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Journal of Medical Hypotheses and Ideas

journal homepage: www.elsevier.com/locate/jmhi



REVIEW ARTICLE

Science for the benefits of all: The way from idea to product



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Received 4 February 2014; revised 9 February 2014; accepted 10 February 2014

Available online 26 February 2014

KEYWORDS

Hypothesis;
New idea;
Science;
Technology;
Benefit of all;
Product Business center

Abstract Science is a knowledge based on hypotheses, observations, and experiments. From its very beginning science has served the humanity and will continue to do so until the needs of human being are fulfilled. History is rich of many scientists who have contributed to different fields of science free of politics, religion, cast, and region. Every human being must have the right to use science and technology for beneficial purposes. Mutual coordination between academia and industries is extremely important for the growth of science. The spread of ideas is only possible with publication and distribution of information to all in the world. Unpublished new ideas will remain hidden. With no doubt, many of publications and products get the spirit from the very first ideas. It is necessary that all scientists share their ideas, opening new opportunities for others to work in the various aspects. We are of the view that, to find a solution to our problems or satisfy human needs, it is important to ponder new ways in science, generate new ideas and share with others, so the concept of “science for the benefits of all” remain alive forever.

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History of science

The history of science is comprised of multiple eras, from pre-historic times around 3500BC, to modern era of science. Babylonian astronomy was the first and highly successful evergreen struggle, giving a refined mathematical description of astronomical phenomena. Hundreds of achievements have been made so far in various fields of science like physics, biology, chemistry, medicine, mathematics, and so on. Mohammad ibn Zakaria al-Razi (864-930 AD) an Iranian scholar and physician, also known as Rhazes, was the first who isolated alcohol. Other early scientists from Muslim world, who have contributed to modern medical sciences, are Bu Ali Sina (Avicenna), al-Kindi, and Ibn al-Nafis [1,2]. The famous Greek scientist and Plato's student, Aristotle contributed remarkably to natural sciences like biology and chemistry [3]. Isaac Newton has remained a great philosopher, astronomer, mathematician, alchemist and physicist of his time. His contribution to physics and mathematics is priceless. One of the greatest names in history of science is Charles Darwin. His theories about nature and evolution played a landmark role in biology [4]. The brilliant theories of photoelectric effect offered by Albert Einstein, has significantly raised more and more ideas in this area. Thomas Edison is always remembered as the great inventor of the electric bulb [5]. Louis Pasteur will always be remembered for his contribution to medical sciences; the germ theory of diseases was put forward by him. He also reported that virus is not detectable by microscope and also developed the process of pasteurization [6,7]. Ibnul-Haitham, Bu Ali Sina (Avicenna), Jabir Ibn Hayyan, Al-Khwarizmi, Gregor Mendel, Marconi, and Faraday are all those who came up with brilliant novel ideas in various aspects of science, and left publications from themselves that have been pursued by other scientists.

Science either invents a new idea or disapproves old ones [8,9]. Novel discoveries are made in different disciplines, and scientists are enthusiastic to discover new ideas for the actual benefit of humanity [10]. In modern periods of science, the new area of genetic engineering, has revolutionized science and has opened many new windows of inconceivable possibilities.

Frontiers and future of science

Science should not be limited to a place, race, culture or region; in fact it should be regarded as the basic human right around the globe. Each innovation in science and technology should be transferred from one side of the universe to the other and from one generation to another generation whole-heartedly. Currently, some scientific inventions are critical, like treatment strategies for newly born diseases that unfortunately have no cure at the moment.

Scientific invention and discoveries have made many things possible, which were once thought impossible in the past and still more potential is expected in future: new techniques, new galaxies, new planets and perhaps existence of life on them, and so on. Science is the main tool to explore the hidden secret of world for the betterment of human life. The body of knowledge produced by science undergoes constant changes. Until the human's curiosity of satisfying needs remains present, scientific developments will yet continue. We should realize that today's theories might become outmoded ideas in future [11,12]. Thus, all scientists should share their ideas with generating publications and thus others will be inspired to work on different aspects of those. The first lesson is therefore to write and share the ideas.

Science and publications

Scientific researches are communicated in the form of publications or conferences, etc. Currently, assessment of "scientists research quality" is based on the number of publications, citation and impact factors of the journals in which the publications appear. These citations and impact factors might improve the career of individual researcher, but in long run, these parameters set so far, may not actually offer anything to the public life. One reason for the delayed contribution of science to the society could possibly be the fact that scientific findings need time to be proved realistic in the day to day life. Whenever a new idea or a novel hypothesis is developed, it undergoes a series of scientific reviews and extensive confirmatory studies before it becomes either a product or a service to the society. In the last decade, many researchers from all over the world have contributed to valuable publications. In this regard, Iran is a good example, which has shown amazing growth in publications, and some of those novel discoveries are moving towards productions [13]. However, it takes time to fulfill all aspects of the science chain [14] especially with all due limitations [15]. Therefore, the second lesson is that although the quantity of publications is important, it is necessary to promote and follow up those ideas and findings, in order to meet common benefits of society.

Role of business centers in science

At present, science has become a very large scale business enterprise. In order to maintain a high quality infrastructure, it requires a huge sum of financial resources. Collaborations between the academia and industries are necessary. This mutual bond will facilitate new researches and perhaps enabling novel inventions and discoveries based on the public demands. In addition to financial needs, scientists who gave the ideas, performed the studies and published their findings are not always capable of going further, due to their highly busy

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