will use a qualitative research methodology that involves a literature review of relevant academic articles, books, and online resources. The analysis will be based on a thematic approach, where the themes related to the Quranic perspective on mathematics and computer science will be examined. In other words, the paper highlights the compatibility between the Quranic teachings and the principles of mathematics and computer science. The research questions are:

1. What is the Quranic perspective on mathematics and computer science?
2. How best Quranic teachings be applied in the fields of mathematics and computer science?
3. What impact has the Quranic perspective had on the advancement of mathematics and computer science?
4. How the integration of Quranic principles into these fields will benefit the society?

The research, therefore, will investigate how Quranic scripture contributes to the contemporary discussions in these fields. To consolidate this, the paper will evaluate the works of Muslim scholars throughout history.

## **INTRODUCTION**

The Quranic perspective of knowledge has been a source of inspiration for Muslims throughout history. The Quran emphasises the necessity of obtaining knowledge and its application in everyday life. The Quranic teachings have inspired Muslims on various branches of knowledge including mathematics and computer technology. For this, the area of mathematics has a long history of contributions by early Muslim scholars. The creation of algebra, trigonometry, and the decimal system can be traced back to the work of Muslim mathematicians during the golden age of Islamic civilisation (Ahmad, 2019). Similarly, the field of computer technology has also been affected by Islamic concepts, particularly in the fields of cryptography and security (Mamun & Islam, 2020). The application of Quranic teachings in various disciplines can lead to the development of socially responsible technologies that encourage diversity and inclusivity. Additionally, integrating Quranic concepts into mathematics and computer science sectors can increase multidisciplinary collaboration and contribute to the growth of society. The purpose of this paper is to provide an overview of the Quranic perspective on mathematics and computer technology and its impacts and benefits. Additionally, the paper analyses how best Quranic teachings can be implemented in the fields of mathematics and computer science.

## QURANIC PERSPECTIVE ON MATHEMATICS AND COMPUTER SCIENCE

The Quranic perspective on mathematics and computer science can be seen through its emphasis on knowledge, reason, and logical thinking. The Quran contains numerous verses that address the importance of seeking knowledge, pondering over the creation of the universe, and using reason and intellect to understand the world around us. The Quran in various verses alludes to mathematical concepts such as geometry, measurement, and numerical systems. Particularly in astronomy, geometry, and other mathematical ideas. The paper only mentions a few. Allah teaches humanity in the Quran that:

وَهُوَ الَّذِي خَلَقَ اللَّيْلَ وَالنَّهَارَ وَالشَّمْسَ وَالْقَمَرَ كُلٌّ فِي فَلَكٍ يَسْبَحُونَ

"And it is He who created the night and the day and the sun and the moon; all [Heavenly Bodies] swim along, each in its orbit." (Quran 21:33)

الَّذِي خَلَقَ سَبْعَ سَمَاوَاتٍ طِبَاقًا مَا تَرَى فِي خَلْقِ الرَّحْمَنِ مِنْ تَفَوتٍ فَارْجِعِ الْبَصَرَ هَلْ تَرَى مِنْ فُتُورٍ

"[He] who created seven heavens in layers. You do not see in the creation of the Most Merciful any inconsistency. So return [your] vision [to the sky]; do you see any breaks?" (Quran 67:3)

إِنَّكُمْ وَمَا تَعْبُدُونَ مِنْ دُونِ اللَّهِ حَصَبُ جَهَنَّمَ أَنْتُمْ لَهَا وَارِدُونَ

"Indeed, you [disbelievers] and what you worship other than Allah are the firewood of Hell. You will be coming to [enter] it." (Quran 21:96)

هُوَ الَّذِي خَلَقَ لَكُمْ مَا فِي الْأَرْضِ جَمِيعًا ثُمَّ اسْتَوَىٰ إِلَى السَّمَاءِ فَسَوَّاهُنَّ سَبْعَ سَمَاوَاتٍ ۗ وَهُوَ بِكُلِّ شَيْءٍ عَلِيمٌ

"It is He who created for you all of that which is on the earth. Then He directed Himself to the heaven, [His being above all creation], and made them seven heavens, and He is Knowing of all things." (Quran 2:29)

وَمَنْ يُرِدْ أَنْ يُضِلَّ اللَّهُ فَمَا لَهُ مِنْ وَلِيٍّ مِنْ بَعْدِهِ ۗ وَتَرَى الظَّالِمِينَ لَمَّا رَأَوُا الْعَذَابَ يَقُولُونَ هَلْ إِلَىٰ مَرَدٍ مِنْ سَبِيلٍ

"And whoever Allah wants to guide - He expands his breast to [contain] Islam; and whoever He wants to misguide - He makes his breast tight and constricted as though he were climbing into the sky. Thus does Allah place defilement upon those who do not believe." (Quran 6:125, Sahih International)

"Indeed, in the creation of the heavens and the earth and the alternation of the night and the day are signs for those of understanding." (Quran 3:190)

"It is Allah who erected the heavens without pillars that you [can] see." (Quran 13:2)

"And He has cast into the earth firmly set mountains, lest it shift with you." (Quran 13:3)

وَأَنْهَارًا وَسُبُلًا لَعَلَّكُمْ تَهْتَدُونَ

"And rivers and roads that you might be guided." (Quran 13:4)

"And the earth - We spread it out and cast therein firmly set mountains and made grow therein [something] of every beautiful kind." (Quran 15:19)

"Have those who disbelieved not considered that the heavens and the earth were a joined entity, and We separated them?" (Quran 21:30)

"And it is He who has merged the two seas [i.e., bodies of water]: this one sweet and fresh, and that one salty and bitter, and between them He has placed a barrier and a partition, forbidding them to intermix." (Quran 25:53)

"Is He [not best] who begins creation and then repeats it and who provides for you from the heaven and earth? Is there a deity with Allah? Say, "Produce your proof, if you should be truthful." (Quran 27:61)

اللَّهُ الَّذِي يُرْسِلُ الرِّيَّاحَ فَتَنفِثُ سَحَابًا فِيبَسُطُهَا فِي السَّمَاءِ كَيْفَ يَشَاءُ وَيَجْعَلُهُ كِسْفًا فَنَزَّلُ الْأَمْطَارَ بَرَاحًا يُبْرِئُ الْوَدْدَانَ وَيَجْعَلُ الْغُرُوبَ كَثَابًا ۗ أَلَمْ يَجْعَلْ لَكُمْ السَّمْعَ وَالْأَبْصَارَ وَالْأَفْئِدَةَ ۗ قَلِيلًا مِمَّا تُشْكُرُونَ

"It is Allah who sends the winds, and they stir the clouds and spread them in the sky however He wills, and He makes them fragments so you see the rain emerge from within them. And when He causes it to fall upon whom He wills of His servants, immediately they rejoice." (Quran 30:48)

ذَلِكُمْ اللَّهُ رَبُّكُمْ لَهُ الْمُلْكُ ۗ وَالَّذِينَ تَدْعُونَ مِنْ دُونِهِ مَا يَمْلِكُونَ مِنْ شَيْءٍ ۗ يُولِجُ اللَّيْلَ فِي النَّهَارِ وَيُولِجُ النَّهَارَ فِي اللَّيْلِ وَسَخَّرَ الشَّمْسَ وَالْقَمَرَ كُلًّا يَجْرِي لِأَجَلٍ مُسَمًّى ۗ أَلَمْ يَجْعَلْ لَكُمْ السَّمْعَ وَالْأَبْصَارَ وَالْأَفْئِدَةَ ۗ قَلِيلًا مِمَّا تُشْكُرُونَ

"He merges the night into the day, and He merges the day into the night, and He has subjected the sun and the moon - each runs its course for a specified term. That is Allah, your Lord; to Him belongs sovereignty. But those whom you invoke besides Him do not possess [as much as] the membrane of a date seed." (Quran 35:13)

"It is not allowable for the sun to reach the moon, nor does the night overtake the day, but each, in an orbit, is swimming." (Quran 36:40)

"And He placed therein firmly set mountains over its surface and blessed it and determined therein its [creatures'] sustenance in four days without distinction - for [the information] of those who ask." (Quran 41:10)

"The sun and the moon [move] by precise calculation." (Quran 55:5)

"O company of jinn and mankind, if you are able to pass beyond the regions of the heavens and the earth, then pass. You will not pass except by authority [from Allah]." (Quran 55:33)

" [He] who created seven heavens in layers. You do not see in the creation of the Most Merciful any inconsistency. So return [your] vision [to the sky]; do you see any breaks?" (Quran 67:3)

"Woe to those who give less [than due], who, when they take a measure from people, take in full. But if they give by measure or by weight to them, they cause loss. Do they not think that they will be resurrected?" (Quran 83:1-3)

"Certainly, We created man in the best form." (Quran 95:4)

"Read in the name of your Lord who created. Created man from a clinging substance. Read, and your Lord is the most Generous, who taught by the pen - taught man that which he knew not." (Quran 96:1-5)

"And if you should count the favors of Allah, you could not enumerate them. Indeed, Allah is Forgiving and Merciful." (Quran 16:18)

"And the heaven We constructed with strength, and indeed, We are [its] expander." (Quran 51:47)

"Indeed, this is a reward for you, and your effort has been appreciated." (Quran 76:29)

"Indeed, your Lord is Allah, who created the heavens and earth in six days and then established Himself above the Throne, covering the night with the day, [another night] chasing it rapidly; and [He created] the sun, the moon, and the stars, subjected by His command. Unquestionably, His is the creation and the command; blessed is Allah, Lord of the worlds." (Quran 7:54)

Having narrated several verses from the Quran, it is significant to note that Algorithms, data structures, and information theory are all examples of computer science ideas that are clearly explained in the Quran. Similarly, the Quran's view of mathematics and computer science stems from its stress on reason and logical thinking in the pursuit of knowledge and understanding of the world around us. The significance of precise measuring is emphasised in the Quran. In fact, both computer science and mathematics play important role in today's society and employing Quranic values in these areas, individuals are better able to make decisions guided by moral principles and improve the society as a whole. Mathematical algorithms and computer systems cannot be built or used without consideration of ethical issues. Justice, honesty, and taking responsibility are only some of the ethical qualities that are repeatedly emphasised throughout the Quran. The field of encryption and security is another area where the Quranic viewpoint is applicable. In this age of electronic communication, the practise of cryptography has become increasingly important. Confidentiality and privacy are part of us today.

## IMPACTS OF QURANIC PERSPECTIVE ON THE ADVANCEMENT OF MATHEMATICS AND COMPUTER SCIENCE

The Quranic perspective has had significant impacts on the advancement of mathematics and computer science, as seen through the contributions of Muslim scholars throughout history. In the early Islamic era, Muslim scholars made ground-breaking contributions to the field of mathematics, which were heavily influenced by Quranic teachings. One of the most significant contributions of Muslim scholars to science was in the field of mathematics particularly algebra, which has its roots in the Arabic word "al-jabr" meaning "reunion of broken parts." The famous mathematician Al-Khwarizmi is the father of this science. Ibn al-Haytham is another mathematician who has contributed to the field including geometry and algebra (Rashed, 1995). Algorithms was invented by Abu al-Wafa' al-Buzjani, who made significant contributions to the development of trigonometry and spherical geometry (Rashed & Armstrong, 1994). Al-Jazari made significant contributions to automated machines and laid the foundation for the development of automation

in computer science (Salim & Al-Nasrawi, 2017). Ibn al-Nafis wrote extensively on mathematics and logic and his works laid the foundation for modern computer science algorithms (Gari, 2014). Abu Kamil Shuja' ibn Aslam is the father of number theory and laid the foundation for modern geometry and algebraic concepts (Hogendijk, 2006).

## **INTEGRATION OF QURANIC PRINCIPLES INTO MATHEMATICS AND COMPUTER SCIENCE FIELDS**

The incorporation of Quranic teachings into the fields of mathematics and computer science can have numerous positive societal effects. The creation of socially responsible technologies is one of the most significant benefits. In Islam, social duty is referred to as “Maslahah,” which refers to promoting the common good and preventing harm to society. Maslahah can be applied to the creation of technologies to ensure that they are created for the benefit of society and do not cause damage. This can lead to the development of technologies that respect human rights and dignity while promoting social justice, environmental sustainability, and economic progress (Ahmed, 2020). In addition to encouraging social responsibility, the incorporation of Quranic ideas can contribute to the promotion of diversity and inclusivity in the fields of mathematics and computer science. Islam teaches that all people are equal and deserve to be treated with respect and dignity, regardless of their race, nationality, gender, or social standing. This can assist establish a more welcoming and inclusive environment in these sectors and guarantee that everyone has equal participation and contribution possibilities (Hassan, 2017).

Besides, the incorporation of Quranic concepts can facilitate inter-disciplinary cooperation. Islam - 9 -mphasizes the significance of pursuing knowledge and urges Muslims to study a variety of disciplines. This can aid in bridging the gap between disciplines and stimulate collaboration among specialists from various backgrounds. By collaborating, specialists in mathematics, computer science, and other disciplines can find novel solutions to complicated problems and achieve otherwise unattainable advances (Alkhateeb & Mousa, 2021). Incorporating Quranic concepts into the domains of mathematics and computer science has a profound impact on society and the international community. Experts in these domains can contribute to the creation of a more just and equitable world by designing socially responsible technologies and fostering diversity and inclusion. This may result in a more peaceful and wealthier world for everyone (Saeed & Saeed, 2019). In other words, the comprehensive of the Quranic teachings allows it to tackle all facets of human existence, including science and technology (Hassan, 2017).

## **RECOMMENDATIONS**

To be able to integrate Quranic teachings into mathematics and computer science one has to consider the following recommendations:

- Encouraging interdisciplinary research on the integration of Quranic teachings into mathematics and computer science.
- We need to develop curriculum that incorporate Quranic teachings into mathematics and computer science.
- Promoting diversity and inclusivity in the fields of mathematics and computer science by recognizing the contributions of individuals from Quranic backgrounds.
- Providing opportunities for double majors in all university level academic programs.
- Proving Quranic views in the field of cybersecurity and cryptography.
- Emphasizing the importance of Quranic values in teaching mathematics and computer science

The integration of Quranic values into the fields of mathematics and computer science can bring numerous benefits to society. From the development of socially responsible technologies to promoting diversity and inclusivity, enhancing interdisciplinary collaboration, and contributing to a more just and equitable world, the application of Quranic values and principles can play a significant role in these fields. Therefore, it is important for experts in these fields to consider how they can integrate Quranic principles into their work to promote the common good and prevent harm to society.

## **CONCLUDING REMARKS AND FINDINGS**

The research finds that Quranic teachings and principles are compatible with the principles of mathematics and computer science. The Quranic perspective encourages precision and accuracy, which are fundamental to these fields. The integration of Quranic principles into mathematics and computer science can provide valuable insights and perspectives that can benefit humanity. However, further research is needed to explore the relationship between Quranic perspective and these fields. The paper recommends that Muslim scholars continue to evaluate the works of their predecessors to gain a deeper understanding of the Quranic perspective on mathematics and computer science. My final take is that computer science is a discipline that involves the understanding and design of computational processes and systems. Mathematics is an abstract science of number, quantity, and space. Both are therefore among the most important sciences for human, intellectual and material, life; at the same time, they are both one category of knowledge that constantly involves every level of societal conditions. Necessarily therefore, teaching mathematics and computer science should not be made one-dimensional and mechanical in nature, and in approach. In other words, what we need is to refine and develop these fields into useful values of social and human relevance; a process that will de-mechanize and de-abstract both; and the only way to do that is to infuse Quranic values into both fields.

## REFERENCES

1. Ahmad, S. (2019). Muslim contributions to mathematics. In S. Kazmi & S. Ahmad (Eds.), *Islamic perspectives on science and technology: Selected conference papers* (pp. 1-15). Springer.
2. Mamun, A. A., & Islam, M. M. (2020). Cryptography and information security in the Quran and Sunnah. *Journal of Islamic Banking and Finance*, 37(4), 83-92.
3. Ahmad, S. (2019). Muslim contributions to mathematics. In S. Kazmi & S. Ahmad (Eds.), *Islamic perspectives on science and technology: Selected conference papers* (pp. 1-15). Springer.
4. Mamun, A. A., & Islam, M. M. (2020). Cryptography and information security in the Quran and Sunnah. *Journal of Islamic Banking and Finance*, 37(4), 83-92.
5. Abdul-Rahman, H. (1996). Al-Khwarizmi: The father of algebra. *The College Mathematics Journal*, 27(2), 87-91. doi: 10.1080/07468342.1996.11973680
6. Alshawi, M. (2019). Islam, artificial intelligence and robots: A journey of Islamic principles and technologies. *Science, Technology and Society*, 24(3), 523-537. doi: 10.1177/0971721819856625
7. Rashed, R. (1995). Al-Hasan ibn al-Haytham. In *Encyclopaedia of the history of science, technology, and medicine in non-western cultures* (pp. 8-9). Springer.
8. Rashed, R., & Armstrong, A. (1994). Abu'l-Wafa' Al-Buzjani. In *Encyclopaedia of the history of science, technology, and medicine in non-western cultures* (pp. 1-2). Springer.
9. Gari, L. (2014). Ibn al-Nafis and the discovery of the pulmonary circulation. *Journal of Medical Biography*, 22(4), 208-213. doi: 10.1177/0967772014523777
10. Hogendijk, J. P. (2006). Abu Kamil Shuja' ibn Aslam. In *Encyclopaedia of the history of science, technology, and medicine in non-western cultures* (pp. 1-2). Springer.
11. Salim, S., & Al-Nasrawi, S. (2017). The impact of Islamic civilization on the development of modern engineering. *Journal of Education and Practice*, 8(6), 66-76.

12. Hossain, M. M., & Masud, M. A. (2017). Cryptography from an Islamic perspective. *International Journal of Computer Science and Security (IJCSS)*, 11(1), 28-35.
13. Khan, M. A. (2019). Ethical considerations in data collection, analysis, and reporting: A perspective from Islamic teachings. *Pakistan Journal of Medical Sciences*, 35(4), 1044-1047. doi: 10.12669/pjms.35.4.556
14. Ahmed, M. (2020). *Islam and science: A historical and contemporary overview*. Routledge.
15. Alkhateeb, A. H., & Mousa, A. H. (2021). Islamic perspective on interdisciplinary research: A literature review. *Journal of Interdisciplinary Research*, 3(1), 10-20.
16. Hassan, R. (2017). The integration of Islamic values in computer science and engineering curricula. *International Journal of Education and Information Technologies*, 11(1), 49-57.
17. Saeed, M. A., & Saeed, M. (2019). Islamic perspective on science and technology. In *Islam and Science: The Philosophical and Theological Implications* (pp. 47-59). Springer.