

Science and Education

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What is Science?

- ❖ Science is the understanding of Nature. For this we have to search. The search will never end, because it is so vast and complex. And because it includes the mind with which we do the search.
- ❖ Science includes the world of the living and the non-living, outside us. This is the science we study in schools and Colleges.
- ❖ But it also includes the mind and how it interacts with the outside world. How does the mind 'see' 'hear', 'feel'? How do the sensory messages travel inside the human body, what do they do, how does the body record, remember them, how does it react to them?
- ❖ This understanding is based on the cause and effect relationship as seen through our mind.
- ❖ But we accept it only when it is common to all.

Science is Universal; It is not sectarian.

How do we make a fire? If we know the properties of all substances, and then we can say what material, we should take and how we process it so that we can produce fire. That how a matchstick was produced. Similarly we found out what should be done so that we can see what is shows thousands of miles away and T.V. was discovered. Where we did not know, we (re) searched. So science is finding out the properties of nature. If we understand the properties, we can use the properties to meet our needs.

If we know how the body works and how the mind and body interact. We now how the outside world reacts with the body, then, we can know what to do to correct any problems that arise or even better to avoid these problems in the first place.

If we no how nature works, If we know how our body works, if we know how the mind works and interacts with the body, then we should be able to find how we can make the mind happy, happy all the time. This was the thinking of ancient people and they searched for this happiness and called it Dharma -Gunadhama - Properties.

This Dharma was not sectarian; it was applicable to all, and for all times. So it included science of the outside world also. But those wise men were more interested in knowing about the science of the mind and body. So science is understanding nature so that we can live in tune with it and be happy.

There is no question of obeying the rules. Every thing happens as per the properties. Alkali and acid react because that is their nature Dharma. Fire burns, water cools etc. Mind reacts in a definite way. Each reaction produces certain effects.

In such complex systems there are many alternate pathways. Like a water drop falling on the ground will breakup in many possible ways. But the probability is that it will splash according to a predictable pattern. If the drop had consciousness, could it choose from the different probabilities?

So Even in this complexity, there are patterns that we can expect. If we know the nature of things, or if we find by trial and error, or by experiment, we can get patterns that we want, avoid patterns that we do not want. In this Dharma or science about mind and how to keep it happy eternally, the knowledge is vast.

At some stage the later period, some people tried to simplify this knowledge to make it accessible to ordinary people. There were inaccuracies and misunderstanding, and these different schools thought became 'religions'.

But science remained non-sectarian. It developed from knowledge to knowledge and to day it has spread over the whole world.

Methods of Science.

How do we know anything, from observation, through our sensory organs? There is no other way Logic? That also is based on our sensory perceptions. When we put our hand near the fire, it burns. When we begin to associate events with earlier events, we develop cause and effect relations, and a set of these cause and effect relationships give the logic. So when we talk of logic and reasoning, we are still dependent on our sensory perceptions. Science or the understanding of nature - the outside world is our model of how it works. When we find the most people have the same model, we have more confidence in it.

Methods of science are therefore, observation, making a hypothesis, and testing it on future occasions. This surprisingly is also the inherent nature of human mind. Scientific method in short is to observe, record, analyze, and then experiment. As said before, this is the natural method of the human mind and is seen in operation in children. (Except recording on paper.)

The Method of science is universal, because the most important experiences are common to all and the results and conclusions will be the same. But where there are differences in interpretation, we make use of earlier wider experiences and see which fits the situation better.

Role of Books in Learning Science.

Language is an invention born out of need. It is very useful. But it cannot replace experience. All language communication, whether as spoken words, or printed matter, are only communicating a way of arranging earlier experiences so that they make sense. But if these experiences do not exist for an individual that text makes no sense; to that person.

So teaching through lectures and books is useful only in amplifying earlier experience, that is knowledge. But multiplication of zero by anything is zero. So without earlier relevant experience, words make zero sense. That is not Knowledge. That is why our education system that is near totally dependent on words, is incomprehensible to most students.

The remedy is action work. That was the Mantra of Swami Vivekananda. We need action - that alone will increase our knowledge - that will be amplified by written text.