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Role of Applied Sciences in Engineering & Technology

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Abstract

The Department of Applied Sciences plays a unique and distinctive role in an institute where the ethos of Science and Technology prevails. It is believed that Engineering and Science are, by their very nature, humanistic and socially derived enterprises; hence the department helps the students to apply the scientific principles along-with human, moral and social understanding. Teaching methods in Applied Sciences emphasize the discursive mode and interpersonal contact between faculty and students. Original contributions to Research in Science and Technology and to ongoing debates in development policy, economic activity and environmental studies are crucial within this department.. The Departmental faculty members are Guides for various projects and M.Tech, M.Phil, PhDs.

Keywords: *Applied Sciences, Comparison, Core subjects, Engineering &Technology.*

INTRODUCTION

As we know, the Department of Applied Sciences is always meant to impart training not merely in the fundamentals of science and technology but also in innovative thinking. This is likely to be of utmost importance in a rapidly changing world where the nature of knowledge has been transformed almost beyond recognition.[1] It can and must respond with vigor to the challenges posed by the global dilemmas of the new millennium. Department of Applied Sciences and Humanities, in perfect conformity and commendable balance, is a Department that serves as the bed-rock on which any reputed Institute is firmly structured. This becomes a foundation for the professional college that aims at creating dedicated Engineers who prove to be authentic pillars that serve as a strong edifice of the nation.[2] The main motto of the department is:

"To strengthen the conceptual frame work, lay strong foundation, imbibe core essential basics, comfort in training and communication are the vistas which the department fosters and noises? The understanding of these areas is the prime focus of the department of Applied Sciences and Humanities."

RESEARCH METHOD

Science from the Latin *scientia* (knowledge) is a system of acquiring knowledge based on the scientific method, as well as the organized body of knowledge gained through such research. Science as defined here is sometimes termed pure science to differentiate it from applied science, which is the application of scientific research to specific human needs. Technology is a broad concept that deals with a species' usage and knowledge of tools and crafts, and how it affects a species ability to control and adapt to its environment. In human society, it is a consequence of science and engineering, although several technological advances predate the two concepts. Science refers to a system of acquiring knowledge.[9] This system uses observation and experimentation to describe and explain natural phenomena. The term science also refers to the organized body of knowledge people have gained using that system.

Comparison chart of Science & Technology

Focus	Science	Technology
Goal	Pursuit of knowledge and understanding for its own sake (New knowledge)	The creation of artifacts and systems to meet people's needs (New products)
Motto	Reductionism, involving the isolation and definition of distinct concepts	Holism, involving the integration of many competing demands, theories, data and ideas
Mission	The search for and theorizing about cause.	The search for and theorizing about new processes.
Focus	Focuses on understanding natural phenomena	focuses on understanding the made environment
Result Relevance	Making virtually value-free statements	Activities always value-laden
Evaluation	Analysis, generalization and creation	Analysis and synthesis of design

Focus Methods	**Science** of theories	**Technology**
Goals achieved through	Corresponding Scientific Processes	Key Technological Processes
Development Methods	Discovery (controlled by experimentation)	Design, invention, production
Most observed quality	Drawing correct conclusions based on good theories and accurate data Experimental and logical skills	Taking good decisions based on incomplete data and approximate models Design, construction, testing, planning, quality
Skills needed to excel	Needed	assurance, problem solving, decision making, interpersonal and communication skills

Bigelow's phrase "the practical applications of science" points to the root of much of the current confusion as to the meaning of technology. In using this phrase to describe technology he effectively placed technology beneath the umbrella of science to such an extent that science and technology are now, as Rose described, seen by many as an "indivisible pair" with technology as the subservient and dependant partner. Thus, for much of the time the pair is wrapped together into a single conceptual package known simply as "science". This point is emphasized when surfing the Internet for technology-related teaching resources. A plethora of lesson plans exist at sites dedicated to science education. The problem is, though, that many of these lessons should properly be termed "technology" but are all too often referred to as "Applied Science".[10]

One source of confusion is the undoubted relationship that exists between science and technology and Sparks pointed out that even though science and technology overlap in an area which might be referred to as "applied science", there are a number of important differences between the two, even though these differences might not be self-evident to an average member of the general public who, through neglect and through repeated use of the phrase "science and technology" has lost the distinction between "science" and between "technology".[11-12]

RESULTS

Science has discovered much wonderful, essential knowledge about man, animal and the universe. Science also works in a self defeating manner in not accepting new ideas. Technology

is always open to new ideas and thinks outside the box. Separating science into theoretical (pure) and applied can help. Quantum theory (theoretical) enabled our electronic device (technology) world. Scientific instruments (technology) are needed to make measurements to confirm theories (theoretical). Applied science and technology are hard to distinguish. Perhaps it is a continuum from instruments (scanning tunneling electron microscope) being closer to applied science to radios (technology). A discovery of anything that already exists is called science. An invention of a new thing using science which is not existing is called technology. Science is discovering new knowledge. Technology is application of scientific results and knowledge. ***Science is knowing while technology is doing. Science and technology have the capacity to bring development but only if the society is organized appropriately for them to do so. They have capacity to make life better or worse. The understanding of these areas is the prime focus of the department of applied sciences and humanities."***

DISCUSSION

It is evident that we face the challenge to move technology education beyond the "technology is applied science" paradigm. At the same time, we should not do so as if science hardly plays a role in technology. The current situation with a majority of technology teachers not having a sound science background can make this difficult to avoid and science teachers often are hampered by the fact that they hold the "technology is applied science" idea. Projects that develop examples of integrating science, math and technology should be used to see how a balanced view of the relationship between science and technology may be created through practical classroom activities.

To make use of the new knowledge about the relationship between science and technology in the context of Science, Technology and Society (STS) programs, a structural co-operation between technology education programs and academic STS programs is important. Another need for technology education in terms of the science-technology relationship is educational research with respect to how pupils see this relationship and how their ideas may be changed in technology education. In general, the educational research basis for technology still needs to be strengthened and extended. Here a lot can be gained from experiences in science education, where many studies into the conceptions that pupils have of scientific concepts and principles have been reported. In the building up of a sound educational research base for technology education and the translation of the outcomes to technology education and technology teacher training, there is certainly a challenge for all those who feel committed to technology education as a valuable contribution to the general education of all future citizens.

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