

Teaching Thinking by Television

Pauline B. Gough



Trying to prove that they saw a UFO on a camping trip, Pete and Marty list what they know and need to know. Photo: AIT.

A new series of instructional television programs will reinforce basic skills while helping students learn to solve real-world problems.

Instructional television's first major response to the back-to-basics movement, the Skills Essential to Learning (SEL) Project, may help bring about important changes in the middle grade curriculum in coming years.

Among the changes would be greater use of interdisciplinary problem-solving activities. There might also be more individualization of instruction, and more emphasis on interpersonal skills and self-management.

These are some of the aims of the initial SEL series, "ThinkAbout," which is designed for fifth and sixth graders and will be in use in classrooms across the continent in September. The 60 15-minute color programs in the series were developed by a consortium of 35 state and provincial education agencies under management of the non-profit Agency for Instructional Television (AIT). The programs teach reasoning skills while they blend and review math, language, and study skills. They do it by presenting a variety of problems germane to children, and showing how children solve them. The idea is for viewers to begin to realize the value of school-learned skills in their everyday lives.

Why the emphasis on reasoning skills? Because they are more important than the subject matter skills usually stressed in the middle grade curriculum. We teach word attack skills not so that children can word-call, but so they can understand an author's literal message, make inferences beyond the printed word, and evaluate the message. We teach conventions of punctuation not for their own sake, but because the conventions

help children express thoughts and feelings with greater clarity. (The whole notion of "clarity," in fact, implies that writing is a thinking process as well as a synthesis of mechanical skills.) We teach number facts and measurement techniques not so children can do work-sheets, but so they can work out solutions to everyday problems. Similarly, study skills are supposed to help children become independent learners, people who can locate and use a variety of kinds of information.

Despite the obvious importance of reasoning, a study team that analyzed curriculum content in 1974 found that reasoning skills were seldom taught by schools in a systematic way.¹ Two years later, teachers from 16 states and provinces sorted instructional goals and listed hard-to-teach skills for "ThinkAbout" developers. They made it clear that they found reasoning skills tough to teach.

Another justification for focusing on reasoning skills came from a seminar attended by subject matter specialists and school practitioners in 1976. They agreed that fifth and sixth grade (the level of the intended "ThinkAbout" audience) is a good time to emphasize critical thinking abilities because it's an age of transition in children's intellectual capabilities. At this age, children are often ready to learn to reserve judgment, to collect and organize data, and to make judgments based on the data, according to Jerry Brown, SEL's director of instructional design. "More aware of discrepancies, they are ready to learn to apply their critical thinking abilities in a wider

range of situations and, perhaps, to become more conscious of the critical thinking process," he says.

That reasoning skills need greater classroom emphasis has been suggested more recently by Harvard sociologist Christopher Jencks, who attributes declining Scholastic Aptitude Test scores to students' problems "with more complex skills, with the students' desire or ability to reason, with lack of interest in ideas, with a shortage of information about the world around them,"² rather than to problems with the "basics" per se. Jencks based this conclusion, in part, on evidence from the 1973-74 National Assessment of Educational Progress, which showed that 17-year-olds as a group knew less about the natural sciences, wrote less coherent essays, made less accurate inferences from their reading, and were less adept at using

¹ Sources were literature on adult education programs; state educational objectives; learning theory; the elementary school curriculum; major textbooks published in the U.S. between 1969 and 1972 (For a complete list, see: *The Essential Skills Television Project: A Working Document*. Bloomington, Indiana: Agency for Instructional Television, 1975, pp. 22-25); authors and editors of standardized achievement tests (California Test of Achievement, Iowa Tests of Basic Skills, Iowa Test of Educational Development, Metropolitan Achievement, Stanford Achievement, and Sequential Test of Educational Progress); and the National Assessment of Educational Progress (NAEP).

² Christopher Jencks. "The Wrong Answer for Schools Is: (b) Back to Basics." *The Washington Post Outlook*, February 19, 1978, p. C1.



Kathy is one of three girls planning for a skating competition. Her decision to use the historical approach helps improve her skating program. Photo: AIT.

Three students are challenged by the school dietician, when they grumble over meatloaf, to plan a more popular menu. In this scene from "What Should I Do?" they plan their approaches to get the necessary information. Photo: AIT.



reference works than a similar sample of 17-year-olds in 1969-70.³

Mere knowledge of facts is not sufficient in our complex society. Today, the goal of education must be to produce young people who know how to think; how to handle the flood of information around them; how to locate, judge, and use information; and how to solve personal and societal problems. Youngsters don't need these skills in some vague and far-off future. They need them every day, to cope with relevant situations such as planning social events or vacation trips, or spending allowances wisely.

Blending Skills

Problems relevant to the lives of middle-graders, like those of adults, often require an interdisciplinary complex of skills for solution. "ThinkAbout's" blending of subject matter skills brings together language arts, mathematics, and study skills that are often taught separately in the classroom. In one "ThinkAbout" program, for example, two boys determine to prove they saw a UFO. One uses familiar sources and strategies (information-gathering in the library, note-taking at a meeting), while the other tries some unusual alternatives (tracing the strange barking they heard during the sighting, checking the local newspaper, interviewing neighbors who might have seen the object). By considering as many information sources as possible, the boys are able

to conclude that the UFO was part of an experiment from a nearby test lab.

That program focuses on deciding what information is needed to solve a problem. The reasoning process is explicitly taught through four recurring questions: What do I know? What do I need to know? Where should I go? What should I do? The problem is ultimately solved through a blend of study and subject matter skills that include using standard reference aids, performing computations with money (to pay the expenses of information collection), interviewing, using context clues to clarify meaning, and adjusting the rate of reading to suit one's purpose.

Special characteristics of television are well-suited to this kind of approach. First, television has the power to model; it can actually show children using an interdisciplinary blend of skills and a variety of different approaches to problem-solving in an economical span of time. Second, television is able to visualize the thinking process for viewers. It can show, for example, children wrestling with the four questions basic to information collection, and it can indicate a variety of alternative approaches and their possible consequences as the person on screen thinks them through. Finally, television is able to dramatize

³ Individual summaries for each subject matter area are available from National Assessment of Educational Progress, Education Commission of the States, Suite 700, 1860 Lincoln Street, Denver, Colorado 80295.



When Susan visits her uncle's farm she learns that the fish are dying in a nearby pond. She and her cousin Howard work together to uncover the mystery so the pond can be restocked. In this scene from "Natures Patterns," Susan collects data from a pond sample by performing an experiment to determine algae growth. Photo: AIT.

problem situations children meet, or could meet, in their everyday lives. Because situations such as a possible UFO sighting are realistic and interesting, viewers may be motivated to be more conscious of their own problem-solving techniques.

Teacher Follow-up Makes the Difference

Despite advantages of the medium, any real curriculum changes from a series like "Think-About" depend primarily on how teachers provide practice through follow-up activities. There seem to be at least three different ways teachers might use any particular program: to conduct skill development lessons in specific subject areas, to focus on some aspect of the program's storyline, or to focus on the reasoning and problem-solving skills presented. It probably doesn't matter which approach they use; it's what they do that matters.

Let's use the program about the UFO sighting as an example.

A teacher could conceivably decide to follow it up by handing out a worksheet in which unfamiliar words are underlined in sentences. Students would be told to figure out each word's meaning from the context provided. Or the teacher could focus on the program's storyline by asking each student to read a book about UFOs and write a book report. Or the teacher might stress the reasoning and problem-solving skills by having the class recall the information-gathering activities used by the two boys. In none of these instances is any modification of the curriculum apparent.

Another teacher might handle things quite differently. For example, the program on UFOs could lead to a skills development lesson on the techniques of interviewing (including such things as preliminary thinking about the purpose of the interview and potential questions, necessity for accuracy and ways to attain it, and so on) that might culminate in a classroom newspaper, a collection of biographical sketches on the students themselves, or perhaps a taped "radio talk show." In the same vein, the teacher might capitalize on the students' interest in UFOs by encouraging them to seek an answer to some cogent question (such as whether UFOs exist). This would involve students in a variety of reasoning and subject matter skills much like those presented in the program. Or the teacher could focus directly on the reasoning and problem-solving activities included in the program, but emphasize them in a totally different context, such as having the class discover which lunch not now included on the school menu would be preferred by most students at all grade levels in the school, and whether the lunch would be a feasible menu addition.

These kinds of broad, problem-solving activities would have some impact on the curriculum. They would force interdisciplinary blending of skills instead of discreet emphasis on individual skills. They would provide more opportunities for students to systematically and explicitly practice reasoning skills (which most teachers already teach, but not in such a direct way). They would shift the emphasis to the process of solving a given problem, with practice of skills an intrinsic necessity for reaching some broader (and probably more interesting) goal.

Broad problem-solving activities also have many facets, giving students more opportunities to make choices about the learning activities in which they engage, which means greater individualization of instruction. In addition, such activities are not completed in a single class period—sometimes they take many weeks. So students would have to practice self-management skills (budgeting of time and resources, assessing their own strengths and limitations, taking personal responsibility, using self-evaluation to guide progress). Finally, because broad problem-solving activities often demand cooperative work with partners or groups of peers, they teach interpersonal skills.

Help for Teachers

This kind of teaching is difficult and demanding, but it is already the method of choice for many teachers. The "ThinkAbout" programs and teachers' guide could reduce preparation time for such teachers by generating student interest in realistic problems and by suggesting a variety of specific, appropriately broad, and carefully outlined follow-up activities. For the teacher who is willing to try an interdisciplinary, problem-solving approach to subject matter, but who is unsure of how to go about it, "ThinkAbout" materials provide a structured and sequenced place to begin. For the teacher loath to embark on this kind of curriculum modification, students' reactions to "ThinkAbout" content might well compel at least some change in the direction of a broader, more interdisciplinary, approach.

And, if such things happen because of "ThinkAbout," the middle grade curriculum may never be quite the same.



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ASCD 1977 Yearbook

Feeling, Valuing, and the Art of Growing: Insights into the Affective

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"Safeness" and "blandness" are the antithesis of the intentions of the writers of this volume. They turn to the affective domain as a strong ally in freeing and extending the curriculum in order to strengthen education.

Writers who contributed to the volume are: Louise M. Berman and Jessie A. Roderick, co-chairpersons and co-editors; Kaoru Yamamoto, Rodman B. Webb, Philip H. Phenix, Madeleine L'Engle, Kenneth R. Beittel, Charles M. Fair, Cecil H. Patterson, Elizabeth Léonie Simpson, William D. Hedges, Marian L. Martinello, and Cathy Pope Smith.

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