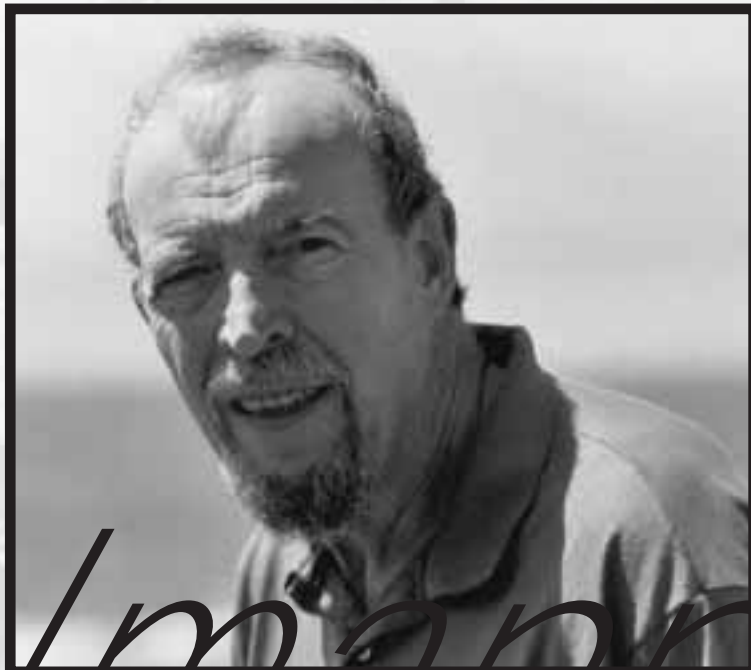


Special Feature



Zig Engelmann

“Here’s to the crazy ones, the misfits, the rebels, the troublemakers, the round pegs in square holes, the ones that see things differently. They are not fond of rules, and they have no respect for the status quo. You can quote them, disagree with them, glorify them or vilify them. About the only thing you can’t do is ignore them, because they change things. They push the human race forward. And while some may see them as the crazy ones, we see genius. Because the people who are crazy enough to think that they can change the world...are the ones who do.”

(Excerpt from an Apple commercial)

The editorial team of the Utah Special Educator is dedicated to offering the best of WHAT WORKS, in both breadth and depth. This month, we take great pride in “going deep” and presenting this special feature on Zig Engelmann to our readers. No single instructional approach or program has been as extensively researched and written about as Direct Instruction. Use the phrase “Direct Instruction” or “DI” in the midst of veteran teachers and you are sure to get strong and immediate reactions. Those who know it best and use it love it; many who do not use it hate it; but few are ambivalent and without an opinion. Just what is

this DI thing anyway, and why should educators care? The real question should be, “Are we serious about helping ALL kids?” If the answer is an honest YES, and if we adopt the WHATEVER IT TAKES approach, then we need to know about this seminal work and the man behind it. Any discussion of Responsiveness to Intervention (RtI), requiring the application of “scientifically-evidenced, research-based instruction” is incomplete without the background knowledge and research of DI and the work of its main author. From an unpublished manuscript, Zig Engelmann talks about the humanistic philosophy behind his work.

In Zig Engelmann's words:

After we lay out a series of activities for teaching the subject, we have a choice. We can either say, "We're done. The program is completed, and it will work," or we can try out our rough-draft product in the classroom. We'll choose the latter alternative because we have some concern for the kids, and we're not arrogant enough to assume that the sequence we created in the sterile confines of our office will automatically translate into lively, effective instruction in the classroom.

If we are humanists, we begin with the obvious fact that the children we work with are perfectly capable of learning anything that we have to teach. We further recognize that we should be able to engineer the learning so that it is reinforcing—perhaps not "fun," but challenging and engaging. We then proceed to do it—not to continue talking about it. We try to control these variables that are potentially within our control so that they facilitate learning. We train the teacher, design the program, work out a reasonable daily schedule, and leave NOTHING TO CHANCE. We monitor and we respond quickly to problems. We respond quickly and effectively because we consider the problems moral and we conceive of ourselves as providing a uniquely important function—particularly for those children who would most certainly fail without our concerted help. We function as advocates for the children, with the understanding that if we fail, the children will be seriously pre-empted from doing things with their lives, such as having important career options and achieving some potential values for society. We should respond to inadequate teaching as

we would to problems of physical abuse. Just as our sense of humanity would not permit us to allow child abuse in the physical sense, we should not tolerate it in the cognitive setting. We should be intolerant because we *know* what can be achieved if children are taught appropriately. We know that the intellectual crippling of children is caused overwhelmingly by faulty instruction—not by faulty children.

Because of these convictions, we have little tolerance for traditional educational establishments. We feel that they must be changed so they achieve the goals of actually *helping all children*.

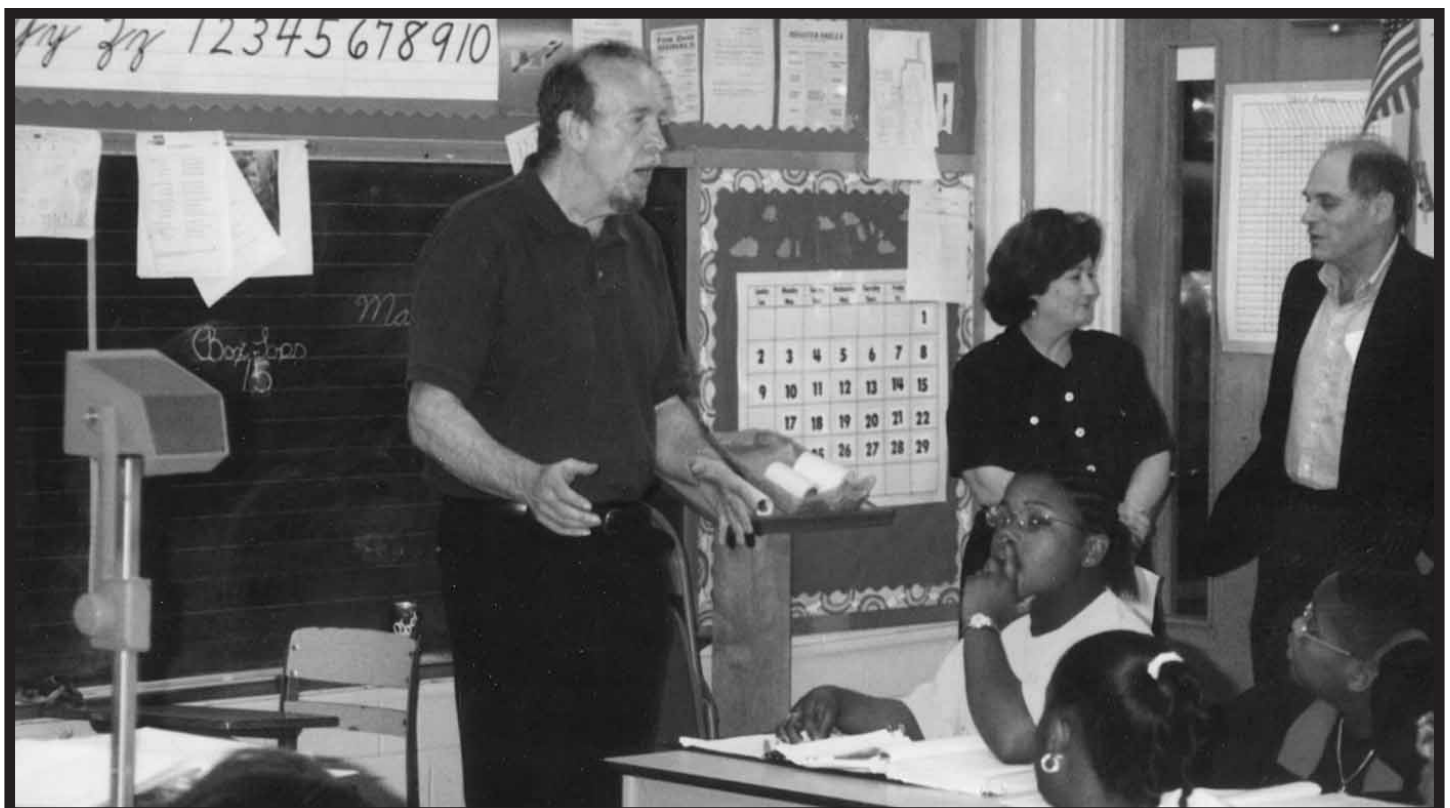
This call for humanity can be expressed on two levels. On that of society: Let's stop wasting incredible human potential through unenlightened practices and theories.

On the level of children: Let's recognize the incredible potential for being intelligent and creative possessed by even the least impressive children, and with unyielding passion. Let's pursue the goal of assuring that this potential becomes reality. ■

Readers are highly encouraged to read a longer contribution from Zig, entitled "Education's Disregard for At Risk Students," as a special additional feature to this issue of the Utah Special Educator, available online at:

www.updc.org/library/speducator/index.html

Enjoy!





Zig Engelmann:

A Passion for "What Works"

A Time of Change

The mid-1960s was a time of deep national unrest. The War on Poverty and the concern for the war in Vietnam were two examples. There were other national concerns. In 1966, Burton Blatt published a photographic essay: *Christmas in Purgatory*. This provided a searing portrait of life in a mental institution and brought national attention to the abuse of people with mental retardation who were committed to America's institutions. Nationally, a "deinstitutionalization" effort had begun, and parents and service agencies were developing programs to support persons with mental disabilities in local communities. The ten years from 1965 to 1975 were the "Wild West" years of community-based services for persons with mental disabilities. This was a time when the institutionalization option was questioned—but before the

federal and state laws of 1976 mandated that public education accept instructional program responsibilities for children and young adults considered "handicapped."

In the late 1960s the University of Oregon and the Pearl Buck Center in Eugene, Oregon, initiated a model program to provide educational and vocational services for teenagers and young adults considered "mentally disabled." The Pearl Buck Center was founded for children with disabilities by a holocaust refugee, Elizabeth Waechter, in 1953. While serving as the first program coordinator for teenage and adult services in 1968, I realized that many clients had spent their lives in a state institution, receiving no academic or vocational instruction. Those with an IQ of 25 to 50 were considered "non-educable" or "trainable." For the person classified as "trainable," the possibility of achieving any level of

vocational or recreational literacy was rarely suggested by educational leaders of the period. One teacher textbook printed in 1965 included the following very explicit statement to new special education teachers:

“Do not attempt to teach trainable children to read by means of phonics. It is a waste of time and effort. The concept and application of phonics requires a greater amount of intellectual capacity than these youngsters possess. It is entirely too abstract to grasp. One might as well teach them the theory of numbers. It can't be done.”

It Can't Be Done: Reality or Challenge?

In 1968, with some financial support for instructional materials from the University of Oregon's Northwest Regional Special Education Instructional Materials Center, a reading program was initiated for teenage and young adult Pearl Buck clients. Two reading programs were available to us. One was a *Project Follow Through* program, known then as *DISTAR (Direct Instruction System for Teaching and Remediation)*. The reading instruction component of *DISTAR* is now known as *Reading Mastery*, and is published by SRA. We acquired a well-worn set of purple ditto copies that provided an instructional script. At that time, my only knowledge of Zig Engelmann was that of the senior author, employed at the University of Illinois. The other program, *The Sullivan Reading Program*, was then published by Behavioral Research Laboratories of Palo Alto. The *DISTAR* program used intensive, direct, oral instruction in small groups. Many of the Pearl Buck Center clients lacked the expressive oral language, and other behaviors needed to participate in any systematic group instruction, or other individual seated activities. The selected reading intervention was a combination of the two programs:

The Sullivan student materials served as extra practice materials and a measure of the degree to which the *DISTAR* program would generalize. The *DISTAR* curriculum sequence and teaching procedures provided the core of the program. We were not concerned with finding the best reading program. The research question was: “Can we teach reading to this population with ANY instructional program?” An initial formative test of the prototype program was conducted with five clients. Contrary to the prevailing professional predictions of the time, there was clear evidence of client progress.

The reading instruction was then expanded to 22 teenage and young adult clients of the Pearl Buck Center. This group had IQ scores ranging from 25 to 47. The question of instructional concern was: “What are the academic and social prerequisites needed to participate in the selected instructional program?” Of all the prerequisite skills, the most important were the academic skills involved in “sound-symbol” relationships. For all practical purposes, the client who could learn the letter names or sounds for the letter symbols could succeed in the reading program. After four weeks, 11 of the 22 students mastered basic sound-symbol skills and required less reteaching as they progressed through the program. The IQ scores which had initially condemned this population to lifelong institutionalization had no significant relationship to reading success. Indeed, the correlation between reading success and I.Q. was slightly negative at -0.11. In contrast, one available measure of sound-symbol skills, the “letter-naming” subtest on the Wide Range Reading and Arithmetic Test (WRAT), showed a very practical relationship of 0.78. Client success continued, and several of the group became avid recreational readers.

For the clients, their parents, and those of us involved in designing and delivering the reading instruction, the implications were positive and lifelong. Contrary to the predictions of the experts, there WAS much that could be done. To break through the ceiling set by IQ scores and “expert opinions,” teachers were needed who cared enough to acquire technical competence, and who had access to a reading program developed by someone who successfully applied the science of instructional design. For us, that “someone” was Sigfried Engelmann. “Zig” resolved the confusion between the traditional psychological assessments of the time, and the science of instruction. For me, I was totally amazed by the fact that not only were the clients achieving vocational and recreational literacy skills, but the further most clients advanced in the reading program, the less reteaching was required to achieve the curriculum-embedded milestones. That finding was a major tribute to the instructional designer—Zig.

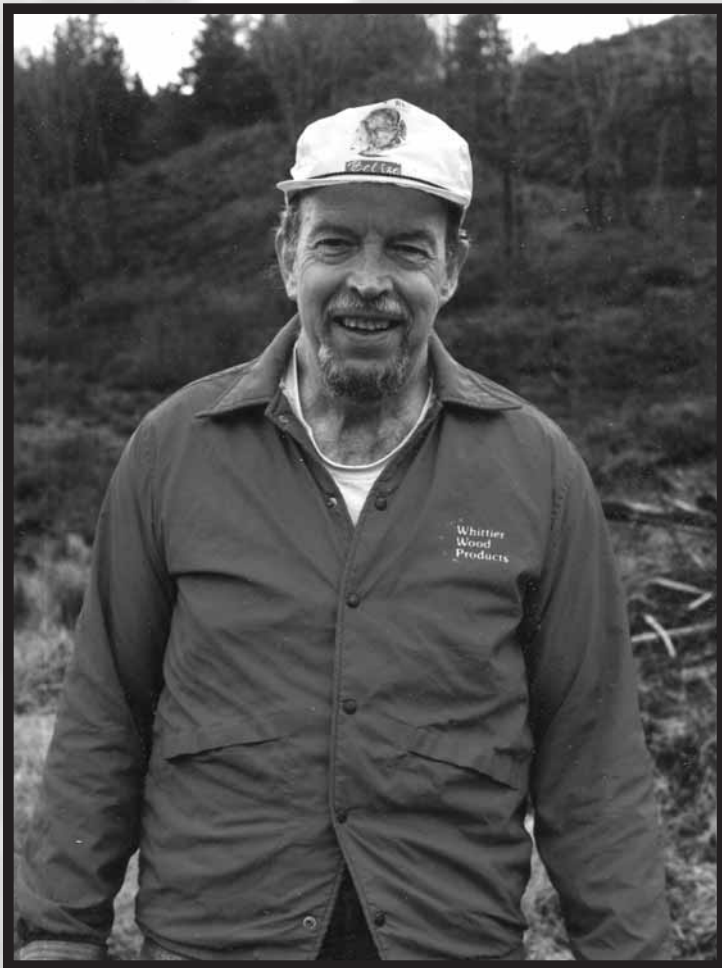


When I accepted employment at Utah State University (USU) in the summer of 1969, I found the same confusion between traditional psychological assessment and the science of effective, valid instruction. This confusion led to invalid and pessimistic client treatments and instructional projections based on psychological tests and labels such as “trainable.” To give a valid instructional identity to USU's Special Education Department, the faculty turned to Zig Engelmann for guidance in the design of theoretical and practicum experiences. We found, in Zig, a rare and special blend of passion for serving the most vulnerable students and a deep respect for the science of instruction.

I can think of so many valuable lessons I learned from the “Zig” experience that helped shape my work and increased my expectations of students and teachers. In his own words, Zig shared the following about Direct Instruction:

“The philosophy behind the program is basically simple. We say in effect, “Kid, it doesn't matter how miserably your environment has failed to teach you the basic concepts that the average five-year-old has long since mastered. We're not going to fail you. We're not going to discriminate against you, or give up on you, regardless of how unready you may be according to traditional standards. We are not going to label you with a handle, such as dyslexic or brain-damaged, and feel that we have now exonerated ourselves from the responsibility of teaching you. We're not going to punish you by requiring you to do things you can't do. We're not going to talk about your difficulties to learn. Rather, we will take you where you are, and we'll teach you. And the extent to which we fail is our failure, not yours. We will not cop out by saying, “He can't learn.” Rather, we will say, “I failed to teach him. So I better take a good look at what I did and try to figure out a better way.” (Zig Englemann, unpublished)

On behalf of the many teachers and students who benefited over the past 36 years—*Thanks, Zig*. If the ten-year period from 1965 to 1975 was the “Wild West” of special education services, then Zig was our “Wyatt Earp!” ■



rigid script. One of my faculty mentors told me that Direct Instruction might help struggling readers to learn in their first weeks of remediation, but that the learning curves of students using DI fell off sharply after the initial positive period. Neither the students nor the professor challenged my report or inquired in any way about the effectiveness of the curriculum or instructional approach. Research regarding program effectiveness was never mentioned. So much for my graduate level, scientifically evidenced, pre-service training in how to teach reading.

My next exposure to DI was a short time later, in my first year of teaching while completing certification courses. I inherited very little in the way of reading curriculum; actually only those ancient materials that the previous special education teacher never used and left in the classroom. I immediately realized that I needed curriculum help and was invited to help myself to what was available from the district storeroom. What I found, and what I took was SRA reading and math materials. There was a lot to choose from, as it was explained to me that “these used to be popular, but many teachers do not use them anymore.” Although I had the curriculum, I lacked the research base, the WHY of Direct Instruction, and no training for teaching or using it was available. I recall using the SRA materials, but I am sure not in the systematic, explicit way that they were designed. So much for on-the-job training in how to teach reading and math.

It has been said that we regret more of what we did not do, and less of what we did. From what I now know, I regret not asking for more direct help that first year, and for not expecting more from myself and from students. My self-critique for my first year of teaching: diagnosis=dys-teachia. I did not know what I did not know. What I needed to know, and what would have made more of a difference in outcomes for students was the bigger picture and the research on WHAT WORKS.

A cademic Failure: **Dysteachia, or Curriculum Casualty?**

My first exposure to Direct Instruction was during a required “reading” class (from another department) for special education certification in graduate school. Students were required to examine and report on different reading curricula, and I was assigned to review SRA reading materials. We were given a rubric to aid in our work, a series of questions like: Program name, publisher name and contact information, brief description of curriculum, who/what population(s), grades was the curriculum recommended for, cost of materials, durability of materials and program advantages and disadvantages.

This was easy. I completed this assignment with little difficulty by obtaining an SRA catalogue and filling in the blanks in the assignment rubric. I recall listing advantages such as cost, durability of materials, comprehensive teacher and student materials and high engagement of students. For disadvantages, I asked experienced teachers and University faculty for input. Teachers commented that they were somewhat familiar with the SRA materials, but felt that the program was “too scripted,” and that they felt “stifled” or “constrained” and “bored” in keeping to such a

The Search for Best Practice, Round One

In 1967, the federal government commissioned the largest and most scientific study of instructional methodology ever. The purpose was to identify instructional programs that would significantly reduce the discrepancy between high and low performing students, and help break the cycle of poverty prevalent in students from families living in poverty. Project Follow Through (PFT) followed 700,000 students in 170 socio-economically disadvantaged communities for nearly eighteen years, and cost one billion dollars. In the first ten years, PFT worked with 180 different and diverse school sites with rich and poor, urban and rural, English proficient students and English Language Learners.

The reading portion of PFT involved 15,000 students and examined three education methods within three major categories; 1. Basic Skills, 2. Cognitive/Conceptual, and 3. Affective. Option 1: Basic Skills emphasized Behavior Reinforcement, Direct Instruction and Language

Development. Option 2: emphasized Cognitively-Oriented Curriculum, Parent Education, and Self-Directed Literature. The Affective Skills Model, Option 3: advocated for the Learning Center Approach, Open Education, and Self-Esteem Building. Two independent organizations analyzed the results. Each of the models was compared to its local control group and to the combined control groups of the three models. Figure 1. Illustrates the results of Project Follow Through. One of the Project Follow Through reviewers commenting on the results stated:

“Educational reformers search for programs that produce superior outcomes with at-risk children, that are replicable and can therefore be implemented reliably in given settings, and that can be used as a basis for a whole school implementation that involves all students in a single program sequence, and that result in students feeling good about themselves. The Follow Through data confirms that Direct Instruction has these features. The program works across various sites and types of children (urban blacks, rural populations, and non-English speaking students). It produces positive achievement benefits in all subject areas—reading, language, math, and spelling. It produces superior results for basic skills and for higher-order cognitive skills in reading and math. It produces the strongest positive self-esteem of the Follow Through programs.”

Best Practice or Malpractice?

As you examine figure 2, imagine for a moment that the figure represents the results of a longitudinal study of medical interventions for the treatment of cancer. Imagine that the instructional models listed on the left axis of the figure represent medical treatments, such as chemotherapy, radiation, surgery, etc. Some interventions evidence strong positive results, some neutral and some evidence negative results. If considering which intervention to pursue for a loved one, which might you consider? If your personal physician advocated for one of the treatments near the bottom (negative treatment), would you proceed blindly or pursue a second opinion? What role might research play in your decision? Is the educational well being of a loved one, a son or daughter, any less important to a parent than physical health?

Best Practice, Round Two

In 1999, the American Institutes for Research (co-sponsor of the What Works Clearinghouse) published the results of a comprehensive study that compared twenty-five curricula often associated with comprehensive school reform efforts. The National Education Association (NEA), and the American Association of School Administrators (AASA) commissioned this study jointly. Results were based on review of studies, articles, books and material published regarding each approach. Part of the official guide and review of the findings offered the following:

“This guide is about separating real solutions—or at least programs with a track record for improving student achievement—from solutions that might work. Only three of the approaches examined: 1. Direct Instruction, 2. High Schools That Work, and 3. Success for All provide strong evidence that they positively impact student achievement. For many of the approaches, surprisingly, there’s little evidence one way or another on whether they help students achieve. Others haven’t done so even though they’ve been used by schools for years.”

Best Practice, Round Three

What Works In Schools; Translating Research Into Action (Marzano, 2003) examined and published an extensive meta-analysis of educational research studies published in the past thirty-five years. Marzano’s analyses confirmed findings of the two research studies mentioned. For example, it found little correlation between achievement potential and low socioeconomic status. It correlated data and reported scientifically researched conclusions in three areas: 1. School level factors, 2. Student level factors, and 3. Teacher level related factors. All were significant, but of the three, teacher related factors had the single, greatest impact on student achievement. In plain language, it found that TEACHERS MATTER MOST! Most effective teachers were characterized by Marzano as being very proficient in: 1. Instructional strategies, 2. Classroom management, and 3. Classroom curriculum design. All other variables remaining constant, the cumulative effects over three years between students

with least effective verses most effective teachers is as follows:

- Average school, average student, least effective teacher = 29 % gain over three years
- Average school, average student, most effective teacher = 83 % gain over three years.

Haycock (1998) commented that:

“Differences of this magnitude—50 percentile points—are stunning. As all of know only too well, they can represent the differences between a “remedial” label and placement in the “accelerated” or even “gifted” track. And the difference between entry into a selective college and a lifetime at McDonald’s (p.4).”

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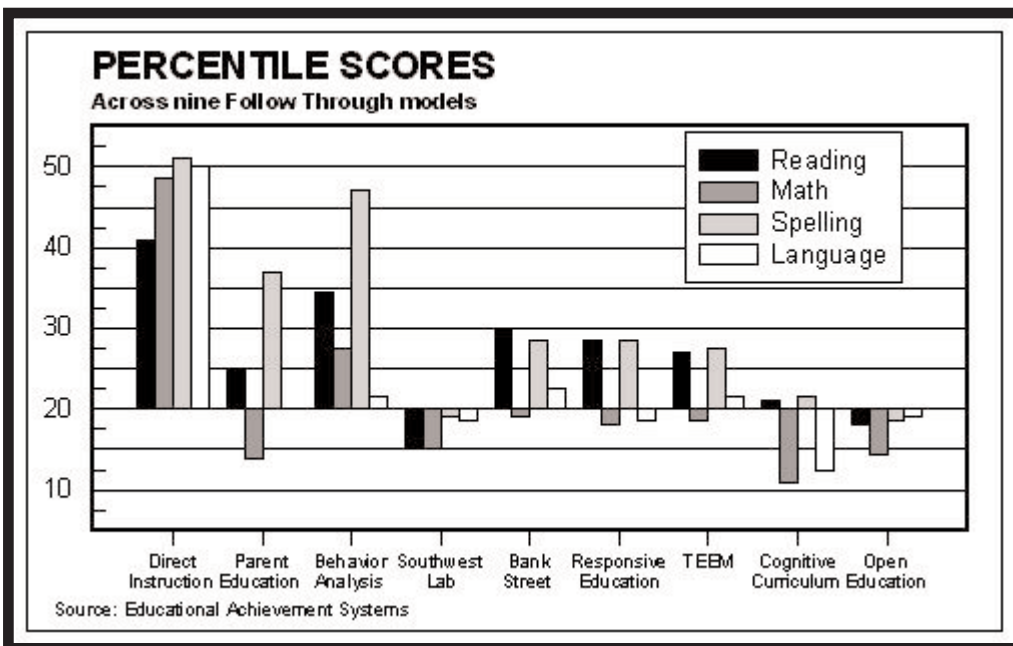
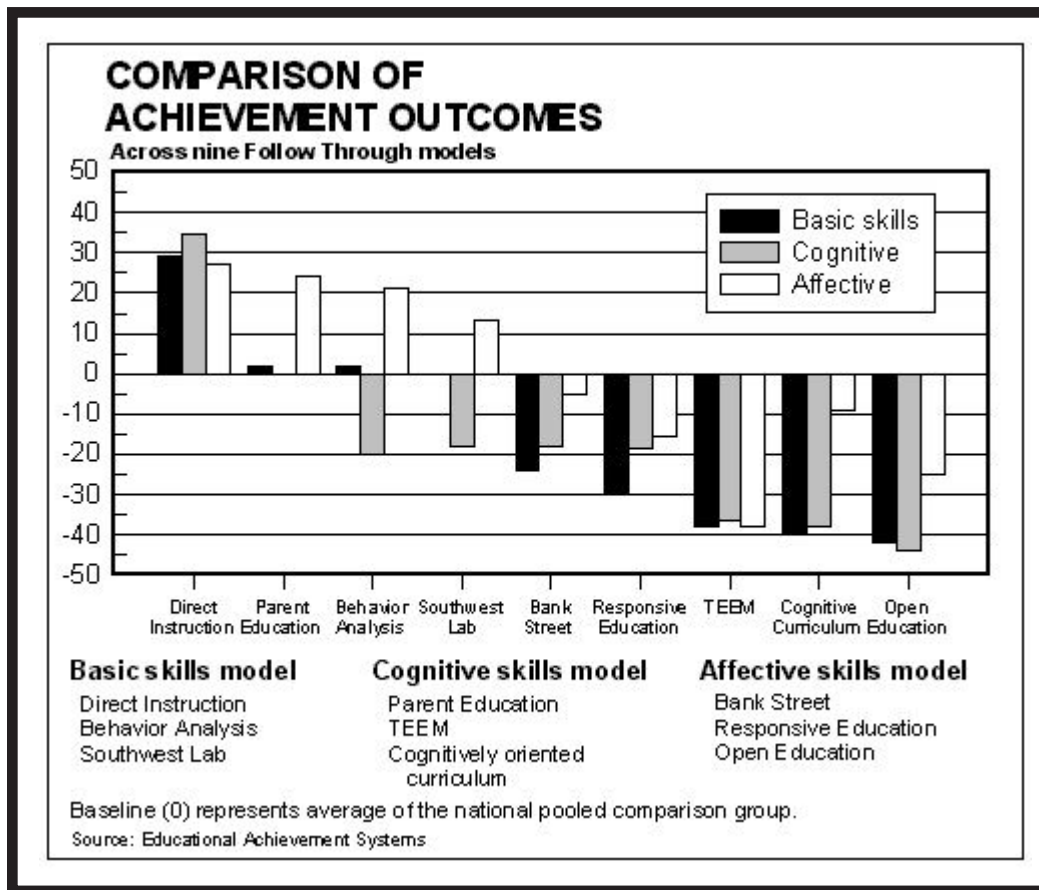


Figure 1

Figure 2



For a moment, take off your educator hat and put on your parent hat. Which teacher would you want for YOUR child? When students fail, is it more likely due to curriculum casualty (poor curriculum), dysteachia or a combination of both? Direct Instruction incorporates all significant research identified factors associated with high student achievement, and has the positive numbers from over forty years to substantiate this claim.

If educators agree with anything, it is that improved educational outcomes enrich the lives of the students and families that we serve. The challenge for special education personnel is to teach the hardest to teach, hardest to reach kids twice as much in half the time. For some reason, our field periodically attempts to reinvent what works in education based on intuition and models conceptualized by “experts.” We teachers complain that we have little time to do all that we are asked (true enough), yet, perhaps, many of our practices within our control do not maximize teacher/student learning opportunities. Are we getting the most bang for our teaching buck, and if not, why? Why is it that many of the same voices that loudly complain about low achievement test scores place even more emphasis (and funding) on even more testing and less on teacher training and effective practices? Is education incapable of learning from its own history? ■



“Insanity is doing the same thing in the same way & expecting a different outcome” (Chinese proverb)