Thanks, We Needed That—

A Report

on the NSF Reports

Ron Brandt and other members of the ASCD Dissemination Team

A major study sponsored by the National Science Foundation yields a sobering picture of instruction in science, mathematics, and social studies.

There is a scene in an old movie—maybe in several of them—in which a character, confused and afraid, begins sobbing and babbling incoherently. Another character slaps him hard across the face, whereupon he regains his composure and says, "Thanks. I needed that."

Reading the reports of the National Science Foundation (NSF) studies is a sobering experience. Seven thick volumes, the reports are heavy reading in more ways than one. NSF commissioned the studies in the aftermath of two decades of effort at local, state, and national levels to reform the curriculum of elementary and secondary schools. The idea was to find out what had been accomplished so far in science, mathematics, and social studies education as the basis for further long-range planning.

The reports are of three types. There is a survey (Weiss, 1978) that summarizes information such as what courses are offered and how many students are enrolled. It also includes self-reports from teachers about the methods and materials they use, the amounts and kinds of help available to them, and so on.

Three extensive literature reviews—one each for science (Helgeson and others, 1978), mathematics (Suydam and Osborne, 1978), and social studies (Wiley and Race, 1978)—summarize the most important research reports and other material published from 1955 to 1975.

Complementing the other reports is a set of case studies (Stake and Easley, 1978, Vol. I), each containing the observations and impressions of a qualified evaluator who made an intensive study of a particular school district. Several additional chapters summarize the observations (Stake and Easley, 1978, Vol. II).

The three-way approach (survey, literature reviews, case studies) produces a three dimensional effect. Together the reports present a more complete picture than would any one by itself.

The ASCD team charged with summarizing the findings and suggesting implications viewed the reports in several different ways. First, we selected what we thought was most pertinent to the roles and interests of ASCD members, most of whom are administrators, curriculum directors, supervisors, and others responsible for curriculum and support services. Second,

1 Benjamin Ebersole, Baltimore County (Maryland) Schools; Thomas Gibney, University of Toledo (Ohio); Edward Karns, Parma (Ohio) Public Schools; Ruth Long, ASCD Associate Director; Gerald Ponder, North Texas State University, Denton; Ronald Stodghill, St. Louis (Missouri) Public Schools; and Robert Yager, University of Iowa, Iowa City.

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we looked for the unexpected: points that seemed to us somewhat surprising. Finally, we sought regularities: patterns that occurred repeatedly across sites and studies.

Paradoxically, the first conclusion one might draw from all that information is that we know very little. We do not know for sure what is actually being taught or how it is being taught in classrooms across America. We do not know how it compares with what was taught 20 or 30 years ago because we did not have that kind of information then either. We do not know much about effects on students—either the effects of what is now being taught, or what the effects would be if things were done differently.

For example, NSF has encouraged use of inductive teaching methods, often referred to as “inquiry” or “discovery.” Asked if they used inquiry, many teachers reported that they did, but observers who visited classrooms saw little evidence of it (Stake and Easley, Vol. II, p. 12:8). Moreover, the instructional programs that NSF helped develop, many of which incorporate inquiry methods, are not widely used (Wiley and Race, p. 322; Weiss, p. 80).

At least we know that students would benefit if teachers did use inquiry. Or do we? Those who reviewed the research say no such claim can be made. For example, “There is relatively little solid evidence to substantiate the widespread belief (among social studies educators) that critical thinking methods are superior to other approaches” (Wiley and Race, p. 192).

The reports do not have all the answers, then, but at least they help us know what we do not know. Of course, they do much more than that. They tell us that the curriculum reform movement had some influence on American education. Programs developed with NSF support are used in many schools. Quite a few teachers (albeit a minority) continue to teach them as intended by their developers—inquiry and all. Recent materials produced by commercial publishers incorporate many of the ideas introduced by those programs. And a substantial number of teachers are probably better informed, more capable, and more confident as a result of having attended summer institutes sponsored by NSF.

We also “know” other things from reading these reports. We may have known them intuitively before, but the reports substantiate them. For example, within a narrow range of possibilities, what is taught and how it is taught vary from one teacher to another. In most cases the content of a single textbook is the basis for the curriculum; the variability is in the emphasis given to topics and in the teacher’s personal style.

Individualization and inquiry are rarely used; the most common teaching method is some form of “recitation”: the teacher asking questions, explaining, or giving directions; the students listening, answering questions, solving problems, or filling out worksheets.

This situation exists, much to the despair of those who would like to change it, not because teachers are lazy or unimaginative, but apparently because of the realities of life in classrooms. In the articles that follow, we will summarize these realities and then suggest some implications.


References


