Efforts To Promote Measurably Superior Instructional Methods in Schools

by Carl Binder

For more than 25 years, small groups of educational researchers and practitioners have been developing and refining instructional methods aimed at producing large measurable gains in academic achievement, problem-solving skills, and students' self-esteem. In fact, we now *have* teaching methods which have been shown capable of solving America's "basic skills crisis." However, because the developers and practitioners of these methods have not successfully "marketed" their work, only relatively few educators are aware of these methods. Despite validated research showing that children, adolescents, and adults can master academic skills and knowledge far more rapidly and thoroughly than generally occurs in regular public school programs (often despite adverse socioeconomic conditions), these measurably superior methods have not yet gained widespread use.

Now a number of those who have been involved with these methods feel obligated to spread the word. Our mission is to inform a broader audience of educators, policy-makers, corporate leaders and the general public that such methods exist, that they are cost-effective, and that training and materials exist to support implementation across a broad range of curriculum areas and student populations. We are committed to a systematic effort to identify and communicate with those who are concerned about solving the American educational crisis and who want to help communicate this message to others.

The three most thoroughly validated of these instructional methodologies are Precision Teaching, Direct Instruction, and the Personalized System of Instruction.

Precision Teaching

Precision Teaching began in 1965 with the design by Dr. Ogden Lindsley (then of Harvard University) of the Standard Behavior Chart, a standardized graph on which students and their teachers record and monitor performance and learning. Precision Teaching is an approach to instruction based on daily practice and direct measurement of skills, charting of performance on the Standard Chart, and participation in education goal-setting and decision-making by students, based on their charted "learning pictures."

A key premise of Precision Teaching is that mastery is "fluency"—a combination of accuracy *plus speed* of performance. It is intuitively obvious, and the data show, that true mastery of any skill or knowledge is not merely a matter of performing correctly or accurately. Rather, true mastery is "automatic" or "second nature"—the ability to perform a skill or use knowledge without hesitation. Precision Teachers directly measure both the accuracy and the speed or pace of performance, chart it on the Standard Chart as "count per minute" of specific behaviors or products (e.g., problems solved, words written or read, ideas generated), and set "fluency aims" toward which students work and by which they gauge their individual progress. In technical terms, Precision Teaching is fluency-based criterion-referenced instruction. It offers a powerful means of setting objectively defined performance standards, enabling students to attain them, and assessing overall progress.

In the early 1970's, the Precision Teaching Project in Great Falls, Montana, demon-

strated that with just 20 to 30 minutes per day of Precision Teaching practice and charting, in addition to the usual classroom activities, over a period of 3 years students increased their basic skills achievement test scores by an average of 20 to 40 percentile points (depending on skill area) as compared with students who did not use Precision Teaching. These results led to Federal validation by the Joint Dissemination Review Panel of the Department of Education, and support for teacher training through the National Diffusion Network. Results from schools in many locations throughout North America have confirmed or exceeded the magnitude of these gains in a variety of student populations, from handicapped and very young children through college and graduate students and even corporate trainees. Clearly, Precision Teaching is a very powerful teaching methodology from which millions more teachers and students might benefit, given the opportunity.

Direct Instruction

Direct Instruction was originally developed by Siegfried Engelmann and Wesley Becker (now of the University of Oregon), beginning during the 1960's at the University of Illinois. Based on systematic instructional design and principles of small group management, Direct Instruction has generated hundreds of research studies on the details of curriculum design, instructional sequencing, student management techniques, and teacher-training methods.

Direct Instruction involves brief teaching sessions, carefully sequenced and managed to teach specific skills and concepts. Use of carefully selected examples and individualized error-correction procedures in response to different types of errors moves students in small steps from entry-level to full acquisition of skills and knowledge.

During the 1970's, Direct Instruction was evaluated as a part of Project Follow Through, said to be the most expensive Federally funded educational experiment in American history. In comparisons with regular public school programs and more than 20 other educational models representing the full range of instructional philosophy and method, Direct Instruction proved far superior to all other approaches enabling students to master basic skills, attain conceptual and problem-solving abilities, and achieve high levels of self-esteem. These results were confirmed in independent analyses by both the Stanford Research Institute and Abt Associates, of Cambridge, Massachusetts. (By comparison, many of the methods that were evaluated in Project Follow Through proved *less* effective than typical public school programs.)

Engelmann and his associates have published over 50 instructional programs covering a range of skills and populations, as well as hundreds of articles and numerous books. The Association for Direct Instruction, Engelmann-Becker Corporation, and several university-based programs provide materials and training for teachers in Direct Instruction methods.

Personalized System of Instruction

The Personalized System of Instruction was originally developed by Fred S. Keller and J. Gilmour Sherman at Columbia University and the University of Sao Paulo in Brazil during the 1960's. PSI, sometimes called the Keller Plan, is most often used with advanced learners—those who have reading, writing, and study skills. Instructors of PSI courses divide course material into small units, usually about 1 1/2 times the number of weeks in a study term. For each unit they write study guides consisting of questions, exercises, and comments to guide students' study, as well as quizzes or interview protocols. Students proceed at their own pace, taking quizes or interviews on each successive unit. Proctors (other students who have previously mastered the material) immediately score the quizzes, face-to-face with the students. If students achieve a high performance level (usually 90 percent correct or better), they proceed to the next unit. If they score less than the specified level, proctors provide feedback and suggestions for re-study. After a period of re-study students may try again on another version of the quiz. There is no penalty for repeated quiz attempts; mastery of each unit is all that matters. In PSI courses all students have the opportunity to achieve the highest possible performance (and grade) levels.

Hundreds of published studies in curriculum areas ranging from philosophy and English to chemistry, physics, and engineering have confirmed the superiority of PSI over courses using conventional lecture and discussion methods.

In recent years, practitioners of Precision Teaching and Direct Instruction have combined the methods to create materials and programs that are more powerful than either method used alone. Some PSI instructors incorporate Precision Teaching methods into their courses, including fluency aims and use of charts in place of accuracy criteria. Many of these dedicated teachers and researchers are now turning toward the task of communicating with a wider audience about proven educational solutions.

Corporate Involvement in Education

Corporations and their leaders have become increasingly concerned about the failure of American education. America spends more per capita than any other developed nation on its educational system and receives less in return. Recent studies suggest that if American colleges were to adopt acceptance criteria as stringent as those used in Australia,

Great Britain, Germany, and other developed nations, more than half of the current American college student population would not have been admitted to college. As corporate leaders watch these and other statistics with growing alarm, they have begun to suggest and promote a range of possible solutions.

A recent special issue of *Fortune* magazine, devoted entirely to the topic of corporate involvement in education, documents many of the efforts of our leading corporations in this area. Many of these efforts to improve schools apply good management practices, use of incentives, free market principles, and other variables that drive corporate performance. Many advocate greater use of computer technology and other cost-effective instructional delivery systems (e.g., Bowsher, 1989). A growing number of public sector policy makers and proponents of school reform are voicing similar suggestions.

Many educators, policy makers, and corporate leaders explain the troubled educational system by pointing to such variables as drugs in the schools, single-parent homes, excessive TV, and other factors beyond the control of classroom teachers. Sadly, these explanations provide convenient excuses for the failure to teach effectively. Almost none of the participants in this debate address the issue of effective instructional method. Most educators assume that teachers know how to teach effectively, despite the fact that teachers' colleges generally do not include systematic instructional design or rigorous training in data-based teaching procedures in their curricula. There is a general lack of awareness of the existence of measurably superior instructional methods—those approaches that produce steady gains in achievement at rates that are orders of magnitude greater than what is accomplished in most public school programs. It is now time to inform a much broader audience that such methods exist.

International Precision Teaching Conference

On October 31 through November 3, 1990, the 9th International Precision Teaching Conference will take place at the Boston Park Plaza Hotel and Towers. Bringing together Precision Teachers as well as practitioners of Direct Instruction and PSI, this conference will focus participants' attention on the need to communicate the existence of measurably superior instructional methods to a wider audience. Organizers of the conference are actively soliciting the participation of policy makers, business and government leaders, the media, and members of the general public who are concerned about the need to improve education in America. A pre-conference Strategic Planning Workshop will focus on efforts to promote awareness and adoption of measurably superior instructional methods as a part of the solution to the current educational crisis.

For More Information

For further information about these methods and efforts to promote them (including the 9th International Precision Teaching Conference), contact Dr. Carl Binder, Precision Teaching and Management Systems, Inc., PO Box 169, Nonantum, MA 02195 (617) 332-2656. Additional written materials and videotapes are available.

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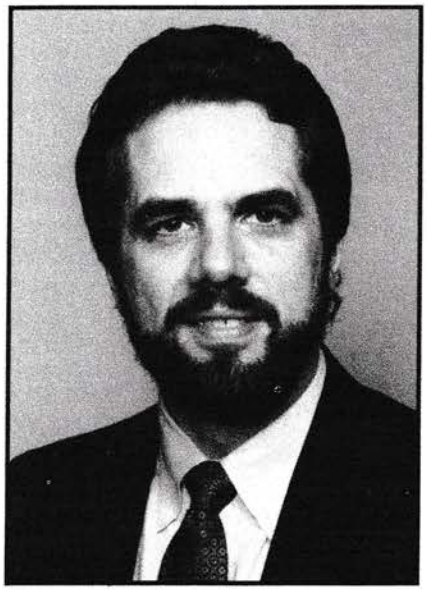

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