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The Greatest Scientists Are Artists

25 July 2017



Albert Einstein famously proclaimed, *"The greatest scientists are artists as well"*. At first, such a claim seems outrageous. Surely the arts have nothing to do with $E = mc^2$, right?

In interviews, Einstein describes the source of his insight not from logic or mathematics, but rather intuition and inspiration. Science is often heralded as being rooted in knowledge and evidence, yet he maintained "imagination is more important than knowledge". Einstein explained that he used images to solve scientific problems and found words later. He went on to elaborate that he never thought in logical symbols or mathematical equations, but in images, feelings, and even musical patterns. He once said, *"If I were not a physicist, I would probably be a musician. I often think in music. I live my daydreams in music. I see my life in terms of music.... I get most joy in life out of music"*.

Delving into the data, a surprising trend appears. It seems Einstein was not alone in his approach to scientific thinking. It is reported that Nobel Prize winners are 15-25 times more likely than the average scientist to engage as an adult in fine arts, crafts, or performing arts. In one study, 82% of surveyed scientists and engineers said they would recommend arts and crafts education as a useful or even essential background for a scientific innovator. Furthermore, it was found that the most successful STEM professionals engage in the arts the most out of all scientists.

Leonardo da Vinci said, "Art is the queen of all sciences communicating knowledge to all the generations of the world." Today, he is recognised as an icon of both science and art. Da Vinci's masterpieces, the Mona Lisa and the Last Supper used innovative painting techniques, and represented the human form and gesture in new ways. He used illustrations to realise his inventions and record anatomical dissections in three-dimension illusions. Like Einstein, Da Vinci did not let his knowledge hold his imagination hostage, using analogies such as an onion as a model of the human head and a wood flying machine as a man-made bird.

Our music playlists are also full of scientists. You may be surprised to hear that Brian May, the lead guitarist of the rock band, **Queen**, is also an astrophysicist. In 1974, May abandoned his doctoral studies at London Imperial College when Queen experienced international success. He later returned and in 2008 graduated with a PhD in astrophysics. The particle physicist Brian Cox, who hosts

the BBC series Wonders of the Universe, was the keyboard player for the UK pop band D:Ream which had several top 40 hits in the 1990's.



Some of our most loved comedy actors are scientists in disguise. While Mr Bean (Rowan Atkinson) holds both a Bachelors and Masters degree in Electrical Engineering, I hope he's not involved in construction of new ATC's Senior School! Mayim Bialik, who has earned a PhD in neuroscience from UCLA is also the neuroscientist Dr Amy Farrah Fowler on The Big Bang Theory.

The benefits of an arts education have been well researched and documented. This includes developing open-mindedness, empathy, observation skills, the ability to articulate complex thoughts, focus, reasoning skills and self-awareness. In addition to scientific knowledge, it is these skills that will lead to innovative solutions in future scientific inquiries. The greatest scientists will continue to be artists as well. If you would like to discuss The Arts at ATC, please do not hesitate to contact me at any time.

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