

Exploring the Thinking of Thoughtful Teachers

The development of higher-order thinking has been and will continue to be a fundamental goal in education, despite persistent reports that it is hard to find in classrooms (Cuban 1984, Goodlad 1984, Sirotnik 1983). To remedy this situation, concerned educators have enhanced our conceptual understanding of higher-order thinking, proposed instructional practices to promote it, designed curriculum and instructional materials that emphasize it, and developed assessment techniques that attempt to measure it.

Other researchers have begun to explore how teachers think about their work. Questions that drive this research include: How do teachers think about problems and issues related to promoting students' higher-order thinking? Do outstanding teachers conceptualize their work differently from their less-than-outstanding colleagues? Do their thoughts and beliefs reveal a consistent perspective on how to promote thinking? Here I report findings from a research project that attempted to answer these questions.

Background to the Study

The 20 social studies teachers selected for this study were drawn from a pool of 48 teachers from 16 secondary schools as part of the Higher Order Thinking in the Humanities Project at the National Center on Effective Secondary Schools (for details, see Newmann 1991). We identified 10 teachers as outstanding and 10 as less than outstanding through classroom

Teachers who reflect about their own practices, value thinking, and emphasize depth over breadth of coverage tend to have classrooms with a measurable climate of thoughtfulness.

JOSEPH J. ONOSKO

observations using the following six dimensions of instructional practice related to promoting students' thinking:

1. *There is sustained examination of a few topics rather than superficial coverage of many.* As Newmann (1988) has stated, there is little to probe or analyze in a curriculum that is "a mile wide and an inch deep."
2. *The lesson displays substantive coherence and continuity.* Lessons that contain factual and conceptual inaccuracies, gaps in logic, inappropriate transitions, and so on are detrimental to the development of higher-order thinking.
3. *Students are given an appropriate amount of time to prepare responses to questions.* Research has shown that increased "wait time" results in longer, more sophisticated student responses (Tobin 1987). Wait time also suggests to students that reflection is valued.
4. *The teacher asks challenging*

questions and/or structures challenging tasks. By definition, thinking is unnecessary unless there is a problem, question, or task that challenges the mind (Schrag 1988).

5. *The teacher is a model of thoughtfulness.* Higher-order thinking involves a set of attitudes or dispositions as much as it does a set of skills or content understanding (Dewey 1933, Passmore 1967, Schrag 1988, Siegel 1988). Collectively, these dispositions might be called "thoughtfulness." Teachers model thoughtfulness by showing appreciation for students' ideas and for alternative approaches if based on sound reasoning, by acknowledging the difficulty of acquiring knowledge, and by explaining how they think through problems.

6. *Students offer explanations and reasons for their conclusions.* During lessons students must talk if teachers are to determine whether higher-order thinking is being promoted. Students must share not only their answers, ideas, and opinions, but also the reasons that support them.

The 10 teachers whose classroom practice most consistently reflected the six dimensions will hereafter be called the "high scorers." The 10 whose practice least consistently reflected the dimensions will hereafter be called the "low scorers." The remaining group of 28 "middle scorers" were not included in the study.

Incidentally, the research team did not know which teachers from the pool of 48 would eventually compose the two groups of teachers; that is, the

analysis of teachers' instructional practice to identify high and low scorers occurred months after the interview data were gathered.

We examined four areas of teachers' beliefs and theories: instructional goals, depth vs. breadth of content coverage, perceptions of students, and conceptions of thinking.

Instructional Goals

Teachers are asked to pursue a vast number of instructional goals. We were curious to see whether outstanding teachers of thinking place greater emphasis on the goal of thinking than their less successful colleagues. Here's what we found.

On a written questionnaire, high scorers unanimously mentioned the development of students' thinking as a fundamental goal of instruction, compared to only half of the low scorers. When we asked the two groups what gave them satisfaction as teachers, all of the high scorers, but only one low scorer, cited activities readily associated with thinking (for example,

"students wrestling with values and making links," "seeing kids think and express their thoughts," "students citing reasons for their position"). Low scorers, on the other hand, referred to activities that may or may not involve thinking ("when students show interest," "when they feel good about themselves," "helping them to understand the information being imparted").

Equally dramatic differences showed up during our interviews with teachers. High scorers offered more elaborate responses when discussing their goals and placed greater emphasis on developing students' thinking. For example, Harold, a high scorer, wants to cultivate attitudes and skills related to thinking. Consider his comment:

I want them to be able to study the material in my class and when they are finished with that course to be able to take the analytic skills and think through for themselves problems and situations that otherwise they would have ignored. To give them some confidence in their own mental abilities and what they can

achieve; to examine, analyze, and decide. . . . Kids need to be "crap detectors," and they have to be able to think in order to put it into motion. . . . You've got to be able to think to filter out what's garbage and what's not; what's meaningful and what's not. The mind is a wonderful thing students can learn to use. It's not something that happens automatically. I really have a motivation to want them to think. It bothers me if they don't use their minds.

Except for two members, low scorers' responses to the question about instructional goals were generally much shorter and lacked the articulate, impassioned elaboration of high scorers — regardless of the goal cited. In addition, they emphasized teacher transmission rather than student exploration and critique of ideas. For example, unlike Harold, who has kids filtering, analyzing, and deciding, low scorer Laura wants her students to "know," "understand," and "pick up" knowledge:

I want to relate my lesson to students' own lives. My goal is to have them know economic concepts that can help them become productive members of society. This can be as basic as staying in high school! In

Teachers who pose challenging questions and encourage in-depth investigation of topics promote higher-order thinking in students.



government the goal is to have them understand that these laws are for them, that this democracy is for them, to know their rights. This applies mostly to the humanities students. The economics and government students are at a higher level, so I expect them to pick up more content in addition to relating it to their own lives.

Depth vs. Breadth

Clear, effective thinking about topics and issues requires a certain degree of immersion or depth of study. Immersion often comes in conflict with efforts to expose students to a breadth of content. We were curious to see how teachers think about the coverage dilemma.

Though both groups of teachers unanimously acknowledged their conflict over the issue, high scorers were more likely to believe content coverage impedes students' thinking and in turn were more willing to reduce coverage to pursue the goal of thinking. Further, high scorers identified their pressure to cover material as externally imposed (by the department chair, colleagues, state guidelines, and tests), whereas low scorers identified themselves as their primary source of coverage pressure.

Harold's statement is representative of many high scorers' disdain for extensive content coverage:

I do not preoccupy myself with finishing the curriculum. Instead, I attempt to teach whatever I teach well and select classroom topics and materials very carefully. . . . It's ludicrous to attempt to cover 100 years of history in a month or two. I focus on concepts and ideas. The problem with most courses is that they are survey courses that are homogenized.

Conversely, Laura's statement highlights low scorers' self-imposed breadth orientation and awareness of

Using six dimensions of classroom practice that appear to promote thinking, we identified 10 teachers as outstanding and 10 as less than outstanding.

its negative effect on promoting students' thinking:

I'm more survey oriented. There's a conflict in my head, but I go for coverage. The kids like it, I like it, exposure is important. If they know a little, they can go on to further understanding themselves or in college. . . . Often times I feel like I squeeze information in and am not able to cover it all. It becomes a survey course. . . . Often times this reduces the ability to use critical thinking skills because you want to try to cover the material more quickly.

Perceptions of Students

Research has documented the powerful impact teachers' perceptions of students have on their instructional practices and student achievement. Our analysis of teachers' perceptions of students revealed a defeatist orientation among half of all low scorers compared to none among the high scorers. While high scorers often acknowledged the difficulty of getting students to think (especially low achievers or early in the school year), their statements did not indicate frustration toward students or resignation

about trying to promote their thinking. Instead, most high scorers expressed optimism about the prospects of engaging students' minds.

Group differences in the perception of students can be observed in the statements of low scorer Leonard and high scorer Howard. Leonard complains of student disinterest and low motivation, implicitly exonerating himself from responsibility for students' less-than-adequate performance:

What is most disappointing is that the students aren't interested in learning. . . . They are just not willing to put much effort into school. Their attention span is short, and they are apathetic. . . . High achievers can be just as apathetic as low achievers.

Howard, on the other hand, believes that students of all achievement levels are capable of "responding favorably" to challenging tasks and that teachers must persist in challenging them. For Howard, factors that have created student resistance to thinking tasks can be overcome:

I believe many or even most students find a thinking task challenging and interesting. Some see it as too difficult and too much trouble. If the task is presented to them reasonably well, they respond favorably. . . . To think requires a lot more time and a lot more effort. But it is possible to change their attitudes. . . . There are a lot of teachers who could do more of it. . . . A lot of kids with limitations have been told, "You can't do this or that," so they aren't too motivated. Thinking can be fun. Low achievers can show good, solid thinking.

Conceptions of Thinking

Many staff development and reform efforts have assumed that developing teachers' conceptual understanding of

thinking will help improve teachers' instruction in this area. We found that compared to low scorers, high scorers manifested lengthier, more elaborate, and more precise perspectives on what thinking entails. In part, this involves a greater ability to indicate the kinds of behaviors students and teachers should exhibit in a thoughtful classroom (for example, "critique but also defend a position," "understand the relevance of data to a central theme," "determine points of view and identify their effects," "formulate hypotheses and subject some to criticism").

In addition, high scorers identified a greater number of intellectual dispositions (curiosity, confidence, a thirst for reasons, willingness to take risk) and intellectual skills (interpret information, generalize from data, formulate conclusions) that cognitive scientists and other researchers typically associate with good thinkers.

Finally, high scorers include in their statements points of clarification and subtle but important distinctions between their own views and possible alternative conceptions. For example, high scorer Hans challenges the notion that Benjamin Bloom's taxonomy of cognitive processes should be viewed hierarchically, observing that a Level Two "comprehension" question may be of greater difficulty to students than a Level Six "evaluation" question. In addition, he takes aim at skill approaches to thinking by calling "mindless" any activities that are not tied to the goal of understanding subject matter. Harriet, in her discussion of thinking, disagreed with the view that students need direct instruction in logical fallacies to become good thinkers. A third high scorer, Hilary, argued that "intellectual curiosity" can be cultivated and therefore should be distinguished from

Our conclusion is that thoughtful classroom practice requires thoughtful reflection on practice.

"cognitive capacity," which is physiologically determined. Distinctions of this kind were not found in the conceptions of thinking offered by low scorers.

Thoughtful Reflection on Practice

We began our study to compare outstanding teachers of thinking with their less successful colleagues. We looked at teachers' instructional goals, whether they emphasized depth or breadth of content coverage, their perceptions of students, and their understanding of thinking. What we found is that there is a correlation between teachers' goals and perspectives and the climate of thoughtfulness we perceived in their classrooms.

Reform efforts in the area of thinking that focus primarily on "how to" instructional techniques and that minimize opportunities for teachers to reflect upon and reconceptualize facets of their teaching are unlikely to produce significant, long-term change. Our conclusion is that thoughtful classroom practice requires thoughtful reflection on practice. □

References

Cuban, L. (1984). *How Teachers Taught: Constancy and Change in American*

- Classrooms: 1890-1980*. New York: Longman.
- Dewey, J. (1933). *How We Think*. Boston: D.C. Heath.
- Goodlad, J. (1984). *A Place Called School: Prospects for the Future*. New York: McGraw-Hill.
- Newmann, F. M. (1988). "Can Depth Replace Coverage in the High School Curriculum?" *Phi Delta Kappan* 68, 5: 345-348.
- Newmann, F. M. (1991). "Promoting Higher Order Thinking in Social Studies: Overview of a Study of Sixteen High School Departments." *Theory and Research in Social Education* 19, 4: 323-339.
- Passmore, J. (1967). "On Teaching To Be Critical." In *The Concept of Education*, edited by R. S. Peters. London: Routledge and Kegan Paul.
- Schrag, F. (1988). *Thinking in School and Society*. New York: Routledge and Kegan Paul.
- Siegel, H. (1988). *Educating Reason*. New York: Routledge and Kegan Paul.
- Sirotnik, K. (1983). "What You See Is What You Get — Constancy, Persistence, and Mediocrity in Classrooms." *Harvard Educational Review* 53, 1: 16-31.
- Tobin, K. (1987). "The Role of Wait Time in Higher Cognitive Level Learning." *Review of Educational Research* 57, 1: 69-95.

Author's note: This paper was supported by the National Center on Effective Secondary Schools; the U.S. Department of Education, Office of Educational Research and Improvement (Grant No. G-008690007); and the Wisconsin Center for Education Research, School of Education, University of Wisconsin-Madison. Contributions to this work have been made by Fred Newmann, Dae-Dong Hahn, Bruce King, Jim Ladwig, Robert Stevenson, Cameron McCarthy, Francis Schrag, and the cooperative staff in 16 high schools. The opinions expressed in this publication are mine and do not necessarily reflect the views of the supporting agencies or the contributors.

Joseph J. Onosko is Assistant Professor, University of New Hampshire, Department of Education, Morrill Hall, Durham, NH 03824-3595.

Copyright © 1992 by the Association for Supervision and Curriculum Development. All rights reserved.