

# Trends

## Technology Education

DONALD MALEY

### An Interdisciplinary Movement

Traditional industrial arts is evolving into technology education, which aims to prepare students for effective participation in a technological society. One major change is that technology programs take a more holistic approach to content. Educators in this field are making a concerted effort to integrate mathematics, science, and social studies into technology content, in order to give students greater breadth of knowledge.

This transition has been propelled by workshops bringing together teachers of technology education, mathematics, and science. Three such workshops have been held at the University of Maryland; last year, similar workshops were held in El Paso, Dallas, Corpus Christi, and Houston.

*What's New.* Technology education studies tools and machines, construction, manufacturing, transportation, communications, energy, and the effects technology has on society and the environment. A technology laboratory provides traditional industrial arts materials—woods, metals, plastics—but

also includes computers, robots, wind tunnels, flow tanks, and facilities for testing materials and construction.

In contrast to traditional craft activities, laboratory activities illustrate and demonstrate concepts from science and mathematics. Such activities help students make the connection between abstract concepts and the real world. For example, students can study how and why a steam engine works, then construct a model that applies those principles. Similarly, a student can construct a section of an airplane wing and test it in a wind tunnel to better understand the con-

cepts *lift* and *drag*. Laboratory activities help students visualize and grasp scientific principles by making them tangible.

*Applying Knowledge to the World.* Students can use mathematics to calculate stresses in building a model bridge. They can apply the chemistry of combustion to understand the workings of a gasoline engine. Analyzing the engine's exhaust can bring home the problem of pollution in our cities. Through such projects, students' activities in technology lab demonstrate the relevance of what they learn in other classes.

Technology education offers a new vision of what school can be if we are willing to break down the artificial barriers between the various fields of study. In fact, the technology lab may be the only place in school where students can pull all the academic disciplines together in the context of the world beyond school. □

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## Reading

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### Writing as a Means of Reading Assessment

The use of *writing* to assess how well students read is receiving considerable interest from reading/language arts curriculum leaders. When using this form of assessment, the teacher asks students to read a selection and then write a response to what they have read. Many educators consider this method the only valid means of assessing students' progress in integrated language arts programs.

Although this method is often used in assessing writing, the use of writing as a response mode for *reading* is quite different. Writing assessment focuses on the student's writing ability.

In the development discussed here, however, writing is used to determine how well students have *read*; writing is merely the means of demonstrating reading comprehension. The teacher judges the writing based on how well the student has read the selection; for example, on whether the student can understand the ideas he or she reads in various literary genres, can identify key concepts and supporting details in nonfiction articles, or can predict events that grow out of a narrative.

Two school districts developing this form of reading assessment are Mt. Diablo, California, and River Forest, Illinois. Mt. Diablo's approach relies pri-

marily on short written responses to reading. The criteria for judging the writing emphasize the content of what has been read. In River Forest, assessment emphasizes longer writing tasks, and the evaluation criteria focus on whether students' writing reflects the thinking strategies they use in linking what they have read to what they write. Both districts will use these new assessments, along with more traditional tests, to evaluate their reading programs. Both districts have also offered inservice programs to help teachers integrate reading and writing instruction.

Perhaps the best way to assess the significance of this method is to examine why it came into being. The most

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