

On Teaching Thinking: A Conversation with Art Costa

Editor of ASCD's popular resource book *Developing Minds*, Art Costa asserts that the results are disappointing when we teach content alone in the hope that students will also learn to think. On the other hand, the teaching of thinking skills in isolation is just as unproductive. To combine these approaches, he recommends that we select content for its relationship to thought processes. Further, he observes that administrators who model intelligent behavior are effective in creating a climate for thinking in their schools.



Photographs by Gary Irwin

For several years you've been a leading advocate of teaching thinking. How would you assess what has been accomplished so far?

I think we're making great progress. There is heightened awareness of the need for teaching thinking. Large numbers of people are attending conferences on the subject. Textbook publishers and test writers are giving increased attention to the need for more thought-provoking materials. Parents are becoming interested in developing their kids' intelligence; there have been articles in popular magazines like *Woman's Day*. Teachers are feeling a new excitement about teaching for thinking. But we still have a long way to go.

Many of your speeches and articles focus on what schools and teachers can do to foster thinking in regular classes. Does that mean you're skeptical about the value of special published programs?

No, not at all. Some of the published programs have been designed by brilliant philosophers, psychologists, and researchers. They've taken years to put together, and they've been designed with great precision and creativity.

They have benefits that might not be readily apparent. For example, we think mostly of the effects of special programs on students, but one of their greatest benefits may be their effects on teachers. I am fortunate to have been trained in several published programs, and I want to tell you that it changed my thinking. It was a glorious event for me, not only because I saw what it could do for kids, but also because I got better. As a result of Instrumental Enrichment, I am less impulsive. As a result of CoRT, I think I consider other people's points of view more now. As a result of Tactics, I think I focus and resist distraction more. These programs can have powerful residual effects on teachers.

I do have a problem, though, with simply buying a program as an add-on. That doesn't go far enough, because then it's something the 3rd grade teacher does or the social studies teacher does. If thinking is to be a core value, all the teachers—and all of the students—must be committed to it.

Does it concern you that there isn't a lot of research evidence for the effectiveness of some of the things schools are doing: writing thinking skills into the curriculum, encouraging teacher questioning behaviors, and so on? We can't guarantee that even if schools do these things, students are going to be better thinkers.

Well, that depends on what you mean by research. If you demand statistics, they're hard to find. However, when I talk with teachers, I hear convincing evidence. Teachers say they're seeing kids in a different light; they are coming to appreciate differences in their cognitive styles. And they report that students are overcoming problems like impulsivity and lack of organization. That's the kind of evidence I find impressive; it's "harder" data than inferences drawn from multiple-choice tests.

But it's difficult to evaluate the infusion of thinking in regular classes the way you would a special program.

That's correct. A published program

is designed to accomplish specific outcomes, and tests can be constructed to measure those outcomes. When teachers integrate thinking skills in with regular instruction, on the other hand, the change in student behavior is bound to be diverse and elusive. Most materials have not been designed to teach thinking.

How important is it that regular subject-matter materials have specific provisions for teaching thinking?

I would like to see more materials that have thinking skills as their central focus. For the most part they attend more to the content to be covered than to the thought processes that need to go along with it. We are entering an age, I believe, in which curriculum will be redesigned according to developmental levels. Content will be selected for what it contributes to thought processes. In history, for example, a teacher might choose a topic not only because of its historical importance, but also because it causes students to consider original sources, evaluate the adequacy of data, and distinguish fact from opinion.

That seems exactly the opposite of what people like E. D. Hirsch, Jr., and Lynne Cheney¹ say. They claim that curriculum generalists already put too much stress on process over content.

We have a lot of evidence that teaching content alone, and hoping it will cause students to learn to think, doesn't work. The teaching of content alone is not enough.

And yet those who are skeptical about teaching skills—specifically, E. D. Hirsch, Jr.—say that evidence is very strong that skills don't transfer from one content area to another.²

First, I doubt that most traditional school instruction pays much attention to transfer. Some of the published thinking skills programs, Instrumental Enrichment for example, include a bridging activity in every lesson.

Second, we have to look at the research methodology used to mea-

sure transfer. For example, the other day a teacher told me that she had taught her students about creativity, brainstorming, mind mapping, and so on. A few days later, a parent reported that when his daughter had a slumber party, and the kids had played all their games and got bored watching television, they started saying, "What'll we do now?" His daughter said, "I know; let's brainstorm." Well, isn't that transfer? Here was a situation completely different from the original setting, and yet this teenager used a technique she had learned in school.

I hear increasing numbers of anecdotes from teachers who say, "You know, we can be talking about something entirely new, and a kid will bring up a thinking skill we practiced earlier and apply it to the new content."

Some of the psychological research on transfer of skills is rather narrow. For example, researchers have subjects practice memorizing random digits until they get very good at it, but then they find they're no better at memorizing random letters of the alphabet than they were before. I assume that you're talking about skills that are more global and more meaningful?

Yes. And that brings up the whole matter of assessment. If we're going to adopt a goal of developing intelligent behavior, then we need a paradigm shift not only in how it's taught but in how it's measured. Most of our assessment procedures involve counting the number of answers students get right on tests. Now, when we think about intelligent behavior, we're concerned with how students behave when they don't know an answer. Do they persevere? Do they check for accuracy? Do they approach a problem flexibly, trying novel solutions? I don't want to throw out conventional tests, but they're not adequate for measuring intelligent behavior.

Are you primarily concerned about improving the way we assess achievement in the academic fields, or do you want to go beyond that to assess thinking as such?



Both. I'm talking about analytical behavior, about awareness of our own thought processes, of being inclined to spot problems, being able to pose questions, and so on.

But you'd also like to see changes in the way we assess achievement in mathematics and reading?

Yes. And your word *assessment* is really much better than the word *testing*, because it's broader. We've also got to look at the audience for whom the assessment is intended. Regrettably, our current testing is mostly for political purposes. I'm talking about getting feedback for teachers and other staff about the results of their efforts, so they can use it in their planning.

Do you think current testing practices are hindering the further development of teaching thinking in schools?

They certainly affect teachers' and parents' perceptions of what is important. I talk with teachers who say, "Why should I teach for thinking when I'm

being evaluated, and my students are being judged, on the basis of low-level knowledge?" I should add that when teachers do teach for thinking, their standardized test scores usually go up—but still there's a perception that teaching for thinking and the tests we use are antithetical.

That brings up the effective teaching research, which has been widely publicized in an effort to bolster achievement test scores. You've often expressed concern about use of those research findings. Are they actually incompatible with teaching thinking?

No. In fact, I try to incorporate effective teaching practices into my own teaching. What I am opposed to is translating research findings into competencies by which to measure teachers. I'm opposed to going into classrooms with checklists to see if teachers are performing those behaviors. One reason is that when you examine the effective teaching research closely, you find that some teachers don't use those behaviors but still get marvelous

results, while other teachers do all those things but get poor results. In other words, effective teaching is quite idiosyncratic.

I want research findings on effective practices to become part of the teacher's knowledge base—part of the teacher's repertoire. We should help teachers understand what is known about the effects of those behaviors on students, and teachers should decide where and when to use them depending upon the situation, the goal of their instruction, and the particular kids the teacher is dealing with.

You also advocate use of teacher behaviors that are not on most lists of "effective" teaching behaviors.

Yes, I have worked with many teachers over the years, helping them increase their repertoires of questioning strategies, of ways to organize the classroom—their range of responses to youngsters. And the results have been very positive. Teachers tell me that kids become more thoughtful, that they engage in more long-term learning rather than just "learn-it-for-now-and-forget-it-after-the-test," that classroom discussions are more intensive.

What can you say about the extent of attention to these behaviors in undergraduate teacher education?

I don't know much about that, because my field is school administration, not teacher education, but I do hope that teacher preparation institutions will focus more on teaching as thinking and teachers' ability to teach thinking. In 1984, when we were preparing *Developing Minds*,³ we searched for a description of an undergraduate program with a well-articulated thinking skills component, but we couldn't find one. Since that time a few teacher education institutions have begun to focus on teaching thinking, but I'm not aware of much interest in that theme nationwide. I would like to see teacher education programs include a core of strategies such as how to teach a concept attainment lesson, how to teach a thinking skill directly, how to organize for cooperative learning.

You mentioned teaching a thinking skill directly. An issue dividing leaders of this movement is whether skills—reading skills, for example—should be taught explicitly rather than implicitly.

Well, explicit skill teaching can be, and often is, inappropriate. Still, in day-to-day classroom life, teachers or curriculum materials often invite particular thought processes. For example, a science book might give directions for conducting an experiment and say, "What conclusions do you draw from these data?" It seems to me that if kids are going to be asked that—and I think they should—they ought to know how to draw a conclusion. Or a teacher will say, "Let's summarize some of the things we've learned about the desert." Well, what do you do when you summarize? And when a teacher says, "Let's compare the farm decline of the '30s with the farm decline of the '80s," students should know what's supposed to go on in their heads when they compare and contrast.

I don't think these skills should be taught in isolation, but I do think we should be courteous enough to let kids know what we mean when we use such terms as *classify*, *analyze*, or *infer*.

All the examples you've given are embedded within broader academic purposes. What some observers are concerned about is the idea of teaching thinking skills unrelated to any immediate academic application.

Well, that can be like memorizing the state capitals; it goes no place. It's what David Perkins calls "inert knowledge." Teaching thinking skills in isolation, without providing for transfer, is futile.

Many administrators would probably agree with the importance of teaching in such a way that students become better thinkers, but they may be a bit frustrated because it's hard to get started when teachers are already fully occupied. What have leaders done where schools have made real progress?

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Successful leaders encourage teachers to look carefully at the intelligent behavior of their own students. For example, how well do the students apply the mathematics they have learned? How well do they comprehend what they are reading? Are they impulsive? Do they follow directions well? Do they strive for accuracy? Is their language precise? Are they creative?

The next step is to talk about what we want students to do: Instead of acting impulsively, they would have a plan of action. What would it look like if they followed directions well? What kinds of problem-solving behaviors would we like to see? In other words, develop some positive visions, with indicators of what we are looking for. Then consider how to arrange the classroom, what teacher behaviors to use, and whether to purchase materials to achieve those skills.

The reason I suggest focusing on desired student behavior first is that it can be less threatening to teachers. If you begin by focusing on the skills of teaching, some teachers will take it as

criticism of the ways they have been teaching.

Another effective leadership practice is to provide for lots of teacher decision making: getting teachers to study the issues, plan their own inservice; sending them to conferences; taking time in faculty meetings for reporting back; purchasing materials for teachers to experiment with; arranging for teachers to do team planning, to share materials, to observe and coach one another; and so on.

I think administrators do best by modeling intelligent behavior themselves. As the gatekeeper of the school, the administrator is looked upon as a model and as a source of values. So if he or she spends time talking about thinking, modeling it, releasing teachers to engage in it, and purchasing materials to support it, that sends a very powerful signal to teachers about priorities and values.

Effective administrators can also bring school practices in line with thinking. For example, do report cards say anything about thinking? What about teacher evaluation and supervision? Are there provisions for engaging teachers' intellects in those procedures? What about the school's discipline code: is it behavioral, or does it appeal to students' rational processes? Administrators need to examine the policies, the organization, the practices of the school, and ask whether they support the goal of advancing thinking. □

1. E. D. Hirsch, Jr., *Cultural Literacy: What Every American Needs to Know* (Boston: Houghton Mifflin, 1987). Lynne V. Cheney, *American Memory: A Report on the Humanities in the Nation's Public Schools* (Washington, D.C.: National Endowment for the Humanities, 1987).

2. Hirsch, p. 60.

3. Arthur L. Costa, ed., *Developing Minds: A Resource Book for Teaching Thinking* (Alexandria, Va.: Association for Supervision and Curriculum Development, 1985).

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