

# Science for Non-Scientist

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## INTRODUCTION

I would prefer to start with this wonderful quote, once said by Albert Einstein, "Imagination is more important than knowledge". Yes, of course; action is the by-product of our thoughts or it may be said that the imagination comes before action. Let's look back into history, since time immemorial; mankind is getting benefitted from 'Science & technology' by prominent heroes of the earth and society has given them special honor and privilege. They have truly changed the face of life, but that was the era of a few scientists who contributed individually.

It is true that innovation has always been done by a few and masses take the benefits for centuries and several generations. Therefore, the expectations from a scientist are always higher as the ultimate of science is to serve the different sectors of the societies. For example, industries want science to make more money, the government wants science to enable development, citizens want science to change their lifestyle as well as standard to provide them clean air, fresh water, and at the same time make their life safer and more enjoyable.

Interestingly, the idiopathic image of a scientist in our mind is almost established and that appears with a grey-haired spectacled, perhaps with a beard and of course, with a white lab coat. This caricature contains several other features that we have come to associate with a 'Scientist' who can be found contemplating for long in isolation exploring recondite ideas and society looks at him with respect. We know that the applications of science have been drawn into many things for the immediate use of the society and nation.

"Science" is under the sky, so cannot be limited up to those who study science only. The majority of the greatest inventions were done by non-professionals in the past. So, the opportunity is open for all to contribute and anyone can be a scientist without exactly studying science. The life of science goes through sustainable development. A development for the next generation is to understand its needs. Still many new inventions are yet to be done, but a special observation and absorption is the key to formulate new ideas, which might turn into new investigations on the path of real scientific services.

We remember the connection between Newton's discovery and apple similarly, James Watt's invention with kettle who exemplified their ideas in limited resources. There were many great inventors who barely completed their formal education but gave new dimensions to science & technology since knowledge and talent have no boundaries. Research starts with an idea and its implementation which doesn't require the proximity of a laboratory.

Behind a great invention, there is always an idea, an idea that needs to be thought of, that needs to be tested, and if found working then needs to be applied to achieve the ends. An idea might come from an individual not from masses; mind it.

## Role of A Scientist and Youth:

A Scientist plays between a triangle of Research, teaching and services.

Research enhances the vitality of teaching, teaching lifts the standards of services and services open the new avenues of investigations. There is a difference between knowledge and wisdom which both often looks similar. Knowledge can be acquired from scriptures and text books but wisdom comes from experience and consciousness. Thus, is it enough to be tested on the text books and to pass the exams for getting the degree only?

Today, Science needs future oriented youths. As our problems are new, so older solutions cannot work. As life is constantly changing and information is changing very rapidly. Roughly, every generation changes in 20 years. Youth may have problems but it also has the potential. Similarly, older generation (The experienced) might have the solutions. So the gap between both the generations has to be bridged, joining a common forum. Unfortunately, if focus is given to university research, resources and infrastructure available to individual scientists are less, thus there is no pace in their work. Therefore, students often learn sophisticated research methods and approach elsewhere outside their university. Later on youths prefer to migrate to western countries for higher studies where they meet all requirements, a good excuse! The universities have not done their job if they produce an army of youths with a degree alone.

It's obvious that youths now demand or expect employment, but they somehow ignore the fact that their education somewhere needs to be implemented selflessly. Rather asking for employment, youth has to think to create employment and to understand that everyone cannot get employment. Modern youth needs to be an entrepreneur and start his own enterprise. Young researchers need to be proactive, vigil and attentive besides their routine and repetitive work. The youth has to apply their knowledge to enhance discipline in learning, and also use it as a tool that could produce meaningful materials for society. The next century belongs to India, which will become a unique intellectual powerhouse. On the other hand, the time has come that scientific community stands up for scientific reasons.

If India wants to become a genuine “Science Superpower”, Indian scientist will have to do much more than just getting integrated into corporate research and development. They must develop a genuine culture of open, fearless questioning and experimentation within their laboratories as well as in the larger culture outside the walls of the laboratory.

This will require an overhaul of science education so that science is not treated merely as a route of learning technical formulas, but is integrated into a new secular understanding of nature and need of life. It is not enough for the institutions of higher learning in India to produce good researchers, doctors, and engineers who can perform well in the west. It is the need of the hour that we must produce critical thinkers who engage themselves with larger issues that affect the cultural climate of their country.

Scientists have to work as a workforce, not just as an academy of scholars and youths have to face this challenge. They must provide new dimensions of living and learning which can make life more prosperous and healthier for humanity.

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