

Synergy between Art and Science

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Abstract - Science and art have always been considered poles apart and have been taught as different mediums. Are these two really at odds with each other or are they complementary? This research paper seeks to find out the same.

Key Words: Art, Science, Synergy, Bio art, Geometry

1. INTRODUCTION

Science and arts have always been considered as similar as chalk and cheese. Most scientists do not think of art as a medium to disseminate scientific information. But recent research has proved that rather being as dissimilar as men from Mars and women from Venus, science and art are in fact two parts which together make a complete whole, just like Ardhanarishwar (divine god- half male and half female). Arts and science have been neatly divided into two different divisions from times immemorial. These divisions have been challenged by some prominent personalities, historically; it is only recently that these two streams now appear to be merging rather than being distinct.

2. ART AND SCIENCE- SIMILAR OR DISSIMILAR?

Art and science are fundamentally the same. They both attempt to comprehend and express the world we live in. They, however, have different methodology and are identified with different genres of people, but the ultimate objective is the same. To the uninitiated they may seem like opposite poles. Science all logic and data and art dominated by emotions. However, they both share an unending inquisitiveness. Science seeks to explain the world as it exists around us and art is the artist's expression of the world around us. Man has expressed his curiosity of the world through paintings right from ice age and scientists has utilized these to understand and propound theories about the past. To make scientific discoveries, scientists need a lot of creativity and imagination. On the other hand, a lot of science is involved in creating a masterpiece in the form of angles, symmetry and even in mixing of paint in right proportions. Even theories in humanities require a lot of research and logic.

3. CONTRIBUTION OF SCIENCE TO ARTS

Just a cursory glance at the history will bring up illustrious examples of the beautiful synergy between science and arts. Albert Einstein, Leonardo da Vinci, Galileo- just to name a few. Albert Einstein, the noble prize winner in physics, once said: "If I were not a physicist, I would probably be a musician." He was a gifted violinist and used to perform at private concerts with his scientist friends as well as professional musicians. Music is considered to be an art form rather than a science but how can we forget the science behind the production of musical instruments.

Samuel Morse, the American inventor who invented telegraph system was a famous painter too. Dr. Santiago Ramon y Cajal, considered as father of neuroscience, was a prolific artist who had once envisioned spending his life in the world of art. Not only he won a noble prize was his work his detailed drawings of the microscopic cells are gracing museums and art galleries around the world.

4. CONTRIBUTION OF ARTS TO SCIENCE

It is not just science and scientists that have contributed to arts but other way round as well. Leonardo da Vinci, the famous artist and designer, was a famous polymath too who dabbled with science in his spare time. The detailing of human anatomy done by him was never done before and his contributions in the field of aerodynamics

and hydraulics are notable as well. He even invented many diverse gadgets like a parachute, a diving bell, a hydraulic press, and many more. His most famous painting, Mona Lisa, has always been a perfect mix of symmetry and color, tones, and angles. Even his other scientific drawings are very detailed and well elucidated proving his expertise as a scientist. An incredible phenomenon occurred in 2001 annotating Da Vinci's skill as a bridge designer. After 499 years of designing a bridge to be built in Istanbul, which was hailed as improbable, Artist Vebjorn Sand built the bridge in Norway using Da Vinci's designs and vision.

Another shining example of this is of Marianne North, who produced around 800 paintings of tropical plants in 19th century that serve as both historic and scientific records. Her paintings have helped scientists to understand plant adaptations and similarities between species as her paintings beautifully illustrated not only the plants but their natural habitat as well. In fact, they were considered as excellent examples of theory of natural selection by Charles Darwin.

5. PRESENT SCENARIO

Not just history, but even in present times there are various shining examples of synergy between art and science. It was an American painter by the name of Abbot Thayer who invented camouflage for soldiers. Steve Jobs, founder of Apple inc. has been hailed as an artist due to his artistic approach to designing of all Apple products. Japanese art origami has been an inspiration to various scientific inventions ranging from medicine, robotics, space, architecture and so on specially to solve the problem of fitting big things in small places. Camera was developed as a tool for scientific research and was used extensively by archeologists and botanists to document their findings. But now photography is considered more of an art than science and is widely used by artists worldwide to explore and express. Can we neatly categorize photography as an art or a science? Not just that, any medium used to create a work of art be it watercolors, oil pastels or even 3-d technology all owe it to science. With the use of science chemistry has been incorporated in making of different mediums and art has come a long way from using clay, plants and rocks for colors. With 3d technology and digitization, unparalleled new vistas have opened to arts.

6. EMERGING TRENDS

These few examples beautifully illustrate the co-existence and collaboration of arts and science, which helps us in understanding the world around us. This realization is spreading across the world and many educators are now advocating and experimenting with merging of art and science. Institutes are now redesigning course structures to ensure holistic development by incorporating subjects to suit both head and heart. The Massachusetts Institute of Technology (MIT) in Cambridge, has established a Center for Art, and Science and Technology in 2012 with the aim of integrating the arts with science and engineering research. Wolf Trap Institute in Virginia is combining subjects like math and geometry with dance. The Australian National University offers flexibility to students to complete any two degrees in four years from arts, social sciences, business, or science. In University of Sydney students can avail a four-year Bachelor of Science and Arts. A new discipline has evolved known as art therapy, which is a cross between the two fields, and involves psychotherapy with art as a tool in the healing process. Sci-art projects are becoming increasingly popular all over the world and has given rise to broadly three forms of engagements of art and science. 'Bio art' where artists are employing scientific processes to produce art. Secondly, scientists are using different forms of art to simplify and communicate science for the masses. Thirdly, artists and scientists are involved in a dialogue to exchange ideas, collectively frame questions and explore the unknown.

7. INDIAN CONTEXT

Lippan Art (mud and mirror work) is a traditional mural craft of Gujarat, India. It uses mixture of clay and camel dung to draw beautiful patterns inside as well as outside the house. It is not just aesthetically pleasing but actually helps to keep the interiors of the houses cool in the hot desert of Katchch. Bell making is a form of antique art of India but there is a lot of science behind how it is made. The bells in temples are made of a mixture of several metals. The science behind the art form, lies in the percentage in which these metals are mixed so that the sound produced lasts for at least 7 seconds in echo which is supposed to be enough to activate all 7 chakras of the body and give us a good level of concentration as we enter the temple. Coming to recent times, Indian Institute of Science has now initiated promoting the art in science. Hesitant at first, the students, discovered that with arts, they approached science from a completely different perspective, and it helped them to broaden their views.

8. CONCLUSION

In view of the above, it can be judiciously said that art and science are complementary to each other. Progress in science has led to developments in art and artistic imagination has paved way for scientific discoveries. Their collaboration is a vast reserve which has yet to be tapped to its full potential and to realize their impact on society. More such spaces are required, where scientists and artists can together challenge their way of thinking. Collectively, they can bring forth far reaching outcomes than they can apart.

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