Technology Education

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 concepts 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

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, primarily 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
potent reason is emphasis on integrating the teaching of reading and writing. Clearly, such integration helps students make the connection between their dual roles as writers and readers. Thus, this reading/writing assessment technique builds on what teachers are doing in classrooms.

A second reason is our growing dissatisfaction with multiple-choice tests. Students report using different thinking strategies when answering multiple-choice questions than when composing written responses (Powell 1988). But which method provides a better means of assessing reading? Multiple-choice questions are better at assessing knowledge of specific facts but don’t allow for alternative ways of thinking about what has been read. Written responses, on the other hand, are open to interpretation and may not accurately reflect reading ability: some students can read well but dislike writing or just don’t write well. Almost certainly we need a variety of assessments to fully understand how—and how well—students read.

Using students’ writing to assess their reading offers several advantages. First, it provides an alternative to multiple-choice tests for assessing reading comprehension. As a means of assessing reading strategies, it provides a window on students’ thinking processes. Third, it allows more choice and creativity in responding to reading than multiple-choice tests do.

Used in conjunction with other assessments, writing in response to reading broadens our understanding of how well students are achieving.

Reference


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