

# Technology Education—Much More Than Just Computers!

By Michael Wright, Ben Yates and Joseph Scarella

**Editor's Note:** This article is a clarification and response to an article in the March issue of *Techniques* in which an *educational technology* program was mistakenly labeled as *technology education*.

The word "technology" is probably one of the most misunderstood and misused terms in the English language today. Many people believe that the term is synonymous with computers, the Internet and other high-tech gadgets. This is most certainly not true!

The following excerpts are taken from the *Standards for Technological Literacy: Content for the Study of Technology* (Technology for All Americans Project, 2000).

Humans have been called the animals that make things, and at no time in history has that been so apparent as the present... Technology has been going on since humans first formed a blade from a piece of flint, harnessed fire or dragged a sharp stick across the ground to create a furrow for planting seeds, but today it exists to a degree unprecedented in history... (p. 1)

People who are unfamiliar with technology tend to think of it purely in terms of artifacts: computers, cars, televisions, toasters, pesticides, flu shots, solar cells, genetically engineered tomatoes and all the rest. But to its practitioners and to the people who

study it, technology is more accurately thought of in terms of the knowledge and the processes that create these products... (p. 9)

We are a nation increasingly dependent on technology. Yet, in spite of this dependence, U.S. society is largely ignorant of the history and fundamental nature of the technology that sustains it. The result is a public that is disengaged from the decisions that are helping shape its technological future. In a country founded on democratic principles, this is a dangerous situation... (p. v)

The following definitions may prove helpful:

*Technology*, in its broadest sense then, "is the process by which humans modify nature to meet their needs and wants." (Pearson, G. and Young, A. T., 2002, p. 2)

*Technological literacy* is defined as "the ability to use, manage, assess, and understand technology" (Technology for All Americans Project, 2000, p.9).

*Technology education* is the K-12 school program concerned with developing technological literacy in all students regardless of socio-economic status, gender, career aspirations or post-secondary education plans.

Technology education is a comprehensive curriculum area of the K-12 educational system. At the elementary and middle school levels, technology education should be part of the core education of all students (general education), providing a context or application for knowledge from other disciplines as well, and connecting school with life through career clusters. This program naturally links other school subjects with a real-world context and thus adds relevance and meaning for students. Technology education provides opportunities for students to explore many different social and workforce pathways through technological studies, and contributes to general education, career and technical education, and professional technology-based careers. It provides excellent opportunities for integrated thematic instruction in authentic contexts. It is also a vehicle for initial career awareness programs.

At the high school level it may have three broad goals, which include:

**General technological literacy.** A well-educated citizenry in the 21st century should be capable of making responsible and informed decisions regarding the control and appropriate use of technology on the job, in society and their personal lives.

**Pre-engineering/engineering-technology or other professional education.** Students interested in pursuing careers such as engineering, architecture, or as a technologist in such fields, would benefit from a foundation and thorough understanding of technology; how humans modify and control the natural world, and the consequences of their actions.

## 'ology: A Branch of Learning

**ANTHROPOLOGY:** the study of races, physical and mental characteristics, social relationships, etc.

**ARCHEOLOGY:** the study of life and culture of ancient people

**BIOLOGY:** the study of the origin, history and physical characteristics of plants and animals

**CARDIOLOGY:** the study of the heart, its functions and diseases

**CRIMINOLOGY:** the study and investigation of crime and criminals

**ECOLOGY:** the study of relationships between living organisms and their environment

**GEOLOGY:** the study of the earth's crust and individual rock types

**PSYCHOLOGY:** the study of the mind and mental processes

**SOCIOLOGY:** the study of people living together in groups

**TECHNOLOGY:** electronic stuff? NO! the study of the process by which humans modify nature to meet their needs and wants

Where science is the study of the *Natural World* (its laws and principles), technology is the study of the *Human-Built World*.

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**Pre-technical education.** Technology education may support advanced career and technical education. All technical programs apply technology in increasingly sophisticated ways. Thus, students pursuing technical fields would naturally benefit from a broad-based understanding of technology as essential preparation *prior* to specialized applications in the occupational setting.

At the high school level, technology education contributes to Tech Prep and contextual learning. It supports Tech Prep through stimulating interest in technical processes and careers at an early age—encouraging further study in technical fields. One basic thrust of contextual learning is to provide students a more “authentic” education. Much like the applied academic subjects, technology education provides a “context” from the real world for integrating other school subjects. The study of robotics, manufacturing or construction, for example, is essentially the application of science to improve efficiency, using mathematics as a language to describe and communicate, and rich with opportunities for social studies through economics and social impacts.

*Educational technology*, on the other hand, is not concerned with studying technology as a discipline, but rather is concerned with the use of various technologies to enhance the teaching/learning process in all subjects, including technology education. Whether it was the introduction of “slates” for students to cipher on, pencils to replace quill pens, videotape to replace audio tape and slides, or searching the Internet instead of the encyclopedia, all are essentially the same: using newer technologies in an effort to improve the learning process.

*Technology education*, the study of technology as a discipline, is concerned with learning about technology in its broadest forms. It studies the “human-designed world,” contrasted with science, which studies the natural world. It also studies the impacts and consequences of technology and technological processes as they interact with individuals, society and the environment.

Technology education is an essential set of knowledge, skills and values for a well-educated, productive society. Indeed, our national competitive advantage depends, in part, on the technological literacy of our citizens. The ability to think creatively, apply systems-oriented thinking and analysis, and use appropriate tools in the process is a fundamental skill required of everyone today.

Clearly, the computer is the most powerful tool ever designed by humankind. Therefore, it IS the dominant tool employed in technology education. But it is just that: a tool. Many other tools are also utilized. So in conclusion, computers may play a vital role in technology education programs, but “tech ed” is NOT just a computer class. The tool may be the same, but the subject is quite different!

*The International Technology Education Association (ITEA) and the Technology Education Division of the Association for Career and Technical Education (ACTE-TED) are the professional associations that represent technology education teachers and promote technological literacy for all.*

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Members may also sharpen their leadership skills by serving on Region II and ACTE standing committees. Committee appointments are made yearly and interested Region II members need only to indicate an interest and provide a brief resume to be considered for appointment. Joining one of the region or national committees is a great way to become more involved in our association!

## Region II Strategic Plan of Activities for FY 03

Supporting the ACTE Strategic Plan, the following goals will be the focus of all Region II activities for FY 03:

**Goal:** Advocacy

**Objective:** Increase members’ understanding of and ability to become involved in the legislative process at the local, state and national levels.

**Goal:** Professional Competency

**Objective:** Increase knowledge of members’ evolving needs, wants and expectations.

**Goal:** Recognition of CTE

**Objective:** Increase key stakeholder knowledge of the value of CTE and CTE professionals.

**Goal:** Leadership Development

**Objective:** Increase the number and variety of leadership opportunities for members.

## Region Happenings and Events

The silent and “not-so-silent” auctions held each year at the Region II Professional Development Conference raise funds to help several new professionals to attend the annual ACTE convention. Each year the auctions become more profitable and popular. It is worth a trip to the conference to see Region II’s “nationally renowned” auctioneer in action.

A small sampling of the Region II state associations’ events include legislative breakfasts and grassroots advocacy sessions, Web page design, a summer education and business summit, an e-commerce workshop, Career and Tech Week Expo, and continuing membership drives. Region II invites and welcomes all career and technical education professionals to our region and state events.

This report was written by Connie Smithson, ACTE Board vice president for Region II. For more information about Region II, contact Smithson at [thesmithsons@att.net](mailto:thesmithsons@att.net) or visit the Region II Web page at [www.acteonline.org/about/regions/region2.cfm](http://www.acteonline.org/about/regions/region2.cfm).