Promoting Effective Instructional Methods: Solutions to America's Educational Crisis

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America has the most effective instructional methods in the world—yet we are not *using* them. That is the sad conclusion to be drawn from the July 1988 special issue of *Youth Policy* devoted to effective instructional methods, and from the widely published facts about America's increasing educational gap in relation to the other developed countries.

We spend more than any other nation on children's education, yet our children lag behind those of nearly every other developed nation in basic skills achievement. Americans have designed teaching methods which, when applied, virtually *eliminate* the problems of basic skills deficiency. Yet these very methods encounter resistance throughout the American educational establishment.

The Precision Teaching Project, in Great Falls, Montana, demonstrated that 20 to 30 minutes per day of Precision Teaching practice and measurement could improve elementary school students' basic skills achievement test scores by averages of 20 to 40 percentile points, compared with other schools in the district, depending on the skill area measured. This is an improvement of unprecedented magnitude with an extremely low price-tag. After a few years of Precision Teaching in one Great Falls school, students were no longer being diagnosed as "learning disabled" because they were learning at rapid rates to high levels of proficiency or "fluency" (Binder, 1988). These results have been replicated and expanded in classrooms throughout North America. Yet Precision Teaching remains an unpopular approach among educators.

Project Follow Through, the largest and most expensive educational experiment in American history (Watkins, 1988), demonstrated that Direct Instruction from the University of Oregon was by far the most effective method of all those evaluated (not including Precision Teaching) for teaching basic skills, fostering positive self-concept, and improving conceptual abilities. Yet it received less continued funding than any other method.

If we have such effective instructional methods, why aren't they being *used*? Watkins's (1988) analysis of the contingencies that govern adoption of instructional methods and materials in the educational establishment suggested that there are vested interests and philosophical barriers throughout all levels of the American educational system that virtually preclude adoption of measurably superior instructional technologies. A premise of Watkins's analysis was that an understanding of the factors preventing change among policy-makers, education professors, teachers, school administrators, publishers and

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the public, might help us to successfully effect change. The purpose of this article is to present further evidence of resistance to effective instruction and to report recent and planned efforts to achieve more widespread use of effective teaching methods in American schools.

Continued Resistance to Effective Instructional Methods

Interestingly, *educators in other countries seem more receptive to effective instructional technology than American educators.* Becker (1984) estimated that at least 5 million children in the English-speaking world are currently taught with Direct Instruction programs. Direct Instruction has been introduced in seven African nations, and there are adaptations of the programs operating in other non-English speaking countries. Precision Teaching has been well-received in Mexico during recent years, further evidence that those in other countries are willing to use what *works*.

Failure of the American educational establishment to adopt demonstrably effective instructional methods suggests that educational decisions are based on factors other than measured effectiveness. During a recent interview with the authors, Siegfried Engelmann (co-developer of Direct Instruction) described *two examples of decision-making that explicitly ignored performance data.*

Engelmann recounted that in the most recent round of Follow Through budgeting, the Direct Instruction model was funded at the lowest level of all sponsors, despite repeated demonstrations of superior effectiveness. It is difficult to specify the factors that determine allocations of funds, but clearly funding decisions are *not* based on performance. If funding were contingent on demonstrated program effectiveness, we would expect the Direct Instruction model to receive the highest funding, or at least a higher level of funding than sponsors of less effective (or ineffective) programs. In fact, it seems reasonable to expect that funding would be discontinued for models that have been unable to demonstrate measurable gains. This, however, has not been the case, despite evidence that continued funding does not improve the effectiveness of previously ineffective programs and that some of the funded programs produced results that were actually *worse* than average public school results (Watkins, 1988).

The history of the Follow Through experiment and its still-evolving effects constitute a case study of how the educational establishment operates. As in other bureaucracies, it is composed of parochial vested interests that work either to preserve the status quo or advance a self-serving agenda. The educational establishment's vested interes[illegible] have effectively prevented the largest experiment in history on instr[illegible]onal methods (costing almost one billion dollars) from having the impact on daily classroom pratice that its results clearly warranted.

—Cathy L. Watkins, 1988

A second case involved the state of California's failure to adopt "Reading Mastery" (a Direct Instruction program) as an approved curriculum. According to Engelmann, California's Administrative Procedures Act (APA) specifies that "learner verification," evidence of the program's effectiveness, should be considered in program evaluation. However, the state's 1989 textbook adoption procedures stated explicitly that learner verification would not be considered as a criterion for adoption.

Effective Programs Demand a Shift in Thinking

One of the major obstructions to effective teaching methodology is that it implies a "paradigm shift"—a profound change in thinking about

Project Follow Through: Excerpts from Watkins's 1988 Article

The design of the Follow Through experiment has come to be known as planned variation. This approach was based on the notion that a variety of curricula and instructional methods consistent with alternative philosophies of learning could be designed, implemented and evaluated. The plan, based on the novel concept of model sponsors, was that the Office of Education would contract with a number of developers of educational approaches. These developers would then act as sponsors of their approaches and work cooperatively with local school districts to implement the models in Follow Through classrooms.

For evaluation purposes, the models were divided into three broad categories according to their areas of primary emphasis. The Basic Skills category included models that focused primarily on directly teaching fundamental skills in reading, arithmetic, spelling and language. The Cognitive-Conceptual category was composed of models that intended to develop "learning-to-learn" and problem-solving skills. Models in the Affective-Cognitive category emphasized development of self-concept and positive attitudes toward learning, and, secondarily, "learning-to-learn" skills.

For each subtest, evaluators compared the performance of Follow Through children in a given site group with designated comparison groups. This process resulted in more than 2,000 comparisons. The results of this complicated analysis were published in four volumes *Education as Experimentation: A Planned Variation Model*, from which the primary effects presented here are summarized.

- Models that emphasized basic skills succeeded better than other models in helping children gain these skills.
- Where models emphasized other skills, the children they served tended to score lower on tests of basic skills than they would have done without Follow Through.
- No type of model was notably more successful than the others in raising scores on cognitive conceptual skills.
- Models that emphasize basic skills produced better results on tests of self-concept than did other models.
- It is misleading to make the claim that instruction in a Basic Skills model leads to academic success and improved self-concept. Significant differences on both categories of measures were observed for only two of the four Basic Skills models, Direct Instruction and Behavior Analysis. The other Basic Skills models did have positive average effects on measures in the affective domain but they had negative average effects on measures of basic skills.

The Follow Through experiment was intended to answer the question "what works" in educating disadvantaged children. If education is defined as the acquisition of academic skills, the results of the Follow Through experiment provide a clear answer to the question. The evidence indicates that the instructional methods used in the Direct Instruction and Behavior Analysis models are most effective in teaching the skills necessary for basic literacy and

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how people learn and what constitutes effective teaching. Although musicians, athletes, and other "performers" have always understood the importance of carefully designed training and sufficient practice, few educators carry these essentials into the classroom. Perhaps more important, most current educational practice is based on developmental theories which assume children cannot learn "until they are ready" and which view education more as a "nurturing" process than as a

matter of direct, responsive teaching for results. Such theories provide ample room for excusing educational failures, absolving educators of responsibility, and attaching diagnostic labels to increasing numbers of children.

In order to appreciate and use effective instructional methods, educators must understand that students learn what they are taught, and that they master what they practice. Teaching, by definition, is not merely exposing students to information or skills. It is arranging an instructional environment (procedures and materials) in such a way that students become able to behave differently, to exhibit the desired skills and knowledge in the intended fashion. This suggests that if students learn the wrong things, or if they fail to learn, it is the fault of our teaching methods, *not* of our students. Assuming such a level of responsibility requires extraordinary commitment and expertise on the part of educators. But results, such as those demonstrated by Precision Teaching and Direct Instruction, suggest that this assumption is correct. In fact, practitioners of these methods have been able to teach basic skills to virtually all children, and in many cases have been able to "erase" diagnoses of "learning disabled" or "retarded" that resulted from previously ineffective teaching programs. Many Americans are concerned about our "basic skills" crisis. Government leaders have raised this problem to top priority. Corporations have begun to express their concern with significant investments and cooperative efforts with schools. However, many of these efforts miss the critical point. Rather than blaming our educational crisis on a lack of computers, incorrect student-to-teacher ratios, inner city turmoil, drugs, television, broken families, or other factors outside the classroom (and therefore beyond educators' control and responsibility), *we must directly challenge ineffective instructional methods*. Project Follow Through, the Precision Teaching Project and other research cited in a previous issue of this journal (*Youth Policy*, July, 1988) have documented teaching methods which produce dramatically better results than those now used in most classrooms. We must therefore acknowledge that the solution to our problems lies primarily in changing methods of instruction, and only secondarily outside the classroom.

Efforts To Promote Effective Instructional Methods

For many years, the developers of effective instructional methods have been relatively ineffective in promoting their own products on a broad scale. In general, these instructional technologists have been either scientists, who are not inclined toward public activism, or practitioners, whose scope of influence often reaches only to the walls of their classrooms. Recently, however, the developers and practitioners of Precision Teaching, Direct Instruction and other measurably effective teaching methods have begun to respond more actively, and to plan more strategically.

After more than 20 years of developing and publishing measurably superior instructional programs, Engelmann (co-founder of Direct Instruction) has become convinced that direct legal action may be a primary means of effecting change. In a recent interview with the authors of this article, he described his suit against the California Department of Education, the State Board of Education, and State Curriculum Commission, prompted by their failure to adopt textbooks on the basis of demonstrated effectiveness. In brief, *Engelmann's recent victory in this case culminated in a California Superior Court ruling that (1) the State is mandated to follow the California Administrative Procedures Act (APA) specification that "learner verification" should be considered in program evaluation, and (2) the procedures and criteria associated with the 1989 text book adoption process are null and void.* This ruling establishes a major precedent which Engelmann intends to use in subsequent legal actions in other states. It has profound implications for text book publishers and the educational establishment as a whole, where testing, revision, publication, and adoption of teaching materials have generally *not* been based on direct measures of students' learning and performance. This ruling

Excerpts from *Engelmann* v. *State Board of Education* (1989)

Pursuant to the APA [Administrative Procedures Act], any state agency which proposes to adopt, amend or repeal regulations must provide the public with notice of the proposed regulatory action, a statement of the reasons and factual basis for the regulatory action, and an opportunity to comment on the action. (Gov. Code §§ 11346.4, 11346.5, 11346.7, 11346.8.) The agency must also consider and state reasons for accepting or rejecting the comments submitted by members of the public; establish a "rulemaking file" of all documents gathered during the proceedings on proposed regulations; and submit the rulemaking file to the Office of Administrative Law for review of whether the proposed regulations are necessary, legally authorized, consistent with law, clearly written and nonduplicative of statutes or existing regulations. (Gov. Code §§ 11346.7, 11347.3, 11349, 11349.1-11349.4.) Upon approval of the Office of Administrative Law, the agency must file the regulations with the Secretary of State (Gov. Code §11343).

If agency policies and procedures are regulations within the meaning of the APA and are not specifically exempted by statute from APA procedural requirements for regulations, the policies and procedures must be adopted, amended or repealed in compliance with APA requirements. (See Gov. Code §§11346, 11347.5, 11351.) Such policies and procedures are legally void and ineffective in the absence of APA compliance. (*Ibid.*; *Armstrong* v. *State Personnel Board*, *supra*, 22 Cal.3d 198, 204.)...

Respondents admit that the board did not comply with APA procedural requirements for the adoption of regulations when it approved policies and procedures, standards and evaluation instruments for the 1988 adoption of instructional materials in the subject categories of reading and language arts. Accordingly, the Court concludes that these policies and procedures, standards and evaluation instruments are void and ineffective.

could require significant changes in the process whereby text book writers and publishers bring their products to market.

In another effort, a group of instructional technologists is preparing to launch a major strategic planning and activism campaign to alert decision-makers to the existence of measurably superior instructional methods. Dr. Claudia McDade, Director of the Center for Individualized Instruction at Jacksonville State University (Alabama), is organizing a one and one-half day (May 27-28) strategic planning conference entitled "Enhancing Instructional Technology: From Research to Reality," to be held prior to the 1990 Association for Behavior Analysis convention in Nashville. This event will bring together a group of educators, program developers and administrators, and interested corporate and public-sector leaders to begin developing a strategic plan and to assume responsibility for specific tasks in an effort to promote effective instructional methods. The core of this group will consist of Precision Teaching and Direct Instruction developers and practitioners.

Following up on the Nashville event, the Ninth International Precision Teaching Conference, to be held in Boston in October 1990, will provide a more public forum for discussing and extending the effort. Using Boston's access to the media and proximity to many corporate and government leaders, the Boston conference will draw together practitioners of Precision Teaching and Direct Instruction to continue their strategizing, and to communicate more broadly to both private and public sector leaders the existence of measurably superior instructional solutions.

These events, and the ongoing consideration that they reflect, represent an increasingly active and organized response to the deepening American educational crisis by those who have

been developing and practicing effective instructional technology during the past several decades.

Publishing Efforts

One of the important means of disseminating educational methods is publishing textbooks and materials. In this respect, the developers of Direct Instruction have been extremely productive, publishing nearly 50 commercial programs over the last several decades (most notably, the DISTAR programs published by SRA). Practitioners of Precision Teaching have been less productive in the commercial sense, although Precision Teaching Materials and Associates, Inc. maintains a "materials bank" of more than 20,000 pages of Precision Teaching materials, and provides training resources based on development which occurred during the eight years of federally funded training and dissemination conducted by the the Precision Teaching Project.

Dr. Kent Johnson, Director of the Morningside Academy in Seattle, has been developing curriculum materials and teaching procedures for high school and adult illiterate populations for nearly 10 years. Like an increasing number of other practitioners and developers, he has combined the methods and principles of Direct Instruction and Precision Teaching to create highly effective teaching methods and curriculum materials. Dr. Johnson reports, for example, that *at the Morningside Academy, adolescents and adults with literacy needs routinely experience two grade levels of growth in two skills per month.* This learning rate contrasts with the *typical two to three grade-equivalent months of growth per year* that these students formerly exhibited in public school programs and represents a 3,000 to 10,000 percent improvement in monthly academic growth. The good news is that Dr. Johnson is now embarking on a publishing project which will make the products of his research and development available to the larger educational community.

Effective Instruction is Effective Humanism

One of the common objections by educators to Precision Teaching, Direct Instruction and similar effective instructional technology is that it is "too behavioral"—the implication being that such methods are somehow impersonal or inhumane. However, the very reason that these teaching methods work is that they respond to individual measures of performance and error patterns, provide careful correction and prompting, and address the specific needs of individuals. One could argue that in effectively teaching what students need to know in order to succeed, *these methods are more humane than procedures that fail to teach and then blame failure on students themselves.*

Siegfried Engelmann argues that many of the typical criticisms of effective instructional methods represent "misplaced humanism." "It is one thing to express concern," he says. "It's another to *do* something about it."

We submit that the promotion and implementation of measurably superior instructional technology may be one of the most important things we, as concerned citizens and professionals, can do now for the future of our children and of our nation. *We propose that effective instructional methods are effective humanism.*

References and Resources

Becker, W.C. "Direct Instruction: A Twenty Year Review." Paper presented at the annual Banff International Conference on Behavioral Science.(1984, March).

Binder, C. "Precision Teaching: Measuring and Attaining Exemplary Academic Achievement." *Youth Policy*. Youth Policy Institute, Washington, DC. 10(7), July, 1988.

Watkins, C.L. "Project Follow Through: A Story of the Identification and Neglect of Effective Instruction." *Youth Policy*. Youth Policy Institute, Washington, DC. 10(7), July, 1988.

For information about...

Precision Teaching materials and training:

Precision Teaching Materials and Associates,15 Crossroads, Suite 230, Sarasota, FL 34239; (813) 923-8600.

Direct Instruction materials and training:

Engelmann-Becker Corporation, 805 Lincoln, Eugene, OR 97401; (503) 485-1163.

Morningside Academy:

Dr. Kent Johnson, Morningside Academy, 810 18th Ave., Room 105, Seattle, WA 98122.

International Precision Teaching Conference in Boston, October, 1990:

Dr. Carl Binder, PT/MS, Inc., P.O. Box 169, Nonantum, MA 02195; (617) 332-2656.