

EFFECTIVE School Practices

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FOCUS: DEVELOPING PROFESSIONALISM

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Philosophy of *Effective School Practices*

1. Teachers are responsible for student learning.
2. The curriculum is a critical variable for instructional effectiveness.
3. Effective teaching practices are identified by instructional research that compares the results of a new practice with the results of a viable alternative.
4. Experiments should not be conducted using an entire generation of Americans. The initial experimentation with a new practice should be small in scale and carefully controlled so that negative outcomes are minimized.
5. A powerful technology for teaching exists that is not being utilized in most American schools.

Effective School Practices is published quarterly by the Association for Direct Instruction. The mission of the Association for Direct Instruction, as stated in the by-laws, is to promote the improvement of educational methods.

The name *Direct Instruction* originated with the highly effective instructional model first developed by Zig Engelmann in Project Follow Through during President Johnson's Great Society legislation. Although the evaluation of Project Follow Through showed the Direct Instruction model to be far more effective than the other models on every identified outcome, education in America remained generally unchanged.

A few educators, impressed by the extraordinary results of the original Direct Instruction model and the programs that were developed as DI evolved, formed the Association for Direct Instruction in 1981.

Today, this organization is a vanguard in promoting school practices that have been validated as effective through the use of the scientific method in educational research.

The Association for Direct Instruction was incorporated in 1981 in the state of Oregon for educational purposes. ADI is a nonprofit, tax-exempt

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From the Field

LETTERS TO THE EDITOR

To the editor:

I have read Dr. Bonnie Grossen's Evaluation of Reading Recovery on her web page (<http://darkwing.uoregon.edu/~bgrossen/>). This is a truly shocking expose of what can only be described as a major public scandal. Reading Recovery has been adopted by a large number of education authorities and applied to hundreds of thousands of children in the English-speaking world, including Britain, on the basis of claims which are (to put it politely) misleading, and at totally disproportionate cost. Of course many other people have said the same thing about Reading Recovery, but not perhaps with the same authority.

This whole episode raises a fundamental and important question. How can it happen that so many apparently rational and public-spirited people could have been beguiled into adopting something so obviously flawed? There has to be something rotten in a system where such things can happen. It can only be supposed that Reading Recovery embodies particular features which make it specially attractive to the sort of people who have taken to it so precipitously. Taking a somewhat cynical view of human nature, it is not difficult to imagine what these might be:

1. RR lets the teachers off the hook. It presupposes that all children are given every possible chance to learn to read in the classroom, and that any child falling behind must be suffering from some kind of disability which can only be overcome by use of highly specialized techniques. In fact the whole language methods prevalent in most of our classrooms inevitably leave a number of children struggling. In Barbados and other places where systematic phonics are used, virtually all children are reading well by the age of seven, but this is something which our education establishment prefers not to know. RR helps to conceal this highly unsatisfactory state of affairs.

2. RR preserves the myth that learning to read is a mysterious process which only highly trained professionals could possibly understand. The reality is that untrained amateurs, free from the dogmas of whole

language, are often as good as the professionals or even better, as Bonnie Grossen shows.

3. The fact that RR is astronomically expensive would not deter the professionals. It is noticeable that their representatives have a strong tendency to support anything which involves the government spending more money in the schools, regardless of the result in educational terms.

4. The thought of spending several months in training followed by happy one-to-one sessions with the children is obviously an attractive one.

This is not to say that the idea of giving children one-to-one help with their reading is a bad idea. Having spent the last sixteen years doing just that on a voluntary basis in a local school three times a week, I would say that there is a serious question over whether a primary classroom is really the best and most cost-effective place in which to teach children to read. If I were given dictatorial powers I would enact that no child would be allowed into school before it could read to a certain standard. There would be a deafening outcry from all the bleeding hearts, but when that had died down the local communities would buckle down to make sure that all their children learned to read in record time.

Stewart Deuchar
Milton Keynes, England
106136.1714@compuserve.com

To the editor:

I am the mother of a second grade son and a tutor of a second grade girl. At our school 51% of our second graders are getting reading help. Twenty-eight of 70 are seeing a Title I reading teacher and eight have been identified for the tutoring program. My son happens to be in the highest level reading group in his classroom but he cannot read what others consider to be first grade material. He is just learning how to sound out a word and he CANNOT SPELL, period. Therefore, I have grave concerns about the reading skills of the entire second grade

FROM THE FIELD

class and the whole school in general. Fifty percent (38/76) of our third graders have now qualified for an after-school remedial program because of low test scores. The reading skills of students across the county are not good. There are many parents with the same concerns.

Our director of Early Childhood Education is very much an advocate of "developmentally appropriate practices." (She happens to be involved with a consulting firm "on the side" that works with other school systems interested in implementing DAP in early grades.) She was the teacher of the tutoring class and the program is obviously based on the whole language approach. At a follow-up workshop for the tutors a couple of weeks ago, she informed us that "Phonics is an abstract idea—something children cannot learn until fourth or fifth grade." However, several of us have gone to including phonics in our tutoring. The problem is clear to us.

Parent in North Carolina

To the editor:

I am very pleased to see so much about DI on the internet. I teach at Martin Luther King Elementary School in Fort Lauderdale, Florida. I have been teaching for 11 years. It used to be very frustrating to teach at my school because so many children were so far below grade level, and seemed to be unable to learn. The children would become very frustrated and angry so they would act out. Well, about 5 years ago our curriculum coordinator came into my classroom and asked me to try a new program. She gave me the manual for Fast Cycle and I've been sold ever since. I now teach 4th grade. I have a RM4 and a RM5 group. A group of schools in our county is now known as The Alliance for Quality Education. These schools use Reading Mastery, Corrective Reading Decoding, Spelling Mastery, Reasoning and Writing, Expressive Writing, and some use DI Math. Most of the teachers that I talk to are very pleased. Some complain about a lack of comprehension activities but I have not noticed that to be a problem. Anyway, I could go on and on about my excitement over DI. I believe that it has given our kids a chance. By the way, at our school, we have very few behavior problems now. We have seen our test scores rise, and most of our children are reading at or above grade level.

Meryl Jefferson, Teacher, Grade 4
M.L. King Elementary, Ft. Lauderdale, Florida

The following letter was written to Jonita Sommers, resource teacher at Big Piney Middle School, Wyoming. Ms. Sommers has contributed to Effective School Practices and was recognized for her work this summer at the Eugene ADI conference. [See Awards, p. 10]

Dear Jonita,

I am writing to express my eternal gratitude for teaching my son to read, and giving him his self esteem back. At the start of 6th grade his reading was at a low 4th grade level. He truly believed he was incapable of learning to read.

I believe with the Direct Method teaching program Mike made remarkable progress, where as in the Chapter I Reading program his progress was very slow. He seemed to be getting farther and farther behind in the other subjects at school as well as the reading.

After 6 weeks of your tutoring using the Direct Method program Mike was not only reading much better, but his behavior in the class room had improved so drastically that several of his teachers mentioned this to me. In short he began believing in himself again.

Before your tutoring we were facing a program in the school that was to teach "alternate methods to function in life without knowing the basics". Class mates were reading to him during class so he could complete his assignments. He was so humiliated at having to be read to in class in front of everyone he never mentioned this to me. I found out about it later from another parent. Had I known this was happening I would have put a stop to it.

The reasoning behind this action was to stop embarrassment of the individual by not placing them in special classes. Meanwhile Mike was falling farther and farther behind and becoming a problem to his teachers, himself and his parents by disrupting class with obnoxious, loud behavior. I still believe he was doing this to cover up the fact that he couldn't read, and do his assignments by becoming the class wise guy and clown. Keeping children in the main stream class room to minimize humiliation and ostracizing is ludicrous compared to teaching them to read, spell and write. After all it's only a few weeks or maybe years they go to a different class than the others, but it's a lifetime they have to live without being able to read and write.

I'm just very thankful that you were there for Mike and taught him to read when he was totally convinced he was incapable of ever reading. I think the Direct Method Program is wonderful, and you are an excellent caring teacher. You taught Mike so much more than Reading.

The following is excerpted from a letter from Jan Reinhardtson who received an Excellence in Education award at the Eugene DI Conference. [See Awards, p. 10]

Dear Zig, Bob, and the ADI Board,

I want to thank you so much for the award that you gave me at this year's Direct Instruction conference. I was thrilled to find out that I had been nominated by my friends and colleagues in Washington, but even more honored to be selected by those of you who I have admired for so long. I am so grateful for the knowledge regarding instruction, the excellent programs and the research in effective

strategies you have so willingly shared over the years. I truly feel that your book, articles and materials have made me a much better teacher.

...I want you to know you've all been a major part of my professional life, especially your optimism and belief that all children can learn if we teach them well. My only disappointment, and yours I'm sure, is that more teachers don't believe and use learner validated materials and methods.

Sincerely,
Jan Reinhardtson

Now available at a discount to ADI Members...

Research on Direct Instruction: 25 Years Beyond DISTAR

By Gary Adams & Siegfried Engelmann

Table of Contents:

- Chapter 1: Teaching: The Roots of Direct Instruction
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Educra^t's Toilet Seat

Debra J. Saunders

*Reprinted from The San Francisco Chronicle, Sunday, March 2, 1997,
with the author's permission.*

Reading Recovery™—a program designed to prevent reading failure—is to education what the \$600 toilet seat was to the military. Except that no one ever said the \$600 toilet seat didn't work as promised.

Like the toilet seat, Reading Recovery—a tutoring program designed to help first graders in the bottom fifth of their class to read better—is pricey. And, as happened with the gilded toilet seat, educra^t brass seem to have had no problem forking over taxpayer dollars to pay for Reading Recovery's 30 hours of instruction—an amount that “exceeds the national average per pupil expenditure for one full year of schooling,” according to Bonnie Grossen and Gail Coulter of the University of Oregon. Estimates of its price tag run as high as \$9,211 per successful student. A San Bernardino Unified School District audit found that Reading Recovery cost \$7,000 per student, not including teacher training.

There are individuals in this country who are more wedded to methods of instruction than to the objective of teaching children to read, just as there are cigarette companies who insist that smoking does not cause cancer despite decades of research to the contrary.

Yet a piece Grossen and Coulter wrote for *Effective School Practices* noted “success in Reading Recovery rarely means the child is a reader.”

New Zealander Marie Clay designed Reading Recovery in 1976 to help young readers. Used in the first grade, Reading Recovery is designed to help children when they begin to fail at reading. In the United States, Reading Recovery generally is used to bring children in the lowest 20 percent of their class up to the classroom average. Selected children received an extra half hour of one-on-one tutoring daily.

Sounds great. Yet Grossen and Coulter figured that a school could spend more than \$125,000 to put 20 students in Reading Recovery, and “only one

would be reading at grade level in authentic text by the end of the year.” A couple of years down the road, that teensy victory may be lost. Timothy Shanahan of the University of Illinois wrote last year, “By Grade 4, the relative gains are still apparent, but they are so minuscule that it is difficult to argue for their educational or economic significance.”

Start with the premise. Bringing students up to class average is nothing to crow about in many schools. Consider Oakland and San Francisco—both Reading Recovery users—where the GPA for black students is 1.8. Bringing the bottom fifth of their classes up to average simply isn't enough.

Within the same school district, tutors might aim to bring Johnny in the projects up to D-work, but to bring Jill in the hills to a level that would win A's in Johnny's school.

The answer is to improve learning for all students in such schools. Barbara Foorman of the University of Houston has conducted wonderful research that shows that switching to systematic, explicit phonics in the whole classroom—which is much cheaper—increased literacy more than whole language, supplemented with an unlicensed one-on-one reading recovery-style tutoring program, in inner-city schools.

Are you listening, pro-tutoring president?

Read-rec enthusiasts may tell you that the program includes phonics. But studies found that the program's little books too frequently rely on pictures and repetitions to give students clues as to what the books say. Take away the pictures, the kids fall flat.

Grossen and Coulter even cited a 1991 study that found that teaching assistants with no training and minimal materials outperformed professional Reading Recovery teachers. (Next program: reading recovery recovery.)

Why not teach children by the best method? Foorman probably answered the big question last year when she wrote: “There are individuals in this country who are more wedded to methods of instruction than to the objective of teaching children to read, just as there are cigarette companies who insist that smoking does not cause cancer despite decades of research to the contrary.”

Something Good Is Happening!

Jan Sheetz and Sue Williams
School Psychologists, Portland Public Schools
Portland, Oregon

The end of the school year is a time to pause and reflect about the business of education in the schools where we work. As school psychologists, we generally meet with students at a point where they have been unsuccessful in general education. They are referred for evaluation, perhaps found eligible for Special Education, and we do not see them again in a formal situation until their three-year re-evaluation comes due. All too often, we find that they continue to qualify for special services; they have not made enough academic progress to work themselves out of the system. Even more common is the plight of those who find themselves in our classrooms set up to meet the needs of students with behavior problems. These non-categorical classrooms, called Structured Learning Centers for Behavior (SLC-B's) in the Portland district, are host to students with a range of cognitive abilities, and a variety of handicapping conditions. Their common denominator is that they have a handicapping condition and are unable to be successful in the regular education setting, due to behavior problems. Putting them in an SLC-B classroom and focusing on their behavioral needs often means minimal focusing on their academic needs, even though all students have academic goals on their IEP. What a pleasant surprise this spring to find an SLC-B class where students were not only working on their behavioral goals, but were actually making marked academic gains! How could this be, and does anybody notice?

It happened that a particular Portland elementary school (School A), which housed an SLC-B for fourth- and fifth-graders, had an extremely high number of referrals and re-evaluations during the course of the school year. An extra school psychologist was assigned to assist the regular school psychologist in completing the number of evaluations in the school. The first case happened to be a fifth-grader from the SLC-B class. It was noted that even though his cognitive ability was in the Deficient range, he had made gains of 10 points on his reading score, and 31 points on his math score from his previous evaluation on a standardized achievement test. Since this was a classroom supposedly focusing on behavior and not on academics, this was a surprising finding.

A chat with the regular school psychologist revealed that this was not a lone incidence; throughout the year, the re-evaluations done on students from that SLC-B class had shown that the students in that class had made consistent academic gains. This called for some sort of investigation.

The assisting school psychologist had memories of working for many years at another Portland elementary school, where there was also an SLC-B with students at the same grade level. There was no memory of any cases where students had made academic gains in the class, although some had maintained at the same academic level as when they had gone into the class. A review of that classroom during the 1995-96 school year showed that only one student had gone through the three-year re-evaluation process. The student had an IQ within the Low Average range. He had been given the Woodcock-Johnson: Revised (WJ-R) Tests of Achievement in 1993, and was given the Wechsler Individual Achievement Tests (WIAT) in 1996. While the tests are not exactly equivalent, they are the two most commonly used measures of academic achievement in the Portland district, and yield standard scores which are accepted as general equivalents. Standard scores in writing are not reported, since at the second-grade level (the time of the first evaluations), the writing scores are not deemed reliable. The student in this SLC-B class received the following standard scores:

	1993 (WJ-R)	1996 (WIAT)
Broad Reading	74	72
Broad Math	75	74

This student was not an exception to the general observation, that students in the SLC-B classes either held their academic ground, or lost it, but generally did not make gains.

In School A, in the class where students made gains, five students had been re-evaluated during the course of the year. Previous achievement test scores on two students were unavailable for comparison purposes. The other three students, labeled Student X, Student Y, and Student Z, obtained the following academic assessment results, all on the WJ-R:

Student X:
(Cognitive ability = Deficient)

	1993	1996
Broad Reading	63	73
Broad Math	48	79

Student Y:
(Cognitive ability = Average)

	1993	1996
Broad Reading	69	91
Broad Math	86	83

Student Z:
(Cognitive ability = Average)

(This student had gone from a regular classroom to a treatment center, where he received his education for a year and one-half, and was evaluated upon exiting their program, prior to entry in this SLC-B, where he has been a student for a year and one-half; scores from all three evaluations are reported.)

	1993	1995	1996
Broad Reading	66	37	74
Broad Math	88	87	109

Student Z actually appears to have lost ground in the treatment program, which he was able to gain back and then some in the SLC-B program. Student Y appears to have just maintained in the area of math. All other subtests show academic gains, some of them substantial. This is quite unheard of! These students not only performed better on standardized achievement measures, but they had strategies for approaching the academic tasks: they made attempts to sound out unfamiliar words, they used context clues to help them determine meaning, and they used a variety of strategies to help them compute arithmetic problems correctly. What was going on to help these students with behavioral needs learn academic skills?

Their teacher, who pursued her graduate degree

in education at the University of Oregon, uses the Levels System for helping the students develop appropriate classroom behaviors, in common with other teachers in SLC-B classrooms. The SLC-B classes have flexibility in their academic approach, and this teacher is a firm believer in Direct Instruction. Unlike most other SLC-B teachers, she uses the DISTAR curriculum in reading and math, and has been able to keep her students focused and imbued with a feeling of doing meaningful academic work. Her teaching methods provide the students with clear and organized goals; they may appear to be demanding, but this approach, with its clear, instructional techniques, provides the students with an appropriate framework for making measurable academic progress. She cares deeply about her students, and by providing them with Direct Instruction, she gives them the proper tools for building their academic self-esteem, and to begin to think of themselves as competent learners.

We acknowledge that our sample case study is small, and is still in its infancy, since this SLC-B teacher is just completing her second year of teaching in that program. But as school psychologists who are concerned about children, and like to believe that all Special Education is truly special and meets the needs of the children, we would like to challenge the district to do some type of evaluation, in any or all of its special programs, to determine whether academic gains are being made. How is the district measuring gains? How are the programs accountable? And if a program is found successful using a specific curriculum, what attempts are made to influence other teachers to use the same model? If Direct Instruction techniques work with behavior-disordered children, should that be the instructional model for other SLC-B classrooms? Would it work in other special education classrooms? It has given us personal and professional satisfaction this year, to see that some students have truly benefited from specifically designed instruction, using Direct Instruction methods. If Direct Instruction is the answer, can we spread the success around?

Keynote Address

How Business Can Help Education Learn About Accountability

Douglas Carmine
University of Oregon

It took about 500,000 years for man to advance from a chipped rock to an arrowhead.

In the last one hundred years, we have created airplanes, radios, movies, TVs, mass-produced automobiles, antibiotics, X-rays, the computer, CAT scans, nuclear energy, and now the cloning of sheep. This astounding progress is due largely to the application of scientific thinking and rational methods, which emerged in the 17th Century. I believe we need a plan of action that brings education through the 17th Century and then into the 1830s. This quote explains the relevance of the 1830s:

The history of [the profession] has never been a particularly attractive subject in [professional] education, and one reason for this is that it is so unrelievedly deplorable a story. For century after century, all the way into the remote millennia of its origins, [the profession] got along by sheer guesswork and the crudest sort of empiricism. It is hard to conceive of a less scientific enterprise among human endeavors. Virtually anything that could be thought up for treatment was tried out at one time or another, and, once tried, lasted decades or even centuries before being given up. It was, in retrospect, the most frivolous and irresponsible kind of human experimentation, based on nothing but trial and error, and usually resulting in precisely that sequence. (p. 159)

You probably think I've been describing education. Let me continue this quote by Dr. Lewis Thomas, former president of the Memorial Sloan-Kettering Cancer Center:

Bleeding, purging, cupping, the administration of infusions of every known plant, solutions of every known metal... most of these based on the weirdest imaginings about the cause of disease, concocted out of nothing but thin air—this was the heritage of medicine up until a little over a century ago. It is astounding that the profession survived so

long, and got away with so much with so little outcry. Almost everyone seems to have been taken in. (pp. 159-160) ...the real revolution in medicine ...did not begin with the introduction of science into medicine. That came years later. Like a good many revolutions, this one began with the destruction of dogma. It was discovered, sometime in the 1830s, that the greater part of medicine was nonsense. (p. 159)

The whole language debacle in California illustrates the nonsense of teaching reading. How about California math? A relatively small publisher designed its mathematics program to align completely with the "whats" and "hows" required by the California Curriculum Commission. The program received a score of 96. The next highest score was 80. The program captured about 60% of all the California sales in the first adoption year.

A school interested in the program asked the publisher for research data on the program:

Total # of students used for comparison = 18
Total # of students excluded from comparison = 7

Percentage of students making gain or no change = 61%

Percentage of students with a loss = 39%

Average gain of students = 19 percentile points

Average loss of students = 22 percentile points

A high score from the Curriculum Commission leads to millions of dollars in sales. The California Department of Education explained the Curriculum Commission's scoring system in this way:

Regarding your question of whether the Department has any data "to suggest that a program receiving a very high score on the criteria would produce superior student performance," the answer is *of course* that the Department does *not* have such information... The SBE [State Board of Education] has *never* asserted that any specific score correlates with the quality or potential success of a particular program.

This nonsense at the state level dominates decision making at the local level. Widespread concern about losing local control of education to the federal government has masked what is possibly the greatest loss of local control in U.S. history, that is, to the *state* level because of property tax equalization and state standards, assessment and accountability.

One group that recognized the significance of this shift was the Governor's Business Council in Texas. They realized that poor standards, assessment, and accountability would mean poor achievement. And they realized that helping schools is not a matter of philanthropy. It is a matter of corporate and social survival.

Peter Drucker has said that knowledge is the new currency of capitalism. Level of education has become a prime determinant for our economic and social well being. From 1970-1990, high school dropouts saw their family income drop over 30%. The decline for a high school *graduate* was about 20%.

Texas businesses and foundations (B and F) realize schools must respond to changing demographics, projected to be 48% Hispanic by 2030. Yet with low levels of educational attainment, Hispanic family income dropped 5.1% in 1995 alone.

Over the next several years, elementary schools across the U.S. will grow by 4.5 million students. One out of nine will be Anglo. But changes in demographics is not the real story. Poverty is. A low wealth child comes to school with 36 hours of literacy experience; a high wealth child, 1000 hours. What is the likelihood of graduating from high school for a child of poverty going to school with other poor children, who has been retained one year and is reading a year below grade level? NEAR ZERO.

Many B and F feared that a 19th Century education profession would undermine Texas in the 21st Century. What did they do? They formed the GBC to counter poor decision making at the state level and to support important initiatives at the local level. For example, Texas has launched a reading initiative based on the vast research of the National Institutes of Health, just as California has done. California has excellent laws and ample funding, but California businesses and foundations are not organized to work together to support the implementation of reading legislation and ensure that student achievement in reading will improve. Bill Honig, former California Superintendent of Public Instruction, estimates the research will be implemented in 5 to 10% of California's first grades.

When businesses and foundations work in isolation and without current, trustworthy information, they can end up supporting local projects of dubious value while overlooking important opportunities

such as those offered by the California Reading Initiative. In Texas, the GBC takes a very sophisticated, critical look at education problems such as reading and teacher preparation. The GBC is bipartisan, originating under the Democratic governorship of Ann Richards and continuing under Governor Bush. The GBC conducts reading summits across the state on the implications of the NIH research for teaching reading. Even more important, because B and F members of GBC are up-to-date about education priorities in the state, they will work on those initiatives privately by meeting with key school officials.

The GBC has learned several lessons that might be transferable to other states:

Lesson 1. A relatively small number of key businesses and foundations are making a big difference in Texas education because they have agreed to work together through the GBC and are staying the course. Businesses contribute in different ways (e.g., large retail chains give money but do not take high profile positions).

Lesson 2. The GBC is highly effective with a very small staff of highly competent people (e.g., when critical legislation comes up, the members of the GBC call on the lobbyists of the member organizations rather than GBC phaving its own lobbyist).

Lesson 3. There has been a critical mass of commitment and support from B and F to fund this small staff and to use lobbyists and influence to support the Governor's Reading Initiative.

Lesson 4. The staff and key CEOs in the GBC understand the culture of education. Without this understanding, B and F would fund many questionable projects and overlook other important opportunities related to the Governor's Reading Initiative.

Lesson 5. GBC established priorities and keeps focused.

How did the GBC get started?

- a. It recruited several high level CEOs. The governor, speaker of the House, or president of the Senate would call suitable CEOs and ask them to be part of the GBC. Follow-up came from the GBC staff.
- b. CEOs would explain the implication of state-wide priorities to their contributions managers. The implications often addressed local schools.
- c. The contributions managers would abandon low priority activities that dissipate effort and funds so as to focus on critical goals.
- d. B and F came to understand (and communicate to the public) that education controversies are not idle debates but often are central to the survival of communities.

Local-level Actions

What about businesses and foundations that want to go it alone? The pre-scientific thinking of education raises questions for B and F that continue to work by themselves and fund individual education projects.

Which education projects are safe to fund? Which projects are likely to benefit students and communities? The BRT, NAB, and US CC have banded together for a national education initiative to address these questions. The three organizations are exploring ways to help B and F decide whether they want to fund experiments to learn more about how to improve education or to fund improvement efforts that are based on research. In addition, they are exploring the idea of a database B and F could turn to in order to find out about various education approaches (e.g., whether they are untested, ineffective, or effective).

Conclusion

Whether businesses and foundations work collaboratively or by themselves, groups such as the GBC and the joint Business Round Table, National Alliance of Business, and United States Chamber of Commerce initiative offer valuable lessons about due diligence in the world of education. Think of due diligence in education with this metaphor. If a

lumber company in Northern California wants to cut timber, they will probably have to conduct an environmental impact study to determine the possible effects on the marbled murrelet or on the northern spotted owl. Yet the state of California will introduce new materials and approaches to millions of children without any systematic safeguards. Mass experimentation is the opposite of due diligence. Businesses and foundations can be an enormous help to education by helping them understand due diligence. In addition, businesses and foundations must not fund dogma and must work together to support research-based initiatives such as the California Reading Initiative.

We can and should be optimistic about bringing education through the 1830s into the 21st Century. Once medicine abandoned dogma, the stage was set for rapid progress. Ponder the difference between Lewis Thomas and his father. After several years at the Yale University Medical School, Lewis Thomas became president of Memorial Sloan-Kettering Cancer Center in New York City. Dr. Thomas won the National Book Award in 1974 for his collection of essays, *The Lives of a Cell*. Lewis Thomas' father was a famous diagnostician for yellow fever. His technique was tongue squeezing, and he didn't wash his hands between patients.

Annual Excellence in Education Awards

Jocelyn Warren, Associate Editor

Two students won the Wayne Carnine Student Improvement Award presented for the first time at the 1996 Eugene DI Conference. Both Ronnie Kimbrough and Chris Gay are high school students and both have demonstrated enthusiasm and commitment to learning despite early obstacles. Two



Ronnie Kimbrough

years ago, Ronnie couldn't read. He was in the eighth grade and working hard in class, but he wasn't making progress and asked for help. Ronnie was put in the Corrective Reading Program (Decoding A) on a trial basis, and, in order to ensure his success, he worked alone each morning on the tasks he would encounter in the afternoon group lesson. At the end of the year, Ronnie requested to remain in the 8th grade, "So I will be a better reader before I go to high school." Now in the tenth grade at Gibbs High School, he's made reading instruction his top priority. Supervisor Shirley Johnson says moving from sounding out to reading the fast way was a major hurdle for Ronnie, but the extra practice and persistence paid off and he is elated with the gains he's made. "Ronnie's progress seems to contradict the notion that older students plateau and that professionals should only teach compensatory or survival skills," she says.

Chris Gay was identified as learning disabled in elementary school and since had been in self-contained LD classes when he was assigned to Patricia Voight's class at Princess Anne High School in Virginia Beach, Virginia. Ms. Voight was impressed with Chris' desire to cooperate and found that, though

his reading level was low, he was able to progress through grade appropriate material. That first year, Chris built his reading comprehension skills and paraphrasing abilities. The following year Chris was able to take his first credit class outside PE and electives—Basic English 9. Using Direct Instruction programs in his resource classes, Chris worked with fractions, word problems involving tables, ratio word problems and tables, geometry and algebra problems involving angles, intersecting lines, circles, area and perimeter. In his writing class, he wrote elaborate paragraphs using all the skills presented in Expressive Writing II. This year he's taking regular education math and English classes. He is also enrolled in a half time carpentry program. Ms. Voight says it's been amazing to see the transformation in Chris, academically as well as socially. "It's easy to say, theoretically, a student's self-esteem grows when he feels successful. It is quite another thing to see it happen...Chris will always be one of my brightest stars."

The first annual Susie Wayne Scholarship was awarded to Doris Villareal who is pursuing her Masters of Education at Texas A&M University-Corpus Christi and plans to graduate in May of 1998. Doris has been teaching for 21 years in the Stinton Independent School District. She is currently teaching second grade and participating in a pilot program involving "looping" in which teachers continue with the same group of students to the next grade



Doris Villareal



Scott Kramer

level. Doris approves of the program, saying, "The students were much more excited about coming back to school because they were already familiar with me, the classroom environment, the class rules, and the expectations I have for them." Doris says she has been fortunate to have the support of an outstanding principal, Mrs. Shirley Koether, and hopes one day to be as effective an administrator herself. (Doris' winning essay, "Teaching the Broad Range of Learners-Issues and Ethics," follows on p. 15.)

In addition to the Wayne Carnine Student Achievement Awards and the Susie Wayne Scholarship, there was another first this year—the Excellence in Education International Award. Gail Whitham is the Special Education Teacher at St. Mary's Girls' School in Karrinyup, Western Australia. University of Oregon professor, Dr. George Sugai, says Gail is exceptional at integrating classroom instruction with behavior management. She spends a great deal of



Jean Kraemer

time with her students, but she doesn't stop there. Gail goes beyond the borders of her own classroom to share her knowledge and expertise with other teachers, not only in her own school but on the state and national level, too. Gail has been instrumental in the implementation of DI throughout the state of Western Australia.

For years advocates for deaf education have been calling for higher literacy and better standards but haven't given teachers the tools to achieve those ends. Two teachers in the Deaf and Hard of Hearing program at University High School in Irvine, California, have figured it out for themselves. Since 1991 Jean Kraemer and Scott Kramer have been adapting Direct Instruction programs for use with their students and the results have been phenomenal, says Kathy Madigan who has consulted in their classrooms. Everything in Scott's and Jean's classrooms



Dr. Bob Renschler

is signed, including student responses which they have to scan by sight *the fast way!* Six years ago, graduating classes in the Deaf and Hard of Hearing program were reading at the third or fourth grade level. They're now reading at the *tenth* grade level. Jean says adapting the DI programs for use with her students has been a tremendous learning experience and an opportunity for professional growth. Scott and Jean have demonstrated that deaf education can and should be held to the same standards as regular education.

Barbara Johnson, Program Specialist for Monterey County SELPA, has been providing teachers with in-class, technical support for instruction on all levels, from introductory to advanced, for over fifteen years. Her engagement in the classroom has ensured the success of DI programs and, ultimately, the success of the students. Barbara says the progress



Jonita Sommers

of students in Special Education is most impressive—one teacher reported three years growth in one year, other students who were told they would never read *are* reading. "These kids have better writing skills than those in regular class," Barbara says. Which, as the teachers and students know, couldn't have happened without the expertise, energy and good humor Barbara brings to the classroom.

As principal of Murrayfield Elementary School in Massachusetts, Dr. Bob Renschler, Jr. initiated and successfully implemented a Direct Instruction curriculum with at-risk students despite resistance from teachers and administrators who advocated holistic and developmentally appropriate methods. Teacher Diane Ouimet says the process began with one first grade student whose parents were concerned that the child didn't know all her letters by the end of the year. Bob suggested *he* use Reading Mastery with the student over the summer and parents were very



Alan Hofmeister

pleased with her progress. This led to adoption of the program by the Resource teacher. Then a kindergarten teacher and third/fourth grade teacher also adopted Reading Mastery and other DI programs. Though parents questioned why kindergarten students read better than many second graders, holistic advocates still were staunch in their defense of their "adopted curriculum" and increasingly critical of Bob's leadership. In the face of this opposition, the School Improvement Council approved Direct Instruction programs for use with at-risk students. Ms. Ouimet says the curriculum is being used in four classes at Murrayfield and lives on in the absence of its initiator who returned to West Virginia where he now serves as Principal Mentor and Director of Administrative/Instructional Services for the Pendleton School District.

As a basic skills teacher at Big Piney Middle School in Wyoming, Jonita Sommers has earned the



Roberta Bender

respect of fellow educators and the gratitude of students and their parents. In her remedial reading and math program, Jonita sets high expectations for her students and then works energetically with both the student and parents to meet these expectations. Bill Lehr, guidance counselor at Big Piney, says Jonita gets 100% from every student. "Jonita takes her students, builds self confidence, remedies the problem, puts them back into the regular classroom as successful students and also allows them to be successful young men and women in the work force or even able to go on to college to obtain a degree." Since implementing DI at Big Piney in 1985, Jonita has documented test scores and student gains and so, as principal Bob Henderson says, she was able to justify the program. "However," he says, "speaking louder than Ms. Sommers' proven results were the



Audrey Nobori-Burke

voices of the community whose children had worked with Ms. Sommers." [See *Letters From The Field* in this issue]

Alan Hofmeister is the Director of the Center for Information Technology at Utah State University. As a researcher, Alan has demonstrated tremendous integrity in the development and trials of instructional programs, including the DI videodisc-based math instruction programs found in over 3,500 school buildings nationwide. He is committed to effective teaching practices and the application of technology to the needs of public schools. By spending a great deal of time in the schools himself, he ensures that programs are reliable and technology is accessible to teachers and students. Alan has been widely recognized for his contribution to the education of children with disabilities. He has held leadership positions in state and national organizations and has served as the National President for the Association for Special Education Technology.

Roberta Bender is the Resource Specialist Program Teacher at Carmel River School in California. Despite limitations in terms of space and support, Roberta somehow is always able to provide a rich environment for her students. She has been using DI programs for well over twenty-five years and reinforces lessons with games, worksheets and art projects of her own design. Roberta focuses on the students she serves and gives them all her energy and creativity. She's likened her role to running a soup kitchen in Bosnia. "There may be a war all around," she said, "but there are kids right here and they need soup." Roberta gives them a feast.

Audrey Nobori-Burke is the resource teacher at Woodbridge Elementary School in Roseville, California. Former principal, Mollie Gelder, says Audrey is vital to the school's morale because teachers know they can depend on her for whatever materials and

support they need. Audrey now organizes the school-wide reading program Mollie initiated. Mollie says her own role in it diminished soon after Audrey came to the school because Audrey was so thoroughly competent. Though Woodbridge students are predominantly from low-income families, Audrey won't allow this as an excuse for poor achievement. She monitors each child's performance closely and tutors on her own time to see that each child reaches his or her potential. Audrey also works with parents to ensure student success, stressing that education is more important than convenience.

Jan Reinhardtson began her career as a special education teacher at Child Study and Treatment Center in the Clover Park School District, Washington, in 1968. Since that time, as teacher, professor, consultant, administrator and supervisor, Jan has advocated for special education and at-risk students and insists on research-based instruction. While she is foremost a teacher, Jan is also a researcher and now manages a federal research project, Collabora-



Carolyn Schneider

tive Responsibility Establishing School Teams (CREST), to meet the needs of students with serious emotional disturbances and/or behavioral problems through management strategies and effective instruction, including the use of DI programs. She also coordinated a Summer Institute using Direct Instruction in the Evergreen School District for four summers. Jan has a reputation for being tough in insisting on documented results and a reputation for generosity in sharing her own considerable knowledge and experience in achieving those results.

There is simply no way to calculate the number of people Jane DiNapoli and Carolyn Schneider have helped throughout their long careers in DI. As

young women, they were among the first group of consultants trained in 1972 at Pheasant Run outside Chicago. Both went on to become consultants for Science Research Associates (SRA), Jane in the Eastern Division, Carolyn the Southern Division, and they've maintained both a professional and personal relationship through the years as a result of their work with DI.

It's easier to list the states Carolyn has not worked in. The implementations she headed in Texas were often done on extremely tight budgets, but the quality never suffered from it. She was the initial trainer at Wesley Elementary School in Texas that has been a high-performing school for twenty years and a model DI school for 10 years. Pietsch Elementary in Beaumont received formal recognition for bringing low-income African-American students to *exceptional* levels of performance in reading and math. Wesley and Pietsch are only two of a number of record-breaking schools Carolyn has worked with. After many years with SRA and a brief hiatus, Carolyn set up her own freelance consulting business called DI Consultants. The evidence of Carolyn's ability as a consultant is demonstrated each day by the teachers she's trained. Not only are they firmly grounded in the fundamentals of DI, but each also exhibits those nonmechanized aspects that have to do with relating to children.

Jane's career in DI began with Project Follow Through as a consultant for the Bridgeport, Connecticut site and, later, for the Camden, New Jersey site. Since that time, *thousands* of children have profited from Jane's talent, dedication and enthusiasm. Jane was the lead consultant in SRA's Eastern Division for over 20 years. In New York, Jane organized the Queens Borough Academy in which twenty-eight high schools participated. Within each school was a "DI school" and the Academy still serves as a model for high school DI programs in the state. From 1982 through 1989, Jane ran the Center for Direct Instruction which operated private after-school centers in Staton Island, Brooklyn and Long Island. In 1991, she and Paul McKirney founded J/P Associates which has been contracted by over 60 districts and individual schools in 9 states to develop effective schools. [See "J/P Associates," pp. 25 in this issue] Jane says there is not one aspect of her life that Direct Instruction has not touched. "I met my husband because of DI," she says. "I met my best friend because of DI. I homeschooled my daughter with DI and now she's in law school." Jane says the most satisfying thing about her work has been the success of children in rural districts. Without DI, she says, they wouldn't have had a chance—now they're reading *above* grade level. Jane and Carolyn both have played important roles in Direct Instruction from the beginning and continue to help schools achieve excellence in education.



Chris Gay

Teaching the Broad Range of Learners—Issues and Ethics

Doris C. Villareal

1996 Susie Wayne Scholarship Winner

Every year teachers across the nation are plagued by that age old question, "How can I reach each child in my classroom?" While there are no quick or easy answers to this question, there are a number of things that can be done by an educator to ensure that every student has an equal opportunity for learning.

The first and most important aspect of learning is good classroom management. It has been found that an educator has control of the classroom, the environment within will be more conducive to learning. There are a number of different types of discipline/management strategies that can be used by educators. Theorists such as Glasser, Hunter, Dobson and the Canters all offer what they feel are the best methods of classroom management. The main factor in good classroom management is consistency and fairness. Students expectations, consequences and rewards should be explained, posted, and understood by each student in the classroom. They should be fair to all students and they must remain consistent. If students feel that the rules only apply to some students, they will not comply with them and the class will become uncontrollable. Regardless of the type of discipline, educators must use what works best for their individual classrooms, and this may have to change from year to year.

Second, an educator must take each student at face value. As educators we cannot allow ourselves to be affected by the environmental circumstances which affect our children. In this day of gangs, teenage pregnancy, drug use, homelessness, domestic violence, low socio-economic environment, etc., we know that our students are affected by many things which we cannot control. We cannot let them use these things as excuses for not learning. If anything, we owe it to our students to teach them how to overcome those things which adversely affect them. As educators, we must teach our students according to their academic needs without taking into consideration their homelife or background.

The way in which the students are taught is the third factor affecting learning. Direct Instruction is an excellent method for teaching and reaching all

learners. The Direct Instruction method is a fast-paced, consistent method of teaching which can be used in all subject areas. They learn how to identify parts of a whole, directional words, and speaking in complete sentences. Then they progress to phonetics, blending, and whole word reading. This is reinforced with stories which include the words learned in the daily lesson. The students make a natural progression from sounds to words using a consistent, teacher-directed method of instruction. The stories are simple and repetitive with themes of interest to young children.

As the children progress to a higher level or reading mastery, the stories become more factual and the students are reading for information as well as comprehension. The story matter in this level of reading deal mostly with science and social studies. Students acquire a wide range of skills when they enter this level of the reading program.

The students are ability grouped in reading and they progress at their own level. If students do not understand the concept being taught, it is repeated with the whole group until everyone has mastered it. A child may advance to a higher group or move down to a lower group as needed. While the children are grouped by ability, there is no stigma because they understand that they are working at a level that is best for them.

Outside of reading, Direct Instruction is used with the whole class. As the teacher gives the students the main concepts being taught using Direct Instruction, he/she is constantly checking for understanding and reteaching or reinforcing what is being taught. This is an excellent method of teaching because it ensures that everyone has a clear understanding of the concept before guided or independent practice is done. If there are still one or two children who just don't understand, the teacher can repeat the lesson with them while the rest of the class works independently.

While Direct Instruction is not the "cure all" for all our educational ills, it does offer a clear, concise method of teaching which will be beneficial to all students.

Finally, teacher involvement and caring give students the message that someone really does care about them. So many of our students come from home that are filled problems that we as educators have no control over. While we cannot let these problems interfere with the students' learning, we cannot totally ignore them. We have to be sensitive to what's going on with all of our students and get them so involved in the learning process that they forget their problems, if only for a little while. We cannot allow students to use their problems as excuses for apathy in the classroom. The teacher should focus on the child's strengths and how those strengths can lead to success. The main goal of every

educator should be to make each student a successful, responsible individual in the brief time that they are together.

By following these steps: good classroom management, acceptance of each child as an individual, presentation of material and a caring attitude, an educator can ensure that he/she will reach and teach every student that comes through the classroom. Regardless of the current set of problems faced by our students, one thing remains constant, all children must have good education to be successful.

Reading Takes Center Stage

Kathy Lally

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Experiment: Six Baltimore schools are testing a new, highly structured curriculum and principals find early results remarkable.

The early morning yawns and squirms have segued into eagerly raised hands and lisped recitations. Magical sounds are bouncing off the hard tile floors and cement block walls of General Wolfe Elementary School in Upper Fells Point.

These are the sounds of children learning to read, and until this year they were more often longed for than heard in this Baltimore school, which sits impassively, hard by the corner of Wolfe and Gough streets.

General Wolfe is one of six city schools that have adopted a new curriculum, melding highly structured math and phonics-based reading instruction with in-depth study of such subjects as geography, history and science. The Baltimore Core Curriculum was introduced only in September, but principals say the early signs of progress are remarkable.

"We have a group of third-graders who are getting ready to read a grade four book," says Clayton Lewis, principal of General Wolfe. "It sounds almost too good to be true. I keep waking up at night, thinking it must be a dream."

Until now, failure was more predictable than success at General Wolfe. Last year, only one of 26 third-graders managed to attain a score of satisfactory on the reading portion of the Maryland School Performance Assessment Program.

A few blocks west, the same heady sense of exhilaration is sweeping over Bernice Whelchel, principal of City Springs Elementary School. About 60 percent of her second-graders began the school year unable to read. By last month, 62 percent of the second grade was able to read at or above grade level. Ten percent was still one year below grade level and 28 percent was six months behind.

"Impressive?" Whelchel exclaims. "It's fantastic."

General Wolfe and City Springs are the kinds of schools that are at the heart of the debate over America's future. President Clinton, in his State of the Union address, said the national interest demanded a goal of teaching all children to read at

grade level by third grade. Urban school systems across the country have been unable to do that.

Last year, Robert C. Embry, Jr., president of the Abell Foundation, inspired by the success the private Calvert School curriculum was having at the city's Barclay and Carter Godwin Woodson elementaries, decided to create a curriculum. He planned to offer it to any city schools that were interested. He hired Dr. Muriel Berkeley, a city teacher with experience in social science research.

She produced the Baltimore Core Curriculum, with detailed, daily lesson plans, adapted from two programs. Six schools chose to take it on for a five-year test.

With help from Abell and AmeriCorps volunteers, City Springs and General Wolfe have reduced reading groups to a maximum of 12 children. The foundation has provided training for the teachers in Direct Instruction, a method developed by Siegfried

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Engelmann, an education expert affiliated with the University of Oregon.

Engelmann's method, Berkeley says, depends on small groups; teacher training and skill; and regular, inviolable time spent on instruction. Reading lessons are carefully scripted—nearly every word the teacher says is prescribed, having been based on research, tested and rewritten again and again.

Children are taught sounds and how to blend them so they can sound out words. Children repeat

words in unison until the teachers sees each one of them is getting it.

Berkeley began her curriculum research against a strange landscape. Though U.S. schools have tried endless ways of teaching reading, they have been roundly unsuccessful with many children. And solid evidence of how anything works is hard to come by.

One trend leads to another, and Berkeley says the research looks far from definitive.

"You go to look for what works," she says, "and there's no one to sort it out."

Just now, many schools are turning against Whole Language, the most recent trend, which emphasized sight reading rather than phonics. Children read literature rather than stories specifically designed to teach reading. Irresistible stories are expected to give them the incentive to learn.

In Baltimore and many other cities, that has not worked. Often, strategies have been abandoned before they had time to work—including Direct Instruction.

For 25 years, Anayezuka Ahidiana was a sort of guerrilla fighter for Direct Instruction in Baltimore. She was a young teacher when it was introduced, and had such success with it she stuck with it, underground, during all the years it fell out of favor. Today, she supervises the project at City Springs.

In those years teaching, she learned a painful lesson.

"Just because something is effective," Ahidiana says, "doesn't mean we use it."

She had seen a demonstration lesson Engelmann gave in Baltimore in 1969, and she was entranced by how well his methods worked. She tried it, and it worked for her, too, even with the most difficult children.

"One year, the school board called me in and gave me a citation," she says. "I was really ticked off. They thought I was having success because it was me. I wanted them to generalize about what I was doing."

She went from school to school, always using Direct Instruction successfully and never being able to spread it, Ahidiana says.

"I was underground every place I've gone," she says. "People hide me because I don't do what's mandated."

She felt she had at last been heard when she was hired to supervise Direct Instruction at City Springs. And Whelchel has become an enthusiastic convert.

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When Whelchel considered the Baltimore Curriculum Project, she was desperate. Last year was her first as principal of City Springs, and the school was a disaster. Like General Wolfe, its performance was so poor the state had put it on its warning list of schools that would be taken over unless they improved.

"I was at a point where I had to try something," Whelchel says. "We can't change everything overnight, but we're making progress. And we're giving the children a formula they can use for the rest of their lives."

The math portion of the new curriculum will be phased in next year, and the reading segment has not yet been evaluated. The children will be tested in the spring. But Whelchel and Lewis say their schools already have changed. The children are engaged, discipline has improved and learning is going on.

During the first semester last year, Lewis says, 41 children were referred to the office for disruptive behavior. This year, it's down to 21.

Upstairs, Linda Frost sits in front of five third-graders and two fourth-graders, who are sitting straight up and full of concentration even at 8:30 a.m.

"Next word, what word?" she calls out.

"Mammoth," the children reply.

"Greece is a small country that is near Italy," the children recite. "It is north of Egypt. It is west of Turkey."

Across the corridor, 6-year-old Brandy Thomas looks intently at the word before her. "Stuh," she begins to sound out and triumphantly blends it with the next three letters to read "stand" perfectly.

Isaac Rodriguez, 7, beams. "This is great," he confides. "It makes me happy."

Reading Method Rooted in Phonics and Drills Draws Strong Results for Students with Learning Disabilities

Kevin Donahue

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An Alabama school district is using Direct Instruction to help students with learning disabilities gain literacy skills.

In Opelika, Alabama, students with learning disabilities are reading. A concerted push by the district to interest teachers in Direct Instruction—an interactive, drill-based scripted method of teaching—is finding success and winning converts.

The Lee County School System now hosts workshops and demonstrations for special education teachers throughout the state, explaining how the program can work for them.

Larry DiChiara, Lee County coordinator of administrative services and special education, was unfamiliar with Direct Instruction until someone pointed out that reading scores differed throughout his district, with some teachers' students far exceeding others in their scores. He investigated and found that those teachers held master degrees in learning disabilities from nearby Auburn University. In the rehabilitation and special education department there, no one graduates until they are proficient in Direct Instruction.

"It seems particularly good for kids who need extra reinforcement for learning disabilities and mental retardation," DiChiara said. However, it was designed at the University of Illinois more than 30 years ago for children without disabilities. Started by Zig Engelmann, now a professor at the University of Oregon, it has continued to grow, while at the same time failing to counter the growth of whole language as the preferred reading method in the country.

When DiChiara speaks throughout the state, he tells teachers, "If you agree reading affects every educational fiber of a child's body—like social studies, science and math, the crime rate, their employment after high school—if that's the case, why are we teaching reading like any other subject?"

He said he has been amazed at the different ways teachers decide what is the best way for them to

teach reading—relying on their college professors, the person with whom they did their student teaching or going as far back as the teacher who taught them to read. There is little continuity in each teacher's sources for instruction, leading to little continuity for students as they move through the grades.

Direct Instruction has been proven by research to be more effective in raising children's reading scores on the Woodcock-Johnson Review Reading Test.

"National studies show kids fare quite well when using Direct Instruction and there is a data base for using this approach," said Auburn University's Professor Craig Darch, the director of the learning disabilities program and clinic there. "So because a base of research exists, is it better every time? I'll say it's effective for most kids and particularly those with learning disabilities because it is sequenced and the children are not inundated with so much information that they have no ability to gain mastery.

"It's very motivating for children because they are quickly involved in mastery and they start enjoying school again. We've had good success with kids in intensive, structured programs."

But before teachers can pick it up, they really need some training, he said. And the need to purchase the program and materials has been a barrier to its widespread use.

"Our administrators assume when you leave college you are ready to teach and they don't want to spend money for a new program," DiChiara said.

Gwen Ingram, a special education teacher at Beauregard Elementary School, said she didn't feel ready to teach after earning her bachelor degree, so she stayed at Auburn for a masters degree. She said Darch's program placed her at three practicum sites for two hours a day. She has used DI with all age

levels, down to kindergarten. She spent hundreds of hours in clinical supervision before she finished the program.

Because she saw the good results she got, when she was hired by Lee County she used the DI reading kit the district had already purchased—though few teachers used it.

"A lot of the teachers had the materials, but were not trained in it," Ingram said. She has since obtained the DI spelling, language and math programs to use with her students.

"But I always had the ability to use the techniques in any area even without the materials," she said.

Teaching Techniques Are Specific

And what are those techniques? They are numerous and quite specific.

The basic teaching components are: scripts, signals, corrections, criterion teaching, group responding, classroom management, organization of time and materials, acceleration and praise, and positive reinforcement.

"Teachers follow a sequence and a script and there's reasons for everything," DiChiara said.

Where learning to read in most classes starts with the ABCs, Direct Instruction is more concerned that children learn the sound of the letter. "Because when you blend them together you make words and then you're reading. We don't introduce the letters in ABC sequence, but in the way researchers say—using the most frequently used letter first and the least frequently used last," DiChiara said. In the work-

books, the letters "b" and "d" are written differently. The small "b" has a round circle, while the "d" is made with an oval-shaped circle.

"It's so kids don't get them confused," DiChiara said. "It's the same with 'm' and 'n.'"

Also, children start with learning small letters and move on to capital letters later.

"It's not important that they know it's called upper case and lower case or big and little but that they learn what sound it makes," he said.

Other techniques used in writing words help children with pronunciation. A silent "e" at the end of a word appears twice as small.

"That way the child sees it has to be there, but you don't make the sound. Gradually it gets bigger," DiChiara explained. All of the accommodations made to help children get through the early stages are phased out over time as they become more proficient.

Teachers must strive for "automaticity," which in DI means a child must be exposed to a concept at least 30 times before he or she will automatically know it.

"I ask teachers how many can guarantee that they expose every child to a new concept at least 30 times," DiChiara said. "You're leaving it up to chance that they'll get that exposure." In Direct Instruction, it's guaranteed, so we've given the kid a better chance at learning that. Nothing is left up to chance."

Modeling is also important. A teacher will teach the letter "b" by making everyone listen to her say it a couple of times before they say it together.

Ten Empirically Based Truths about Direct Instruction

1. DI is effective at teaching higher order cognitive problem-solving, as well as basic academic skills and strategies.
2. DI has positive effect on students' self-concepts and affective learning. Academic success in school promotes positive feelings of self-worth.
3. DI reading programs are effective at teaching both reading decoding and reading comprehension skills and strategies.
4. DI is effective at teaching disadvantaged students and students with mild disabilities.
5. DI is appropriate for average-achieving students.
6. DI teachers are concerned with both the what of teaching (the content and curriculum design) and the how of teaching (presentation techniques).
7. DI progresses from structured teacher-directed lessons to less and less structured independent seatwork. It teaches students to apply independently what they have learned in structured lessons.
8. DI has long-lasting positive effects. Students taught with DI in the early grades maintain achievement gains, drop out of high school less often, and apply and are admitted to college more often.
9. DI is appropriate for preschool, elementary, secondary and postsecondary students.
10. DI is both challenging and rewarding for teachers. Teachers can continue to learn more about Direct Instruction and how to implement it more and more effectively throughout their careers.

Teachers also use specific signals to draw responses from students. If a word has three syllables, the teacher holds up one finger as she says the first syllable in the word and then a second and third finger as she finishes the word to indicate the syllable breaks.

Direct Instruction works best in groups of six to ten. Because a lesson requires students to respond orally and together, the teacher can listen to see who has yet to master the concept. Then she can make the group try the exercise again without singling anyone out.

Despite Repetition, Room for Fun

If it sounds a lot like phonics and drills, it is. And even though the lessons are carefully scripted, Darch believes there is room for a teacher to be creative in choosing reading materials.

"The major advantage for teachers is the fun of seeing kids learn," he said. "The program doesn't allow teachers to go off on a tangent, but we can't with these kids. They're already behind in school."

Despite the intensity and repetitive drills, "there's a lot of laughter in the classroom," Darch said. "That's possible when kids are successful."

DiChiara believes the "constant positive reinforcement" gives children hundreds of opportunities in one lesson to hear a teacher's compliment.

Documented Results Make Teachers Believers

Darch's learning disabilities program graduates about 20 people a year. They can then serve as models for others who may become interested in DI because they see the results in other classes or hear a colleague talk about it.

The majority of Lee County's special education teachers use DI. DiChiara said those who have been trained extensively get the best results, but even those who just receive a few hours of training and then get the materials produce better readers than those classes using whole language.

He collected data over a two-year period and saw no difference between the successes for children with mental retardation and those with learning disabilities.

"We are getting some gains no matter the exceptionality," DiChiara said. "LD students typically score more, but it's just as effective with both groups."

The effectiveness also carried over to junior high and high school students who use Direct Instruction's *Corrective Reading* materials.

DiChiara used to be pleased if he could see a third-grade child with a learning disability move from a 3.0 reading level to 3.6 by the end of the year.

"But Direct Instruction kids average a year and two months in gains and often higher," he said. "We're getting double what we were getting without DI. One 10th-grade student gained 7.7 grade levels in reading skills in one year," he said.

As to arguments that DI represses the creativity of children, as one superintendent alleged in a 20/20 television program aired a couple of years ago, "I say what's so inherently creative about being illiterate?" Gollotte retorts.

High School Students Make Gains Unseen in Years

Taltha Gollotte teaches Direct Instruction at Smiths Station High School in Lee County. For high school students, the basal book is called *Corrective Reading* with a much stronger emphasis on decoding than on comprehension.

"The students I work with may have comprehension problems, but their major problem is decoding, and that's where I put my emphasis," she said. "If their decoding is straightened out, they don't have to work on comprehension. They can understand things if we're talking to them. The problem is not being able to think, but being able to read."

Most of her LD students are two to six grades below reading level. She has seen incredible gains in their reading skills.

"It's like they got to the third-grade level and never got any better. You may never get them to the high school level, but you've done something with their reading for the first time in many years," Gollotte said.

She is now running a pilot program to train a group of certified teachers hired by the district to teach DI to 30 regular education 9th-grade students part time. The teachers will receive about 40 hours of training. The students had to have scores at or below the 23rd percentile on the Stanford SAT tests to qualify for this pilot program.

"We're screening them to see if it's a decoding problem," she said. If the students agree to participate, they will skip an elective like home economics or physical education to work on DI. They will work with the teachers for an entire year and will receive credit for their reading work, she said.

Because the state of Alabama requires students to pass a written exam, as well as earn 22 credits to

graduate, Gollotte feels challenged to help these kids and her LD students make the cut. If they can't pass the exam, they receive only a certificate of attendance, which won't get them into a community college or the military. She said DI has helped the district cut the number of students who stay in school but don't earn a diploma.

"Most Alabama districts have given up on working with these kids and are working more on transition to supported employment for them," she said. "I have students who have gone on to junior college, trade school and who are employed on their own."

The slow popularity of DI and the criticism from whole language supporters who stress comprehension and good literature as the best way to draw children into reading irritates Gollotte, a true believer trained by Darch.

"It's true that I'm not very creative when using Direct Instruction because it's very structured, but if you're being creative and it's not causing students to be successful, why are you doing it?"

As to arguments that DI represses the creativity of children, as one superintendent alleged in a 20/20

television program aired a couple of years ago, "I say what's so inherently creative about being illiterate?" Gollotte retorts.

Curriculum Costs Can Have Long-term Benefits

DiChiara said beyond training, DI materials cost about \$169 for an initial classroom kit. The curriculum is sold by SRA as either *Reading Mastery* or *Corrective Reading*.

"The yearly expense is workbooks and we throw that into our yearly textbook costs."

He points out that the long-term savings are worth the investment because of the need for less special services to help remediate students if they can all learn to read while still in elementary school.

Many of the stories in the curriculum are about historical events, famous people from the past or are pieces of literature by well-known writers. The curriculum was updated a year ago, DiChiara said.

For more information, contact Larry DiChiara, Lee County Board of Education, P.O. Box 120, Opelika, AL 36803-0120, (800) 652-9770.

Direct Instruction: A Look at Its Features and Benefits

FEATURES	BENEFITS
Shifts emphasis from the child's problem to performing the task.	More is learned in a given time. Progress is monitored more easily.
Every task the child is asked to perform is taught directly by the teacher.	Learning is not left to chance.
The teacher models by illustration—not simply by explanation.	Instruction is more efficient: easier for the teacher to teach and the child to understand.
The teacher uses precisely laid out lesson plans, which use similar presentation formats for similar tasks.	All critical components are taught. Less preparation time is involved for the teacher, freeing up teaching time. The consistent use of instructional language makes it easier for the child to follow.
Signals are used to initiate a group response.	This technique involves every child, holds the group's attention and ensures that each child thinks for him or herself.
There is frequent oral responding from the group and individuals.	This provides extensive practice for each child and gives the teacher immediate feedback on the effectiveness of the instruction.
Small learning increments are taught in a carefully controlled sequence through interactions between the teacher and the group.	Increase student success leads to an increased expectancy of achievement.
Teacher praises correct responses and avoids negative reinforcement.	This specific feedback reinforces and rewards success.
Every lesson uses all three modes of learning: visual, oral/aural and written.	Children with different reasons for poor performance can be taught in the same group.

School-wide Implementation in San Diego

Stacey J. Kasendorf, M.A.
Science Research Associates

In August, 1995, The Johnson Urban League Charter School opened its doors as a year-round, charter school with Direct Instruction throughout its curriculum. I was hired by SRA to train teachers, aides, and other support staff as well as to monitor classrooms and provide ongoing training and assistance. The implementation was successful insofar as the students increased in reading, language and spelling at the end of 7 months of instruction in *Reading Mastery*, *Corrective Reading*, *Reasoning & Writing* and *Spelling Mastery*. The teachers are continuing the use of all 3 programs again this school year.

The demographics of the school are as follows:

- The student and teacher population was
 - 82% Black
 - 8% White
 - 7% Hispanic
 - 3% Asian & Native American
- 17 teachers
 - 12 credentialed teachers
 - 5 credentials not cleared
- 15 para-educators
- 1 Resource Specialist

The planned implementation consisted of staff training in June, by the SRA representative, on placement testing. Ordering was completed at that time.

In July, 1995, six staff members attended the ADI Conference in Eugene, Oregon. I was able to discuss the upcoming trainings with the principal while in Eugene. I also met the 5 staff members who were in attendance.

Upon their return, teachers received inservicing from 2 SRA consultants in the areas of *Reading Mastery*, *Corrective Reading*, *Reasoning and Writing* and *Spelling Mastery*. Six in-service days were planned for the staff. The school's instructional schedule was designed at this time, as well.

June 1995 • staff training on placement tests
• curriculum materials ordered

July 1995 • six staff members attended Oregon Conference

August 1995

- school instructional schedule designed
- monitoring and feedback schedule designed
- staff training in all four programs

Throughout the year, the teachers and para-educators were monitored and given corrective feedback on a weekly basis. A non-evaluative observation form was utilized as a tool for teachers to keep notes of their implementation and for the consultant to keep track of each teacher's progress. A chart was kept, noting lesson progress as well.

Toward the end of the school year, teachers were asked to give comments about their feelings on the program implementation. The benefits of the program far outweighed the challenges, as seen by the staff. Some of the comments from the teachers were as follows:

- Teachers have a concrete level of students' reading rate almost on a daily basis.
- Tests give students confidence.
- Daily gratification for me.
- It was wonderful.
- This method definitely reaches the children who have struggled with reading using the Whole Language approach
- Did not prevent my creativity.
- Classroom management was improved.
- Good sound phonics.
- Students were motivated.
- Good language instruction.
- Challenges the non-verbal students.
- I am totally sold on it.

The challenges were expected from first year implementors. They included some of the following:

- Too many charts.
- Availability of materials.
- Did not meet all learning styles.
- Three programs were a lot for the first year.
- Time consuming getting started.

Although the implementation was deemed successful by the consultant and the staff, there were challenges with the implementation. Some were initial and others were ongoing. To begin with, the testing results were inaccurate, thus placing many students at an inappropriate level. The materials did not arrive as expected and thus, implementation was delayed. There was no system for dissemination of materials nor storage of them. And, unfortunately, several teachers were negative and decided not to use the Direct Instruction materials.

On an ongoing basis, the materials did not keep up with the progress of the students. As students moved from one level to the next, oftentimes the materials were not ready. There was considerable teacher and para-educator turnover. This required training for new staff and thus, wasted valuable teaching time.

Considering the challenges and the huge undertaking of implementing 3 new D.I. programs in grades K-6, the first year implementation was successful.

Teachers were heard saying, "Wow, this program really works" as they saw some of their students jump 2-3 grade levels within 7 months. For example, some 6th graders who began Corrective Reading B1 (approximately 2nd grade reading level) in October ended up in Reading Mastery V (5th grade level) by May. Some second graders who began in Reading Mastery II (2nd grade reading level) in October ended up in Reading Mastery IV (4th grade reading level) by May. And many kindergarten students were reading by the end of the year.

September has arrived and the Johnson Urban League Charter School has begun DI, again. Teachers and para-educators began the reading program

on the second Monday of school (September 9, 1996). Groups are all reading at 8:15-9:15 in the morning so to allow deployment of students from one class to the next. *Reasoning and Writing* and *Spelling Mastery* is taught in the morning for primary grades and in the afternoon for upper grades.

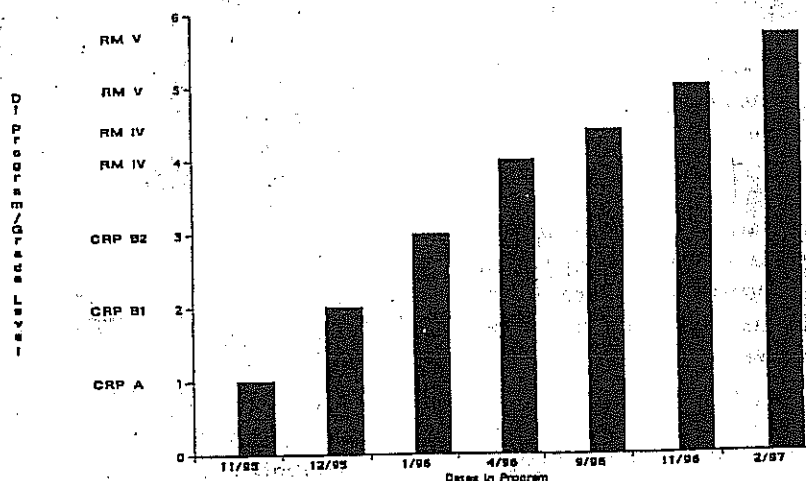
Watching Direct Instruction grow at a school site is an exciting process. With each new day comes the expectation that more students will be reading on grade level by June than ever before!!

An update

It is now March in the second year of implementation. Johnson School is no longer a charter school but a district run school, emphasizing a space and computer technology. All students are reading close to grade level. There is only one Corrective Reading group, consisting of ten students. The others are in Reading Mastery levels either at or one year below their actual grade level. One fifth grade student, who began in CRP A (approximately 1st grade reading level) in November, 1995, reached Reading Mastery V, lesson 90, (grade 5.7) by February, 1997. Students throughout the day are approaching me with a request to be tested for a higher level. They are excited and READING!!

Some of the initial problems have been corrected as a result of a DI Coordinator on site daily. Materials are inventoried and are ordered ahead of time to meet the needs of the classroom teachers. Groups are rearranged on a weekly basis or whenever the need arises. Teachers are feeling comfortable with the programs and are asking very advanced questions. There is an atmosphere of success at Johnson School now, thanks to an excellent curriculum, good teachers, and a hard-working staff.

Tyree's Longitudinal Reading Decoding Scores 1995-97



Longitudinal reading decoding scores, 1995-97.

J/P Associates

Ed Schaefer

Supervisor of Special Programs, Cape Henlopen School District
Lewes, Delaware

How many effective schools must you see to be persuaded of the educability of all children? If your answer is more than one, then I suggest that you have your own reasons for believing that learning is more a matter of family background than the school's response to family background.

We already know more than enough to educate any child whose education is of interest to us. Whether or not we educate all our children well depends first on how we feel about, and then on what we do about, the fact that we haven't so far.

Ron Edmonds

The late Ron Edmonds made this statement more than 10 years ago. Since then, neither alarming reports about the state of American schools, nor increased funding overall, nor faddish swings of the education pendulum have done anything significant to meet Edmonds' challenge or alter the fundamental landscape of American education. While the overclass pulls away from the mainstream into the privileged sanctuary of private schools, the majority of America's children continue to attend public schools awash in a "tide of mediocrity." Meanwhile, the underclass, mostly children of color and others who occupy the lowest socio-economic strata, haunt schools for which even mediocrity would be a great improvement. Given the economic and political realities of a new millennium, the ineffectiveness of America's schools poses a serious threat to our fundamental well being as a viable, democratic society. The situation is urgent: unless we meet Edmonds' challenge, the promise and hope of the "American Dream" may not survive the 21st century.

J/P Associates understands the urgency of this situation and recognizes our responsibility to "use what we already know" to "educate all our children well." We have made it our business to use the powerful, empirically derived research base referenced by Edmonds to render our client schools significantly more effective for all students. In fact, J/P Associates is responsible for a number of increasingly effective schools in Moss Point, Mississippi; Pine Bluff, Arkansas; Chattanooga, Tennessee; Wilmington, Delaware; and Camden, New Jersey.

All these schools have 4 things in common:

1. they predominantly serve the "underclass";
2. they subscribe to the model of effective schools espoused by Ron Edmonds and supported by more than 30 years of empirical research;

3. they use "Direct Instruction" as a systematic framework for curriculum and instruction;

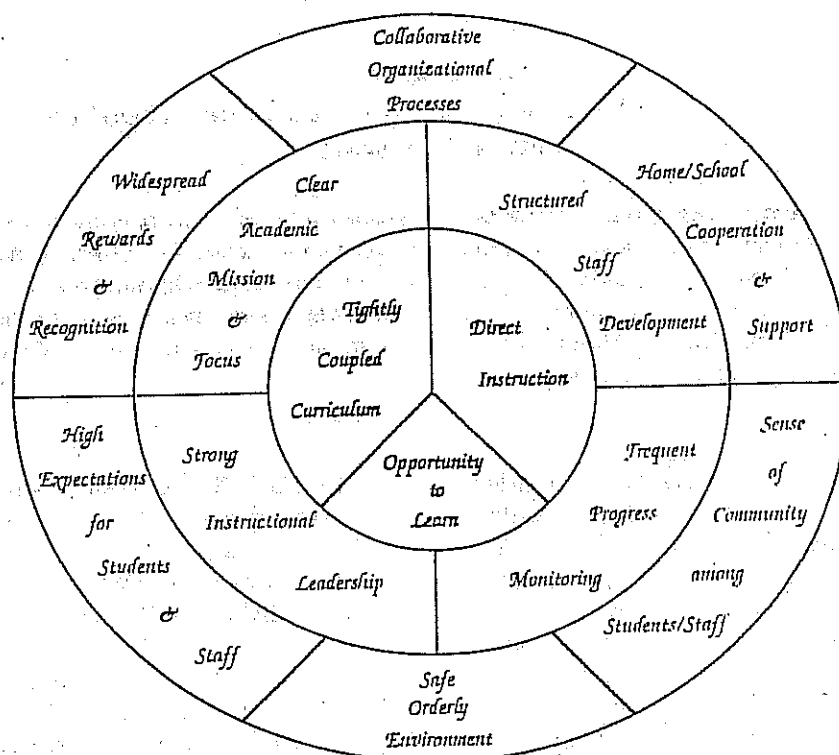
4. they adhere closely to the implementation guidelines of J/P Associates.

The elements of an effective school, as researched by Edmonds and others, are shown in the above diagram. Each element is a necessary, but not sufficient, condition for school success. As an organized whole however, the elements constitute both the necessary and sufficient conditions for a high performance school. The function of this model, from the perspective of J/P Associates, is to prioritize the elements of an effective school and identify their relationship to student achievement.

The innermost circle in the above diagram represents the classroom and it is here that student achievement is determined. Ultimately, this is where the battle for "world-class standards" is won or lost. Thus, the first priority for any serious school reform effort must be given to this crucial innermost circle—the system of curriculum and instruction that needs to characterize every classroom in the school.

Unfortunately, many reform efforts focus first on the outermost circle. That is, they give first priority to implementing various "site-based decision making" schemes within schools that have never demonstrated either the ability or the will to educate all students well, especially the children of the underclass. Although "collaborative organizational processes" are a validated element of effective schools, the issue here is when, not whether, such processes become a priority. After more than a decade of such "reforms", it is clear that "empowering" schools that possess neither the requisite instructional tools nor the knowledge to create them is neither empowering nor effective.

The Elements of School Effectiveness



Just as unfortunate are the more recent reform efforts that, while giving priority to the innermost circle, replace the research-based elements of the Effective Schools Model with the latest educational fads such as "whole language", new "new math", or various home-grown, "integrated" teaching units derived from popular notions of "constructivist" philosophy. Typical of the failure-driven swings of the pendulum in American education, such contemporary "innovations" as the NCTM Standards (and the methods prescribed by NCTM to meet those standards) are admittedly rooted in little more than opinion and philosophy—as opposed to empirically derived research. The debacle with "whole language" and the new "new math" in California schools tragically demonstrates the danger (if not the hubris) of giving precedence to politically correct opinion (no matter how "expert") over empirical research as a basis for school reform.

J/P Associates places its first and highest priority on developing and coordinating the elements of the innermost circle of the Effective Schools Model, that is, on creating effective classrooms. We recognize that the system of curriculum and instruction that characterizes such classrooms must be demonstrably effective, with a solid research base. Teachers must be provided with the best instructional technology available, and they must be thoroughly trained to apply that technology to benefit all stu-

dents. *The core of that technology is Direct Instruction.*

Direct Instruction (DI) has its origins in the highly successful Bereiter-Engelmann Preschool at the University of Illinois in the 1960's. DI became more fully developed as a teaching system under the auspices of the USOE's Follow-Through Program. In 19677, the Office of Education invited Siegfried Engelmann (by then, at the University of Oregon) and others to develop model programs that could be applied in kindergarten through third grade as a follow-up to Head Start. Eventually, the Follow-Through Project became a multi-million dollar, planned variation experiment to empirically determine effective instructional practices in kindergarten through third grade. Literally hundreds of schools and thousands of students from every geographic area and demographic strata of the country took part in this unprecedented study. It is interesting to note that many of the models that competed against Direct Instruction in the Follow-Through Project were remarkably similar to contemporary innovations such as integrated learning units, new math, whole language, child-centered classrooms, and developmentally appropriate practices.

Follow-Through rigorously assessed outcomes in three areas: basic skills such as word recognition and math computation, higher-order cognitive skills such as reading comprehension and math problem solving, and affective competencies such as self es-

teem and locus of control. The overwhelming empirical evidence showed the Direct Instruction Model as the most successful of the many approaches studied: across all models, and by a large margin, Direct Instruction ranked first in all three areas.

Continued program development and rigorous field testing over the past 23 years have expanded the number and sophistication of DI programs, and established Direct Instruction as an effective instructional technology that accelerates learning for all children. This is precisely what Edmonds was referring to when he stated that "we already know enough to educate any child whose education is of interest to us." Taking Edmonds and 30 years of empirical data seriously, J/P Associates places Direct Instruction at the heart of our reform efforts.

The results of J/P's experience with Direct Instruction over many years have been gratifying, consistent with the Follow-Through Project of two decades ago, and, not surprisingly, just as Edmonds predicted. For example, in Pine Bluff, Arkansas, K-4 students in the

Holly Grove Elem. School (3 yrs. with J/P Associates) averaged gains of 15.80 NCE points in Reading, 17.80 NCE points in Mathematics

Walker Elem. School (2 yrs. with J/P Associates) averaged gains of 7.25 NCE points in Reading, 24.75 NCE points in Mathematics, 13.50 NCE points in Language;

First Ward Elem. School (2 yrs. with J/P Associates) averaged gains of 7.25 NCE points in Reading, 9.75 NCE points in Mathematics, 9.25 NCE points in Language;

Overall Average Gain of 10.10 NCE points in Reading, 17.45 NCE points in Mathematics, 11.40 NCE points in Language.

(Data derived from the Stanford 8 Assessment Battery, and provided by the Arkansas Department of Public Instruction.)

Direct Instruction, however, is not enough. Because most American schools function as "loosely coupled systems," or little more than a collection of classrooms bordering a common parking lot, instructional change alone is not sufficient. Under such circumstances, merely having a powerful technology of instruction does not guarantee that it will be implemented well, or even at all. To guarantee success for every student over time, every classroom

in the school must perform well and do so consistently. This requires the school to be a highly coordinated organization, or "tightly coupled system." The entire school must be consistently organized and directed in support of the innermost circle. Effective schools are such tightly coupled systems: they develop and coordinate the elements of the outermost circles in support of the core technology of the innermost circle—all this to effectively direct and reinforce the work of students and teachers in the classroom. *High performance schools are that way not because they have high performing kids, but because they are wholly organized in support of a demonstrably effective technology of curriculum and instruction.*

The transformation to a high performance school demands a serious commitment to staff and organizational development. For most schools, this requires nothing less than a long term contract to change. Unfortunately, most schools are not able to make such radical transformations without significant outside guidance and support.

J/P Associates has the knowledge and experience to provide such guidance and support. Thus every contract with J/P Associates represents a five year commitment to:

1. implement an effective technology of curriculum and instruction,
2. develop the supports and organizational leadership to refine that technology over time, and
3. become an authentic, effective school that actually works for all its children.

J/P Associates' *Direct Instruction and, Accelerated Cognitive Growth Implementation Plan* provides a comprehensive, detailed set of guidelines that govern and direct the 5-year transformation to an effective school.

- In the first 2-3 years of the plan, school staff are learning to master the DI technology and to coordinate the elements of the Effective Schools Model in support of that technology. During this phase of the transformation, J/P Associates exercises significant direction over the instructional life of the school, i.e., over the elements of the two innermost circles. This "taking over" on the part of J/P Associates is predicated upon the fact that changes in teachers' classroom practices lead to changes in students' academic achievement and self concept which, in turn, lead to changes in teachers' beliefs and attitudes (such as lo-

cus of control, responsibility, and ownership). Ultimately, the staff will "own" the transformed school, but not until the school is, in fact, transformed to the benefit of all its children.

- From Day 1, J/P Associates recruits exceptionally competent staff to join with the school principal in a "leadership cadre;" advanced training for this cadre is an integral part of the 5-year plan. From the 3rd through the 5th year of the transformation, the leadership cadre gradually retakes control of the school's instructional life from J/P Associates.

- Although a significant amount of staff development takes place in "workshop" settings outside the classroom, the overwhelming impact on instructional improvement comes from a commitment to support the teacher *in the classroom*. Since successful "application" in the classroom is the crux of school reform, "coaching" is at the heart of every J/P Associates implementation, and reflects J/P's consistent reliance on empirical research (in this case, the work of Bruce Joyce) as a guide to implementation planning and follow through. As the chart below indicates, the significance of coaching cannot be overestimated!

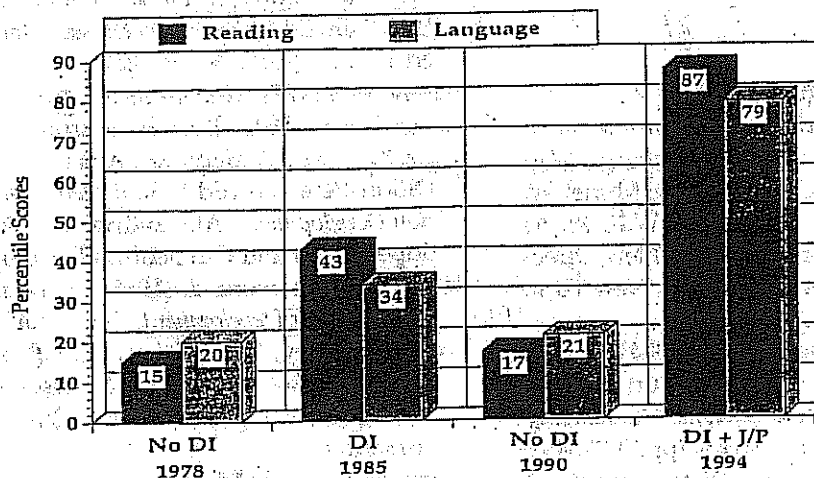
How effective is the implementation plan of J/P Associates? A case in point would be the Kreole Elementary School in Moss Point, Mississippi. Kreole is a K-6 school located in the heart of the Mississippi Delta. Ninety-nine percent of Kreole students are minority (predominantly black); likewise, all but 1% of the student body qualifies for "free lunch." Kreole has an instructive history relative to both Direct Instruction and J/P Associates:

- through 1978, Kreole had no association with Direct Instruction or J/P Associates;
- in 1979, Kreole began a self-initiated implementation of Direct Instruction; from '79 to '85, they received minimal external support relative to their DI program;
- in 1986, Kreole was forced to drop Direct Instruction because it was "politically incorrect;"
- in 1991, Kreole entered into a contract with J/P Associates to guide the school's reimplementation of Direct Instruction.

The data from Kreole Elementary School are important for several reasons:

- Through 1978, and from 1986 to 1990 (the non-DI periods), the level of performance for Kreole students was around the 20th percentile. This is typical of children from demographic backgrounds like Kreole, and gives certain credence to the validity of these scores as baseline measures.
- The Direct Instruction periods present performance patterns that are clearly superior to the non-DI periods.
 - Kreole Elementary challenges the notion that Direct Instruction is only for low achievers, that it works for basic skills but not for higher-order cognitive processes, or that it somehow stifles the creativity of teachers and students.
- The results of the two DI periods are clearly not uniform.
 - The self-implemented period (1985) shows large gains in reading and language arts performance (43rd and 34th

Training Steps	Knowledge Mastery	Skill Acquisition	On-the-Job Application
Theory	60%	10%	2%
Theory + Demo	80%	25%	2%
Theory + Demo + Practice/Feedback	80%	80%	5%
Theory + Demo + Practice/Feedback + Coaching	80%	80%	80%



As part of its statewide assessment program, Mississippi administers a standardized, norm-referenced test battery to all 4th graders; the scores reported above are from those assessments.

percentiles respectively) relative to the first non-DI period, and is also superior to the second non-DI period.

The J/P Associates period (1991-94) yielded achievement scores (87th and 79th percentiles respectively) that were twice as high as the self-implemented period and 4 to 5 times higher than either of the non-DI periods. In fact, in 1994, Kreole fourth graders had the 2nd highest reading scores and the 8th highest language arts scores in the entire state of Mississippi.

- Kreole's performance indicates the potential of Direct Instruction to accelerate learning toward the achievement of world class standards—if the DI programs are well implemented and the requisite school-wide supports are in place.
- The differences in student performance between the two DI periods appears to validate the implementation scheme of J/P Associates. Reports from Kreole staff indicate that, during the J/P Associates period, teaching was more effective and more uniform throughout the early grades; also, there were more support and quality control measures in place to assure that the children's progress was indeed accelerated.
- Relatively low funding is not the cause of school failure; although Kreole had the re-

sources to contract with J/P Associates, the overall level of funding at Kreole Elementary during the J/P Associates period was considerably below the average for most American schools.

- Kreole did not initially create a site-based team to make global decisions about instructional matters; rather, the staff participated in a long-term, systematic, and highly structured development program; and followed a formatted set of procedures for anticipating and responding to the performance of teachers and students.
- There was no premature emphasis on literature (though a DI literature program was established during the 2nd year of implementation to supplement and extend the basic reading curriculum), no immersion in "whole language," and no global "writing as a process." Nonetheless, the reading and language arts performance of these students literally soared!
- A comparison of the two DI periods clearly demonstrates the value added by J/P Associates and its implementation of Direct Instructions within the Effective Schools Model. The probability of schools with populations similar to Kreole achieving such success on their own is suggested by the number of schools that have done it. (How many can you think of?)

How many effective schools must you see to be persuaded...

References

- Abt Associates (1977). *Education as Experimentation: A Planned Variation Model* (Vol. IV). Cambridge, MA.
- Becker, W., Engelmann, S., Carnine, D. & Rhine, W. (1981). Direct Instruction Model. In W.R. Rhine (Ed.), *Making Schools More Effective: New Directions from Follow Through* (pp. 95-154). New York: Academic Press.
- Carnine, D., Granzin, A. & Becker, W. (1988). Direct Instruction. In J. Graden, J. Zins & M. Curtis (Eds.), *Alternative Education Delivery Systems: Enhancing Instructional Options for All Students* (pp. 327-349). Washington, D.C: National Association of School Psychologists.
- Carnine, D., Grossen, B. & Silbert, J. In Press. In J. Block, T. Guskey & S. Everson (Eds.), *Choosing Research-Based School Improvement Innovations*. New York: Scholastic.
- Carnine, D. & Kameenui, E. (1992). *Teaching Higher Order Thinking to All Students*. Austin, TX: Pro-Ed.
- Delpit, L.D. (1988). The Silenced Dialogue: Power and Pedagogy in Educating Other People's Children. *Harvard Education Review*, 58, 280-298.
- Edmonds, R. (1979). Effective Schools for the Urban Poor. *Educational Leadership*, 39, 15-27.
- Elliot, S.N. & Shapiro, E.S. (1990). Intervention Techniques and Programs for Academic Performance Problems. In T. B. Gutkin & C.R. Reynolds (Eds.), *The Handbook of School Psychology*. New York: John Wiley & Sons.
- Gersten, R., Darch, C. & Gleason, M. (1988). The Effectiveness of Academic Kindergarten for Low-Income Students: Analysis and Discussion. *Elementary School Journal*.
- Good, T. & Brophy, J. (1986). School Effects. In M.C. Wittrock (Ed.), *Handbook of Research on Teaching* (3rd ed.). New York: Macmillan.
- Haney, W. (1977). *Reanalysis of Follow Through Parent and Teacher Data*. Boston: Huron Institute.
- Joyce, B. (1981). A Memorandum for the Future. In B. Dillon-Peterson (Ed.), *Staff Development/Organization Development*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Joyce, B. & Showers, B. (1988). *Student Achievement through Staff Development*. New York: Longman.
- Loucks-Horsley, S. & Hegert, L. (1985). *An Action Guide for School Improvement*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Murphy, J., Weil, M., Hallinger, O. & Mitman, A. (1985). School Effectiveness: A Conceptual Framework. *Educational Forum*, 49, 361-374.
- Rosenshine, B. (1976). Classroom Instruction. In N.L. Gage (Ed.), *The Psychology of Teaching Methods* (Seventy-fifth NSSE Yearbook, pp. 335-371). Chicago: University of Chicago Press.
- Stebbins, L., St. Pierre, R., Proper, E., Anderson, R. & Cerva, T. (1977). *Education as Experimentation: A Planned Variation Model*. Vol. IV, A-D. *An Evaluation of Follow Through*. Cambridge, MA: Abt Associates.

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Using a Cumulative Programming Strategy for Initial Language Instruction: A Case Study

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and
Benjamin Lignugaris/Kraft
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Designing effective initial language programs for difficult-to-teach children is challenging. Using a cumulative programming strategy may be one way to teach children with disabilities initial language skills. This case study illustrates the development of an initial language instruction program using a cumulative programming strategy to teach object labels to a child with severe disabilities. Results indicated that the child rapidly acquired the signs for three object labels. Anecdotal reports suggested that at least one of those signs generalized to the child's classroom and home. The results are discussed in terms of implementing cumulative programming to enable young children with disabilities to learn language in naturalistic environments.

Providing initial language intervention programs for children with disabilities is often challenging. The difficulty becomes greater as the child becomes older and still does not seem to make gains with language skills. Keogh and Reichle (1985) describe difficult-to-teach children as those who fail to learn following repeated applications of a variety of intervention strategies, have severe motor impairments which effects the way they respond, and are prompt dependent, inactive participants during teaching sessions.

For children receiving special education services, the law mandates individualized education programs (PL 94-142). Factors to consider when designing an individualized communication program for a child with a disability include the child's preferences, the child's developmental strengths, teaching skills that are functional for the child, and making appropriate adaptations to create a supportive environment (Prizant & Bailey, 1992). If these factors are considered then the intervention program is more likely to succeed.

A variety of techniques are typically used to teach language. One of the most common strategies for teaching object labels is to teach children to point to a specific object when it is named. Reliable responding to this receptive task is followed by the expressive task, naming the object. Responding to object names is then followed by lengthening the children's

utterances by adding other words such as "I want" (Keogh & Reichle, 1985). This type of communication training is often conducted with other objects present which requires the child to discriminate which object is correct. Unfortunately, it is not always clear how the teacher should adjust the instruction if the child responds incorrectly (receptively or expressively) when distracters are present.

One strategy that might be used to solve this problem is to use a cumulative programming strategy to structure initial language instruction. In a cumulative programming strategy, instructional trials on new objects are juxtaposed to instructional trials that the child has a history of responding to correctly. One object is presented at a time in contrast to a typical format in which objects are presented in pairs. This permits simple integration of new objects into the sequence (Becker, 1986; Engelmann & Carnine, 1982; Carnine, 1989). For example, if one is going to teach the names of farm animals, start with one animal (cow) and juxtapose those instructional trials to trials with animals that are most similar to the target animal, and is already in the child's repertoire (horse). When the student has met criterion on the first target animal, juxtapose instructional trials on the second target animal (pig) with instructional trials on the first animal (cow) and other animals in the child's repertoire (horse). When each new animal is added, the previously

mastered animals are included in new teaching sequences. Thus, the initial discrimination is gradually refined in the context of related objects. This structure provides opportunities to reinforce the child while learning a new task as well as a process for integrating new information into related information (Becker, 1986; Carnine, 1989). Gleason, Carnine and Vail (1991) demonstrated that a cumulative programming strategy to teach names of Central American countries was a more effective and efficient strategy than a rapid introduction of seven countries at a time. One problem with applying this to object identification and production tasks with difficult to teach children is to identify a reliable response that may be used in the first instructional sequence. This is critical since cumulative programming is built on reliable responses from the child.

The purpose of this case study was to illustrate how a cumulative programming strategy might be used in designing an initial language program for a child with disabilities. Specifically, the instruction focused on teaching a child with severe disabilities signs for several object labels. The child had limited expressive language skills and a "difficult-to-teach" instructional history. Particular attention was given to establishing control of the instructional environment as well as identifying and controlling access to reinforcers.

Kyle: A Case Study

Kyle was six years and ten months old when we began instruction. He was born with Opitz C Syndrome which is a disorder with varying degrees of severity. He has multiple disabilities which include severe developmental delays. Kyle's mother reported that most developmental milestones were delayed with the exception of when he smiled. He began to hold his head up at 15 months and sat unsupported at 32 months. He started walking when he was four years and eight months. Kyle has had multiple surgeries, has been hospitalized several times and has suffered from various illnesses which has resulted in frequent absences from school. Kyle's mother reported that during the last two school years, he missed 35-40% of the school days.

Kyle's assessment and instructional history are provided in Table 1. He has continued to show significant communication delays while making progress in other areas such as gross and fine motor skills. Communication goals were included in other areas such as self-help and social skills, but he has shown little progress. As shown in Table 1, identified goals are not always met by the end of the target period. At the beginning of this study it was re-

ported that Kyle was using five functional signs. These included no, all done, want a drink, ball and waving good-bye. When he wants something, he points, using his arm to indicate which direction he wants to go. He smiles frequently and seems to enjoy being around people. At the time of this study Kyle's Child Study Team was attempting to obtain an augmentative communication device to increase his ability to communicate with others.

Before beginning instruction, several informal observations were conducted in Kyle's classroom and home. Kyle responded positively to praise and signed "all done" when he did not want to do something. Teachers worked with Kyle in a naturalistic format within a developmentally appropriate practice framework (Fox, Hanline, Vail & Galant, 1994). Many other children were present in the instructional area and Kyle enjoyed watching the activity around him. Teachers gave directions in multiple ways whenever possible (i.e., verbal, sign and presentation of a picture). When Kyle was asked to do something and he responded incorrectly, the teacher did not always require a correct response before moving on. On one occasion we observed Kyle sign "all done" in the middle of an instructional interaction. It appeared that Kyle had determined that the instructional session was over. Rewards (playing on the computer, going for a walk, drinks, etc.) were sometimes given at the completion of a task and seldom used during the teaching sessions.

In a recent article, Carta, Schwartz, Atwater and McConnell (1991) suggested that using a developmentally appropriate practice (DAP) instructional framework may not be appropriate for all children with disabilities. It appeared that Kyle did not have the prerequisite skills needed to take advantage of the DAP instructional context. First, an analysis of Kyle's records and informal observations at school confirmed a long history with little progress in language instruction. It appeared that language instruction was not highly reinforcing since he often obtained objects through pointing. Second, while Kyle was interested in his environment, he was easily distracted during instructional sessions. Third, teachers instructional directions were often inconsistent and unclear which led to confusion. For Kyle, instruction needed to be designed as a successful and reinforcing experience. To accomplish this we needed to increase instructional focus and minimize distractions, identify and provide a reinforcing environment, provide clear instructional interactions and build from what he was already doing. We attended to each of these concerns in designing Kyle's initial language program.

Table 1. Kyle's Assessment and Instructional History

Reported by	Date and Age	Area of Concern	Description	Results / Other Information
Referral to Early Intervention Program	3/89 11 months	Assessment for placement	Battelle Developmental Inventory administered	Communication domain: standard score: -.77, age equivalent: 6 months BDI total: standard score: -2.33 age equivalent: 3 months
Early Intervention Program	4/91 3 years	Assessment Report	Battelle Developmental Inventory administered	Communication: Standard Score: -2.33 Age equivalent: 5 months BDI total: Standard Score: -2.33 age Equivalent: 7 months
Service Provider A	4/91 and 8/91 3 years 4 months	Communication	Goals included choosing an object he wants when presented with two. Imitation of vocalizations	Status of goals were reported as ongoing for both reports (4/91 and 8/91).
Speech Language Pathologist	6/91 3 years 2 months	Communication	"Not meaningfully verbal at this time, but is able to use two signed words associated with play"	
Augmentative/Alternative Communication Team	3/93 4 years 11 months	Communication	Recommended an augmentative communication system	
Functional Vision Evaluation	7/93 5 years 3 months		Matches objects that are the same but does not match objects with pictures	
Service Provider A	3/94 5 years 11 months	Communication	"continues to demonstrate significant delays in communication"	
Individual Education Program (IEP)	3/95 6 years 11 months	Goals in areas of Self-help, social skills and cognitive functioning. No specific goals in communication	Goals included: using signs during play time, use toileting gesture, identification of last name.	No goals were met by the end of the school year (6/95).

Increase Instructional Focus

To minimize distractions, instruction was conducted in Kyle's living room. The room contained several pieces of furniture including a sofa, two chairs, bookshelves, a piano and a desk. During each session Kyle was seated on the floor with his back resting against the sofa. The instructor was seated approximately two to three feet to the right of Kyle. A video camera was placed approximately five feet away and each session was videotaped. No other person was present in the room during instructional sessions. Occasionally a family member would walk by or come in to get something. When this occurred, no trials were presented until the person was gone and Kyle was attending to the instructor and/or materials.

Create a Reinforcing Instructional Context

To determine highly motivating materials, Kyle was observed playing for several days and his mother identified toys he played with frequently. Objects identified as reinforcing included books, cars and See and Say® toys. The signs taught for each of these objects are illustrated in Figure 1. Each sign was adapted and designed so that Kyle could physically produce the signs with ease.

Interestingly, the objects identified as reinforcing shared the common characteristic of producing sound. Four different "Golden Sound Story" books were used to teach the sign "book." Each book produced ten different sounds when a corresponding picture was pushed. Five cars differing in size

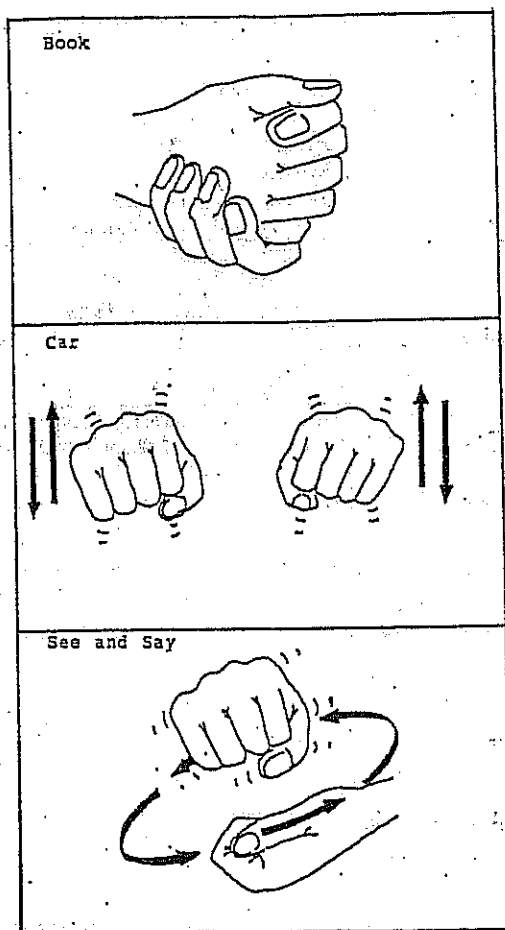


Figure 1. Adapted signs for the labels book, car and See and Say[®].

and colors were used to teach the sign "car." Each car produced a different sound when either a button was pushed or if the wheels were rolled in the reverse position. Two of the cars also had lights that lit up when the sounds were made. Finally, four See and Say[®] toys were used to teach the sign "See and Say[®]." Each one was a different color which produced different sounds. One See and Say[®] was activated by pulling a string and the others by pushing down a lever.

Prior to teaching Kyle to sign each object, the materials were removed from Kyle's room for seven to ten days. This was done to help enhance the reinforcing value of the toys and to restrict access to the materials to instructional sessions. The toys were kept in a basket in the living room where it was difficult for Kyle to obtain the objects independently. Sessions were conducted two or three times a week and each session lasted approximately 10-15 minutes.

Design a Cumulative Instructional Program

While it was previously reported that Kyle had mastered several "signs," only one of those signs was an object name (ball). During an initial probe, Kyle did not reliably respond to the presentation of ball. The only reliable response was "no" in response to the presentation of a small surgical scrub brush. Since "no" in the presence of brush was the only reliable response in Kyle's repertoire, it was used as a known label in the first instructional sequence (i.e., signs no in the presence of the small surgical scrub brush). A trial began when the instructor held up the object and said, "This?" For each new object the instructor physically prompted Kyle to make the correct sign. Physical prompts were gradually faded until Kyle was making the correct response within three seconds of the presentation of the response direction. Criterion for each object was three correct responses on three consecutive sessions. Once criterion was obtained for signing an object, a teaching sequence was introduced that included juxtaposition trials on objects that Kyle had previously mastered. For example, when Kyle met criterion on book, a teaching sequence was introduced that included book and brush. Once car was mastered, the teaching sequence included book and car. Brush was dropped out since "no" was not the appropriate label for it. Once See and Say[®] was mastered, the teaching sequence included book, car and See and Say[®]. Thus each new sign was cumulated into the set of known signs.

Each instructional session began with a review, in which Kyle responded to directions that he had previously mastered. These included "give me five," "look at me," and the object labels that Kyle had met criterion on.

Acquisition of Object Labels

A graph depicting Kyle's acquisition of the object labels book, car and See and Say[®] are presented in Figure 2. Initially, Kyle did not respond correctly with the appropriate sign following the presentation of book, car, or See and Say[®]. The cumulative instructional program was implemented sequentially with book, car and See and Say[®]. After Kyle met criterion on book, his teacher reported to his mother that he was using the sign to request books at school. No instruction on signing book was provided in the school setting. Furthermore, Kyle's mother also reported that he was using the sign throughout the day at home to request book.

The label "car" was more difficult to teach than book or See and Say[®]. At least two reasons may account for this difficulty. First, the sign for car

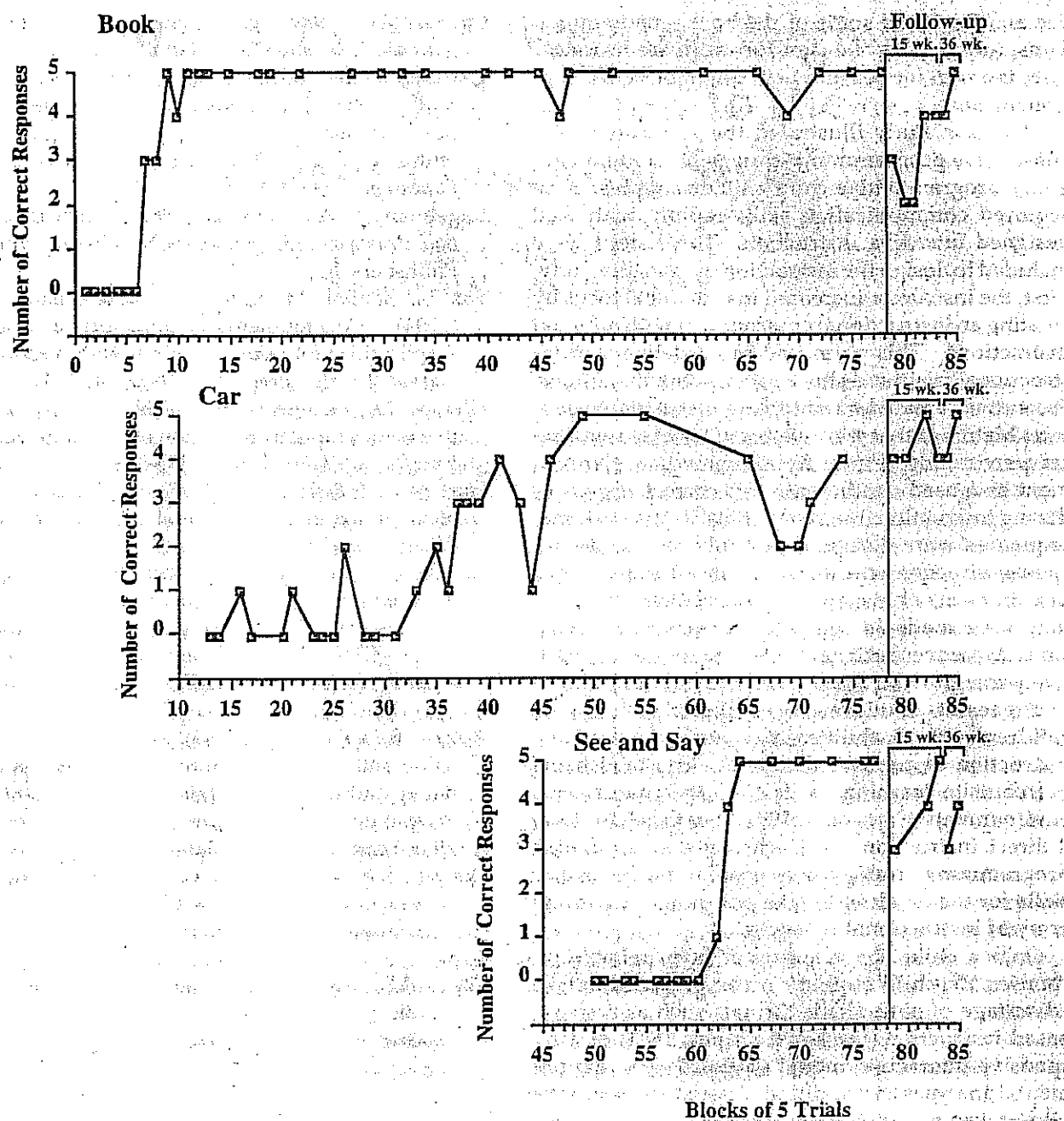


Figure 2. The number of correct responses in blocks of 5 trials for the labels book, car and See and Say®.

required Kyle to hold both his hands up with closed fists (see Figure 1). For Kyle, the sign for "yes" is one hand held up with a closed fist. The yes response was not reliable for Kyle at the time of this instruction but he was receiving incidental instruction at home. Perhaps the functional signs yes and car were too similar to be taught during the same time period. Second, car did not appear to be as reinforcing for Kyle as book or See and Say®. On several occasions, when car was presented Kyle signed book by pointing and signing book.

Follow-up

Follow-up data were collected at 15 and 36 weeks after training. During the 15 week follow-up, Kyle's mother reported that Kyle was using the sign for car frequently whereas, book and See and Say® were not used as frequently. Often Kyle's interests varied and at this time playing with cars was a preferred activity. During the 36 week follow-up, many of Kyle's incorrect responses were a new sign ("music") that he was working on at home and at school. The sign for music was very similar to the sign for

See and Say® and some of the books made music. Thus, introducing the sign for music immediately after the sign for See and Say® might be confusing.

Conclusions

This case study illustrated the application of a cumulative programming strategy to an initial language program with a child with disabilities. Kyle acquired communication skills rapidly with well designed intensive instruction. Three steps were included to design the instruction used in this study. First, the instructor increased instructional focus by creating an instructional environment with minimal distractions. This permitted rapid delivery of instructional trials and shorter instructional sessions. Second, we created a reinforcing instructional context. Materials that were expected to act as reinforcers were removed from Kyle's immediate environment and used contingently for correct responses during instructional sessions. Finally, instructional sequences were designed carefully so that the response direction was the same for all trials. Since directions may have not always been clear to Kyle, they were made as simple and consistent as possible. Moreover each new object name was cumulatively integrated into the instructional program.

The results of this case study illustrate that some children with disabilities may require systematic instruction in controlled contexts to establish the prerequisite learning skills for other naturalistic environments (Carta et al., 1991). For these children, a direct instruction approach using a cumulative programming strategy may provide the necessary skills for the children to take advantage of a broad array of instructional practices.

Once a child has acquired a set of reliable responses, the child might be better prepared to take advantage of naturalistic formats such as activity-based instruction (Bricker & Cripe, 1981) or a responsive interaction model (Weiss, 1981). Experimental analyses and additional case studies must be undertaken to validate the effectiveness of a cumulative programming strategy for initial language instruction and to examine what systematic procedures are needed to move toward acknowledged developmentally appropriate instructional frameworks such as incidental teaching (Hart & Risley, 1975), milieu teaching (Warren & Gazdag, 1990) or activity-based instruction (Bricker & Cripe, 1992).

References

- Becker, W. C. (1986). *Applied Psychology for Teachers: A Behavioral Cognitive Approach*. Chicago: Science Research Associates.
- Bricker, D., & Cripe, J. J. (1992). *An activity-based approach to early intervention*. Baltimore: Brooks.
- Carnine, D. (1989). Designing practice activities. *Journal of Learning Disabilities*, 10, 603-607.
- Carta, J. J., Schwartz, I. S., Atwater, J. B., & McConnell, S. R. (1991). Developmentally appropriate practice: Appraising its usefulness for young children with disabilities. *Topics in Early Childhood Special Education*, 11(1), 1-20.
- Engelmann, S., & Carnine, D. (1982). *Theory of Instruction: Principles and Applications*. New York: Irvington Publishers, Inc.
- Fox, L., Hanline, M. F., Vail, C. O., & Galant, K. R. (1994). Developmentally appropriate practice: Applications for young children with disabilities. *Journal of Early Intervention*, 18(3), 243-257.
- Gleason, M., Carnine, D., & Vala, N. (1991). Cumulative versus rapid introduction of new information. *Exceptional Children*, 57(4), 353-358.
- Hart, B. M., & Risley, T. R. (1975). Incidental teaching of language in the preschool. *Journal of Applied Behavior Analysis*, 8(4), 411-420.
- Keogh, W. J., & Reichle, J. (1985). Communication intervention for the "difficult-to-teach" severely handicapped. In S. F. Warren and A. K. Rogers-Warren (Eds.), *Teaching Functional Language: Generalization and Maintenance of Language Skills* (pp. 157-194). Baltimore: University Park Press.
- Prizant, B., & Bailey, D. (1992). Facilitating the acquisition and use of communication skills. In D. B. Bailey and M. Wolery (Eds.), *Teaching Infants and Preschoolers with Disabilities* (2nd ed., pp. 299-361). New York: Macmillan Publishing Company.
- Warren, S. F., & Gazdag, G. (1990). Facilitating early language development with milieu intervention procedures. *Journal of Early Intervention*, 14(1), 62-86.
- Weiss, R. S. (1981). INREAL intervention for language handicapped and bilingual children. *Journal of the Division for Early Childhood*, 4, 40-52.

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Should Method of Teaching Beginning Reading Be Matched to the Student's Learning Style?

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Methods of teaching reading should be determined by the nature of the written language system that students are learning to read. Our written language system is a system of representing spoken language with written alphabetic symbols. To read that which has been written, one must know the correspondences between written symbols and the speech sounds that they represent; in other words, one must know the alphabetic-phonetic code. Furthermore, a high level of mastery is required to ensure that students will be able to apply that phonetic knowledge rapidly and effortlessly to read words and passages. Automatic decoding is essential to independent reading and the comprehension of complex passages.

Intensive and systematic instruction in phonics has been scientifically validated again and again as the most effective means of ensuring that students acquire the automatic decoding skills on which reading comprehension must rest (Adams, 1994). As expressed by Stanovich (1994), "that direct instruction in alphabetic coding facilitates early reading acquisition is one of the most well established conclusions in all of behavioral science."

Stanovich's conclusion regarding the benefits of phonics instruction is not limited to students with a particular "learning style". Empirical research has shown

that attempts to match method of teaching with learning style have been unsuccessful. Despite this evidence, educators continue to tout learning styles as the solution to the reading achievement crisis. A brief look at the historical underpinnings of the learning styles approach might help to dispel the learning styles myth.

Today's learning styles approach was known in earlier years (60s, 70s, early 80s) as a modality preference approach. Advocates of the modality matching approach hypothesized that learners could be classified as having either a "visual modality preference" or an "auditory modality preference", that instructional methods could be classified as either

"auditory" or "visual", and that modality preferences could be matched with instructional methods to the benefit of all students. Whole-word/look-say methods were classified as "visual"; code-emphasis/phonics methods were classified as "auditory". Students with a "visual" style were to be taught with a "visual" method and those with an "auditory" style were to be taught with an "auditory" method.

Back in 1978, I reviewed fifteen studies in which the modality matching approach was evaluated and concluded that there was no evidence to support the approach (Tarver & Dawson, 1978). Other reviewers came to the same conclusion. As often happens when an instructional approach is shown not to work, the modality matching approach went underground for a while, only to reemerge in a few short years with a new name. "Learning styles" replaced "modality matching".

In the new learning styles approach, students are classified as either global or analytic learners and matched to either a global or an analytic method of teaching reading. But the global learners and methods of today are strikingly similar to the visual learners and methods of yesteryear and the analytic learners and methods of today are strikingly similar to the auditory learners and methods of yesteryear. Furthermore, reviews of empirical studies of the new learning styles approach, like those of the old modality preference approach, have revealed a dearth of evidence to support the approach (Snider, 1992; Stahl & Kuhn, 1995).

It is important to know that the current learning styles movement is part and parcel of the current whole language movement. Increasing recognition that whole language has been a dismal failure in California and elsewhere has led to a lot of backpedaling on the part of whole language advocates. Such backpedaling is reflected in claims that whole language teachers DO teach phonics when it is needed or that they DO teach phonics to those students whose styles are compatible with phonics. The unfortunate truth is that the phonics instruction

provided by most whole language teachers is simply "too little, too late."

All students, regardless of hypothesized "style," benefit from intensive, systematic phonics in beginning reading instruction. This is not to say that phonics instruction is the only kind of instruction involved in effective reading instruction. Effective reading programs provide fluency and comprehension instruction as well as phonics instruction. For example, the *Reading Mastery* program by Engelmann and colleagues emphasizes systematic, intensive phonics in the initial stages of instruction. Gradually, the emphasis shifts to fluency instruction which entails practice through repeated readings of increasingly difficult word lists and passages. By third grade, the emphasis is on comprehension instruction which entails a variety of meaning-getting and meaning-constructing strategies as well as vocabulary expansion and enrichment.

In contrast, whole language instruction begins with a focus on the construction of meaning and it is assumed that children will discover phonetic principles as they read for meaning. In critiquing whole language, leading linguists have pointed out that it makes little sense to expect children to rediscover or recreate a complex phonetic code that has evolved over thousands of years. Instead, we should teach that code directly so that children can then apply that knowledge to read independently for meaning and enjoyment.

Research, experience, and common sense tell us that phonics-first is the way to go in beginning reading instruction. That is no less true for students who happen to have strong visual and/or global abilities than it is for students who happen to have

strong auditory and/or analytic abilities. This does not mean that children's individual differences are to be ignored; good teaching always entails attention to individual differences. But it does mean that we need not attempt to individualize on the basis of "learning styles." Instead, we must individualize on the basis of each child's needs in terms of the reading skills that he/she has not acquired.

Our knowledge of how to teach reading to all of our students, with all of their diverse and unique learning characteristics, exceeds by far our implementation of that knowledge. It's time for parents, other citizens, and teachers to insist that the educational establishment's fascination with philosophical, theoretical, and political debates be replaced by a commitment to instructional practices that work. Make no mistake about it, direct instruction in phonics is a good place to start!

References

- Adams, M. (1990). *Beginning to read*. Cambridge: The MIT Press.
- Snider, V. E. (1992). Learning styles and learning to read: A critique. *Remedial and Special Education*, 13, 6-18.
- Stahl, S. A., & Kuhn, M. R. (1995). Does whole language or instruction matched to learning styles help children learn to read? *School Psychology Review*, 24, 393-404.
- Stanovich, K. E. (1994). Romance and reality. *The Reading Teacher*, 47, 280-291.
- Tarver, S. G., & Dawson, M. M. (1978). Modality preference and the teaching of reading. *Journal of Learning Disabilities*, 11, 17-29.

Effects of Videodisc Instruction on Geometry Achievement in a Mainstreamed Native American High School Class

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This study used randomly assigned control and experimental groups to compare the effectiveness of a videodisc course in informal geometry with a more traditional, textbook-based approach covering the same topics over a six-week period. Subjects were a group of 25 students enrolled in two different class periods of a ninth grade mathematics course at a Midwestern public high school located on a Native American reservation. Posttest results indicated that students instructed with the videodisc materials performed significantly better at a $p < .05$ level than students instructed with the textbook materials. Within the group of students labeled learning disabled, emotionally disturbed, or at-risk, there was a significant difference in posttest performance in favor of the videodisc group. Within the group of non-labeled students, posttest performance again favored the videodisc group but the difference was not statistically significant.

Increasing calls for teaching special education students in regular education settings have occurred in the last decade, along with a gradual increase in such placements (Sawyer, McLaughlin, & Winglee, 1994). Because of that, the search for teaching materials that are effective in classes with a wide range of student ability levels is more important than ever. One program that has shown solid results in this area is the videodisc series Core Concepts in Mathematics and Science, developed in the early 1980s by researchers from the University of Oregon and elsewhere (Hofmeister, Engelmann, & Carnine, 1989). Since its introduction, several studies have compared the Core Concepts videodisc programs with basal programs in the same subject area and found videodisc effectiveness superior. There have been three experimental studies with randomly assigned control and experimental groups (Kelly, Carnine, Gersten, & Grossen, 1986; Moore & Carnine, 1989; Kitz & Thorpe, 1995). Another study used experimental and control groups but no random assignment (Hasselbring, Sherwood, Bransford, Fleenor, Griffith, & Goin, 1987-8). All four studies showed

statistically significant results in favor of the students taught with videodisc materials. Gains were similar in all the studies (see Table 1).

In addition, one study examined the specific areas where videodisc showed an advantage over basal materials (Kelly, Gersten, & Carnine, 1990). The videodisc programs showed a statistically significant advantage in questions related to discrimination practice and differentiation between similar problem types, separation of confusing concepts and terminology, and range of examples. In a large-scale field test involving 337 students, a Core Concepts program was shown to be effective in classes of more than 30 students including mainstreamed special education students (Thorkildsen & Lowry, 1987). This study also showed that teachers who implement the program more thoroughly obtain significantly improved results. Another field test (Miller & Cooke, 1989) showed that special education students taught with the Core Concepts materials in fractions could obtain posttest scores nearly as high as regular education students, with both groups taught together in a mainstreamed setting.

Table 1. Summary of Studies Comparing Videodisc and Basal Math Programs

Study author	Program	N	Student label	Grade	Location	% Gain
Fischer	Geometry	25	Spec. and reg. ed.	9th	Midwest	54
Hasselbring	Fractions	83	High & average	6th	South	22
Kelly, 1986	Fractions	28	17 LD, 11 reg.	H.S.	Oregon	27
Kelly, 1990	Fractions	28	17 LD, 11 reg.	H.S.	Oregon	66
Kitz	Algebra	26	LD	Pre-Coll.	Wisconsin	70
Moore	Fractions	29	Low performing	9th-11th	Northwest	16
Average		37				42

Despite these impressive results, there are potential benefits from additional research on Core Concepts programs. The Informal Geometry program studied here was introduced in 1993 and has not been the subject of published research. All of the published studies have used the Core Concepts Mastering Fractions program except Kitz and Thorpe (1995), which used a Core Concepts prealgebra program, and Thorkildsen and Lowry (1987), which used both the Mastering Fractions and Decimals programs from the Core Concepts series. The present study also is the first to be done with an exclusively minority population and the first involving a Native American population.

Additional research also can be helpful because of limits in existing studies. Many have involved small sample sizes—the true experimental studies all had samples between 26 and 29 (see Table 1). Many have involved short duration, most between 10 and 39 lessons. Just one previous study has used special and regular education students in a mainstreamed setting (Thorkildsen & Lowry). The advantage of further research with the Core Concepts programs is that while any single study may have weaknesses, a group of studies covering a wide range of circumstances is a more powerful indicator of a program's effectiveness. The cost of adopting a videodisc program can be large, up to \$1,000 for a TV monitor and videodisc player and from \$600 to \$2,400 per program (Hofmeister, 1989). This cost is similar to that of adopting a textbook series for a school or school district. Because of the financial costs, as well as the potential impact on student learning, it is imperative that school leaders make curriculum adoption decisions with as much information available as possible.

The theoretical base for the Core Concepts videodisc series dates at least back to the 1966 publication of Bereiter and Engelmann's book, *Teaching Disadvantaged Children in the Preschool*. Their methods showed impressive results with primary school students in the large, government-sponsored study called Project Follow Through (Rhine, 1981). Al-

though the project suffered from political shifts and problems in implementation and evaluation (Doernberger & Zigler, 1993), the results achieved by the Direct Instruction model should not be overlooked. From kindergarten to third grade, the Direct Instruction model moved a group of about 2,000 disadvantaged children from the 18th to the 83rd percentile in reading, from the 19th to the 54th percentile in arithmetic, and from the 8th to the 49th percentile in spelling (Rhine, 1981).

A detailed explanation of Direct Instruction procedures can be found in Engelmann and Carnine's 1991, *Theory of Instruction: Principles and Applications* (rev. ed.). In general, Gersten, Carnine, and Woodward (1987) define Direct Instruction as including these critical features:

1. An explicit step-by-step strategy.
2. Development of mastery at each step in the process.
3. Strategy (or process) corrections for student errors.
4. Gradual fading from teacher directed activities toward independent work.
5. Use of adequate, systematic practice with a range of examples.
6. Cumulative review of newly learned principles.

(p. 49)

The Core Concepts series also was influenced by the Good and Grouws (1979) correlational study of effective fourth grade mathematics teachers. Their key instructional behaviors included, in order, daily reviews, development of lesson, assessment of student comprehension, seatwork, homework, and special reviews weekly and monthly. Other teacher effectiveness research that has influenced the Core Concepts series is that of Brophy and Good (1986), and Rosenshine and Stevens (1986).

It should be noted that the key aspect of the videodisc math program being evaluated is not the videodisc format per se, but the instructional theory and curricular design underlying these programs.

Clark (1983) has noted that "most current summaries and meta-analyses of media comparison studies clearly suggest that media do not influence learning under any conditions. Even in the few cases where dramatic changes in achievement or ability have followed the introduction of a medium... it is not the medium that caused the change but rather a curricular reform that accompanied the change" (p. 445). Hasselbring et al. (1987-8) verified this assertion by testing the Core Concepts materials delivered both by videodisc and by use of overhead transparencies. Results were similar for both groups, and both groups had significantly better posttest performance than students instructed with basal materials (overall pre-posttest gain scores for average and high ability students were 22.2 for the videodisc group, 20.2 for the videodisc on overhead group, and 5.6 for the basal group).

Direct Instruction may be especially helpful for students who have difficulty learning through traditional methods and in classrooms where there is a wide range of abilities. Lower performing students may benefit from receiving strategy instruction, from having topics broken down into smaller steps, and from a greater emphasis on mastery of each step. Lower performing students also may be better motivated by Direct Instruction's emphasis on successful practice and achievement of mastery before proceeding to more advanced concepts.

Despite the excellent results shown by Direct Instruction in Project Follow Through and many other studies (Gersten, 1985), the approach not been widely adopted. Part of the reason may be due to the large number of competing systems and philosophies vying for the attention of teachers and administrators. Part of the reason may be that some teachers are not comfortable with the scripted lessons that are part of Direct Instruction printed programs. Videodisc systems may be more readily accepted because they present information for the teacher. This eliminates scripted lessons and allows the teacher to circulate around the room and monitor student progress and behavior. Another advantage of the videodisc format is that it provides expertise in mathematics and science that is beyond that of many special educators, who often find themselves needing to provide instruction and support in many subject areas.

The purpose of this study is threefold. One goal is to compare the effectiveness of a Core Concepts videodisc course in informal geometry against a more standard, textbook-based type of instruction covering the same topics. A second goal is to analyze any differences in instructional effect of both approaches among low- and high-achieving stu-

dents. A third goal is to study the videodisc program's effectiveness with a group of high school Native American students.

This study has two hypotheses, which are as follows:

Research Hypothesis One: In a mainstreamed, ninth-grade math class, there will be a significant difference in scores on a criterion-based posttest when comparing students taught with the Informal Geometry videodisc course versus students taught with a traditional textbook method covering the same topics.

Research Hypothesis Two: When comparing the videodisc course against the traditional textbook approach within ability groups, there will be a significant difference in posttest scores among both low and high performing students.

Methodology

Subjects

Subjects of this study were 25 students enrolled in two sections of ninth grade math classes at a rural Wisconsin public high school located on a Native American reservation. Ninth grade teachers there implemented a "block" concept during the 1993-94 school year and mainstreamed all special education and at-risk students in regular classes. The study group started with 28 students, 14 in each section. Three students were eliminated after the treatment period because they missed more than 30% of classes during the treatment period. Two were dropped from the control group and one from the experimental group.

The final group included six students labeled learning disabled, one labeled emotionally disturbed, and six labeled at-risk. The remaining 12 students were regular education students. There were 13 students in the experimental group, seven with special education labels and six regular education students. The control group had 12 students, six with special education labels and six regular education students.

The subject school district attempts to follow state of Wisconsin guidelines for identification of special education students. Briefly, the learning disabled label is based on students showing a significant discrepancy between expected and functional achievement (using the modified Bond and Tinker formula) while excluding a number of other circumstances. The emotional disturbance label is based on

showing significant emotional disturbances in at least two of three settings — school, home, and community. The at-risk label is based on showing a high risk for failure due to habitual truancy, having been referred to a drug and alcohol treatment program, or being a school-age parent.

Average age of students was 15 years, nine months. The average age of the group with special education labels was 16 years. Regular education students averaged 15 years, six months. The control group had an average age of 15 years, 10 months. The treatment group had an average age of 15 years, eight months. Subjects were 14 girls and 11 boys. The girls included eight in special education (five at-risk and three learning disabled) and six in regular education. The boys included five in special education (three learning disabled, one at-risk, and one emotionally disturbed) and six in regular education. The control group had five girls and seven boys. The treatment group had nine girls and four boys (see Table 2).

On the student demographic survey, all students classified themselves as Native American. School district figures indicate 99% of students are Native American. The demographic survey of students showed that only a few students knew their parents' income. Census data indicate that the per capita income in 1989 on the reservation was \$4,738, which is about one-third the state average of \$13,276 (Bureau of the Census, 1993). Census figures show that 54% of tribal residents were below federal poverty guidelines, including 66.5% of related children under 18 years of age. Forty-four percent of families on the reservation were married couple families. Other census figures indicated that 40% of persons over age 25 did not have high school degrees or equivalents. The unemployment rate of 21% was about four times the state average of 5.2%.

Treatment implementers were the senior author, a learning disabilities teacher with four years of experience, and a ninth grade math teacher with three years experience. The former has taught special education math classes in fractions, decimals,

geometry, and prealgebra. The latter has taught remedial math, consumer math, ninth grade math, and trigonometry. All their teaching experience is at the subject school.

Materials

Materials used to collect data included a questionnaire about student demographic data and a questionnaire about student attitudes toward the instructional program, both made by the researcher. The test for pretesting was part of the Core Concepts materials. The test for posttesting consisted of one subtest based on the Core Concepts materials and one subtest based on the basal textbook materials. Although both groups covered similar topics, the use of two tests was designed to be fair to both groups and to test how generalizable student knowledge was to unfamiliar materials. The teacher handbooks, student workbooks, and videodisc software used by the experimental group were Core Concepts materials. The *Informal Geometry* course includes three discs and 35 lessons, with lessons designed to be covered one per day. The control group used the geometry portion of a basal mathematics textbook, *Applications of High School Mathematics* (Cohen, M.P., Elgartten, G.H., Gardella, F.J., Lewis, W.S., Meldon, J.E., & Weingarden, M.S., 1990), with sections chosen to correspond to the Core Concepts topics.

Although both basal and videodisc materials covered the same general topics, there was a distinct difference in curricular design. The basal textbook tended to present a number of related concepts, such as identifying right angles, obtuse angles, acute angles, and straight angles; then have a small group of practice exercises done together as a class; and then have a large group of exercises done as independent seatwork. The next daily unit would cover a different general topic, with a quiz covering the daily topics after about one week.

The videodisc sequence typically would break concepts down into smaller steps. For instance, it might first show a right angle and several examples and nonexamples. Then the student would respond

Table 2. Summary of Student Demographic Information

Group	N	Gender	Ethnic group	Educational label
Basal	12	5 F, 7 M	All Native Am.	6 reg., 3 LD, 2 AR, 1 ED
Videodisc	13	9 F, 4 M	All Native Am.	6 reg., 3 LD, 4 AR

to several questions related to right angles. Then the videodisc would describe and show examples of acute angles, again followed by practice questions for students, and so on until the same four items are covered as mentioned in the basal example. Another distinctive feature of the videodisc unit is that topics are constantly stranded, with recurring review of previously presented topics. This occurs both in daily activities and in daily homework. Homework includes topics presented that day as well as on previous days. In accord with Direct Instruction principles, instruction is designed to communicate sameness and connections among elements.

One principle of Direct Instruction is to have high success rates on student work. This is accomplished on the videodisc format by giving students a small chunk of information and then immediately having students answer questions related to that information. During a single lesson of the videodisc course, students would switch back and forth every few minutes between seeing information presented and then answering questions or having brief quizzes related to that information.

Procedure

Several months before beginning the actual implementation of instruction, both teachers were trained in the use of the videodisc system using the Core Concepts teacher handbook and an article outlining steps for implementing a videodisc curriculum (Gersten & Kelly, 1992). Two weeks before implementation, students were given the demographic questionnaire and the pretests in informal geometry.

In each of two sections of freshman math, 14 students were randomly assigned to one of two groups, with four resulting groups of seven students each. Assignment was stratified on the basis of special education labels, so each group would have equal numbers of students from each group (learning disabled, emotionally disturbed, at-risk). The control group received geometry instruction from a regular textbook. The experimental group received geometry instruction using the Core Concepts materials. The treatment period was six weeks, but a number of days were partly or completely lost due to school-wide or ninth grade block special activities. The experimental group completed 15 lessons from the *Informal Geometry* course, the basal group one chapter from its textbook. All students were given posttests at the end of the instruction period, as well as a questionnaire asking their opinions about the geometry unit.

Both teachers followed a similar instructional sequence with both the basal and videodisc units: a predevelopment period with correction of homework and review of previous material as needed, a development period with explanation of contents taught, and an independent seatwork period.

Design

This study used an experimental posttest-only control group design. The independent variable was type of instruction. The dependent variable was posttest achievement. A moderating variable was student ability (on the basis of special education versus regular education classification). Although a pretest was administered, these scores were not used as covariates because there were negligible differences between the means of control and experimental groups (one-half of 1%), and scores of both groups were extremely low (less than 10% correct). The study also included descriptive measures — the student survey of their opinions about the unit and discussion with the implementing teachers.

Reliability

The posttest was scored independently by the two implementers as a check for interscorer reliability. The interscorer reliability coefficient was .99. This high level was expected, as the questions were objective in nature, either correct or incorrect, and scorers had agreed on criteria for scoring beforehand. Points also were deducted (one point per problem) for failing to identify the unit of measurement of answers. To further increase the reliability of scores, the scorers rechecked scores where there were disagreements and adjusted scores for the final scoring.

Content Validity

The topics covered by both units were the following: names and definitions of basic geometric figures, measure of complementary and supplementary angles, measure of interior and exterior angles, perimeter and area of polygons (including triangle, square, rectangle, parallelogram, and trapezoid), and circumference and area of circles. The posttest was designed to correspond to the topics and approximate amount of time spent covering those topics. Of the 40 test questions, topics were as follows:

- Names and definitions of basic geometric figures, 9
- Measure of interior, exterior, supplementary angles, 7

- Perimeter of polygons, 5
- Area of polygons, 9
- Circumference of circles, 6
- Area of circles, 4

Internal Validity

Due to high absenteeism among students at this school, especially among the at-risk and special education populations, mortality was a special consideration for this study. To reduce the incidence of mortality, students were prescreened on the basis of attendance rates. Those who had missed more than 30% of days the previous quarter or the previous semester were eliminated from the study. This eliminated eight students, who still received instruction but whose scores were not considered in study results. Another three students were eliminated from study results after the treatment period due to missing more than 30% of class periods. This included two students labeled at-risk and one student labeled emotionally disturbed. The eliminated at-risk students were in the control group. The eliminated emotionally disturbed student was in the experimental group. This mortality resulted in some differences in categorical composition of the special education students in the two groups, with two more at-risk students in the experimental group compared with the control group and one emotionally disturbed student in the control group.

To control for differences between treatment implementers, each teacher taught one section of videodisc and one section of basal. The random assignment procedure resulted in groups that were very similar in most areas: special education categories, age, previous semester math grades, pretest scores, and performance on Stanford tests. One quirk of the random assignment process was that there were proportionately more girls than boys in the treatment group (five girls out of 12 students in the control group and nine girls out of 13 students in the treatment group).

To control for novelty effect, implementers attempted to make all groups feel they were receiving special treatment. This was helped by the fact that

class sizes half the normal size allowed students to receive more individual attention than previously. Some degree of competition also arose between groups, which may have caused both Hawthorne and John Henry effects. Implementers felt these effects were similar among all the groups, so that no particular group gained an advantage by being part of the study.

Data Analysis

Data were analyzed using both a Mann-Whitney *U* test and a two-sample *t*-test. The nonparametric Mann-Whitney test was selected because the small sample size did not assure that parametric assumptions would be met. The *t*-test was included in line with Borg and Gall's (1989) recommendation that while the *t*-test can provide accurate estimates of statistical significance even with substantial violations parametric assumptions, "if you are concerned about score distributions in your data, you should consider doing both a *t*-test and its nonparametric counterpart—either the Mann-Whitney *U* test or the Wilcoxon signed-rank test" (p. 548). Results of significance versus nonsignificance were the same on both the Mann-Whitney and *t*-test for this study. As would be expected, the Mann-Whitney tests generally yielded slightly higher probabilities of the null hypothesis being true.

Because the research hypotheses were non-directional, a two-tailed *t*-test was used. Results were expected to be in favor of the videodisc group based on results from studies of other Core Concepts programs, but there was a possibility that results would favor the basal group. Thus a more cautious data analysis method was used, again in line with Borg and Gall's (1989) recommendation that researchers "avoid the one-tailed test unless quite certain its use is justified" (p. 550).

Data were analyzed at several levels. First the overall videodisc group posttest mean scores were compared with scores from the overall basal group. Second, comparisons were made within students with or without special education labels. Third, scores were compared on each of the two subtests,

Table 3. Student Achievement Levels

Group	N	Previous math grade (0-4 scale)	Stanford math subtest results	Pretest score (out of 100)
Basal	12	2.42	31.3	6
Videodisc	13	2	32.7	5.5

one taken from basal materials and one from videodisc materials. Finally, subtest scores also were analyzed in a cross-matched manner, yielding a comparison of videodisc group scores on the videodisc subtest versus basal group scores on the basal subtest (the strength of each group); and a comparison of videodisc group scores on the basal subtest versus basal group scores on the videodisc subtest (the weaker area for each group). A significance level of .05 was used for all statistical tests.

Descriptive information was compiled and reported in terms of number of responses and general comments. The student surveys used a five-choice Likert scale that allowed some mathematical comparison of strength of response.

Results

Pretest

Pretest results, shown in Table 3, were uniformly low. Students had little exposure to geometry before this unit and have generally low math achievement scores as reflected in their Stanford Achievement scores. The average pretest score for the videodisc group was 5.5 out of a possible 100. For the basal group, the average was 6.0. Because these scores were so low and the difference between groups was so small, only the posttest scores were compared for significance.

Posttest

Overall videodisc versus basal. The overall comparison shows that the videodisc-instructed group performed significantly better than the basal-instructed group on the overall posttest ($p=.0077$ on Mann-Whitney and $.0064$ on the t -test). The difference between means of the groups was 22.9 (70.2% versus 47.3%), with a standard deviation of 17.7 for the videodisc group and 20.1 for the basal group (see Table 4, top two rows).

Comparisons with students grouped by ability levels. Comparing within subgroups, there was a significant difference among special education-labeled students in favor of those taught with videodisc ($p=.0455$ on the Mann-Whitney test and $.020$ on the t -test). The mean difference was 26 percentage points (66.8% versus 40.8%), again more than one standard deviation (see Table 4, middle two rows). There was not a significant difference when comparing among regular education students ($p=.1282$ on Mann-Whitney, $p=.12$ on the t -test). Although there was a large difference in means in favor of the videodisc group, 74.2% versus 53.9%, the small number in each group (six) and large standard deviations (18 and 23, respectively), weighed against a significant finding in the comparison of regular edu-

cation students (see Table 4, bottom two rows).

Comparison of scores on basal subtest and videodisc subtest. When comparing overall group performance on the subtests, the videodisc students performed significantly better on the videodisc-based subtest but not the basal-based subtest. On the videodisc-based subtest, mean scores were 77.8% versus 40.1%, a difference of almost two standard deviations (significance at $p=.0007$ on Mann-Whitney and $p=.0000$ on the t -test). On the basal-based subtest, the videodisc group still outscored the basal students, 62.5% versus 54.6%, but this difference was not significant ($p=.3841$ on Mann-Whitney and $p=.3$ on the t -test, see Table 5).

Comparison of scores on cross-matched subtests. A cross-matched comparison of scores is designed to look at how groups did on a "strength versus strength" or "weakness versus weakness" comparison. In the cross-matched comparisons for this study, basal group scores on the basal subtest were compared to videodisc group scores on the videodisc subtest (strength versus strength) and basal group scores on the videodisc subtest were compared to videodisc group scores on the basal subtest (weakness versus weakness). Note that the overall average on the videodisc subtest (59.7%) was slightly higher than the overall average on the basal subtest (59.1%). However, these results do give an indication of how each group performed on material it was more familiar with or less familiar with, since diagrams and vocabulary vary somewhat between sources of materials. Here, videodisc students performed significantly better on both comparisons. The means were 77.8% versus 54.6% on the "strength versus strength" subtests (Mann-Whitney $p=.0123$, t -test $p=.0057$). The means were 62.5% versus 40.1% on the "weakness versus weakness" subtests (Mann-Whitney $p=.0083$, t -test $p=.0091$, see Table 6).

Descriptive

Students were given a Likert-style survey after the treatment period asking their opinion of the geometry unit. Twenty-one of 25 students completed the survey, which was given on just one day in order to protect anonymity. Four questions and a general comments section were given to both experimental and control groups. Two questions were given only to the videodisc group. Totals are given by number of students selecting the option and with average numbers assigned to responses, with five points for the most positive response and one point for the least positive.

Asked "How this geometry unit compare to other math units?" videodisc responses were: better-6, slightly better-2, the same-1, slightly worse-1, for an

Table 4. Statistical Comparisons of Posttest Scores

Group	N	Mean of scores	Median score	Standard deviation	Mann-Whitney W value	Mann-Whitney p value	T value	T-test p value
Videodisc overall	13	70.2	79.5	17.7	218.5	0.0077	3.01	0.0064
Basal overall	12	47.3	42.5	20.1				
Spec. ed. students, videodisc group	7	66.8	65.5	18	63.8	0.0455	2.77	0.02
Spec. ed. students, basal group	6	40.8	41.75	15.8				
Reg. ed. students, videodisc group	6	74.2	79.75	18	49	0.1282	1.7	0.12
Reg. ed. students, basal group	6	53.9	45.75	3				

average of 4.3. In the basal instruction group, responses were: better-3, slightly better-2, the same-6, for an average of 3.7.

Both groups responded roughly the same to a question about whether the unit moved too fast or too slow and whether the number of tests and quizzes was appropriate. On the former question, the videodisc responses were: slightly too fast-2, about right-7, slightly too slow-1. For the basal group, responses were: slightly too fast-2, about right-8. On the latter question, videodisc group responses were too many-1, slightly too many-2, about right-7. For the basal group, responses were too many-3, slightly too many-1, about right-7.

Asked, "How well do you feel you learned the concepts of this unit," the videodisc group was slightly more positive, with an average of 3.9 versus 3.2. Totals for the videodisc group were: very well-1, well-7, average-2. For the basal group, totals were: well-3, average-7, below average-1. Here, eight of 10 videodisc students said they learned the content well or very well, compared with three of 11 in the basal group.

Overall, both groups of students appeared to have been satisfied with their progress during the treatment period, with slightly more positive responses from the videodisc group. The smaller class sizes may have contributed to student satisfaction.

Both implementing teachers noticed that on days when student interest or energy levels were low, it seemed easier to get students motivated with the videodisc program than with the basal program. Teachers liked being able to move among students while the videodisc was being shown. They felt this was an advantage in terms of monitoring student behavior and performance. Both felt they could improve in how well they maintained brisk pacing with the videodisc materials.

One problem the implementers found with the videodisc program was that it is designed for completing exactly one lesson per day, with homework tailored to suit exactly that material. On days when the lesson was not completed because of interruptions, shorter class periods, or a need for remediation, it tended to throw off many aspects of the program. The homework assignment had to be modified be-

cause not all topics were covered. The day following an uncompleted lesson, teachers were faced with the choice of completing the lesson and not starting on the next lesson (in order to get back in synch), or of trying to complete the previous day's lesson as well as another lesson.

Discussion

Interpretation of Results

Research Hypothesis One was that in a mainstreamed, ninth-grade math class, there would be a significant difference in scores on a criterion-based posttest when comparing students taught with the *Informal Geometry* videodisc course to students taught in a class using a traditional textbook method covering the same topics. Here, the videodisc students showed significantly better posttest scores compared with a group taught with a traditional basal approach, with a difference in mean gains of 22.9% in favor of the videodisc group.

Research Hypothesis Two was that when comparing the videodisc course against the traditional textbook approach within ability groups, there would be a significant difference in posttest scores among both low and high performing students. Here, low-performing students did score significantly better under the videodisc condition, with a difference of 26% in favor of the videodisc students. There was not a statistically significant difference between

groups of high-performing students, although the mean gain scores were 20.3% higher for the videodisc group. Videodisc-instructed students outperformed basal-instructed students on both videodisc and basal versions of the posttest, although the differences were not statistically significant for the basal version.

Descriptive results showed that students felt they learned more with videodisc materials than traditional materials, and teachers felt the videodisc program offered several advantages over the basal approach.

Relationship to Previous Research

These results are consistent with other research using Core Concepts videodisc programs. Findings are very similar to the Kitz and Thorpe (1995) results for teaching algebra. When breaking down the posttest sections by the videodisc-based test and basal-based test, the Kitz and Thorpe videodisc group scored twice as high as the control group on the videodisc test (adjusted means of 24.26 versus 11.13, with $p < .01$). For this study, the videodisc group scored 94% higher on the videodisc-based test, again about double. On the basal-based test, scores were closer in both studies. In Kitz and Thorpe, the videodisc group scored 40% higher than the basal group (adjusted means of 18.61 versus 13.32, with $p < .01$). For this study, the videodisc group scored 14% higher on the basal-based test.

Table 5. Paired Comparisons of Subtest Scores

Group	N	Mean of scores	Median score	Standard deviation	Mann-Whitney W value	Mann-Whitney p value	T value	T-test p value
Videodisc group on basal subtest	13	62.5	70	17.8	185.5	0.3841	1.05	0.3
Basal group on basal subtest	12	54.6	49	19.9				
Videodisc group on videodisc subtest	13	77.8	84	18	231.5	0.0007	4.81	0
Basal group on videodisc subtest	12	40.1	32.5	21				

Table 6. Cross-matched Comparisons of Subtest Scores

Group	N	Mean of scores	Median score	Standard deviation	Mann-Whitney W value	Mann-Whitney p value	T value	T-test p value
Videodisc group on videodisc subtest	13	77.8	84	18	215.5	0.0123	3.06	0.0057
Basal group on basal subtest	12	54.6	49	19.9				
Videodisc group on basal subtest	13	62.5	70	17.8	218	0.0083	2.87	0.0091
Basal group on videodisc subtest	12	40.1	32.5	21				

Results from Moore and Carnine (1989) were expected to be closer, since both control and treatment groups followed a teaching sequence in line with Good and Grouws' (1979) recommendations. On the posttest, the videodisc students scored 24% higher than the basal group, but that difference dropped to 8% on the maintenance test.

The results of Kelly et al. (1986) also were similar. They showed the videodisc group scoring 20% higher on a posttest designed by the researcher and 34% higher on a maintenance test. The greater increase on the maintenance test reported by Kelly et al. is more in line with the Kitz and Thorpe's followup results showing their videodisc students did better in the next semester math class.

In comparing within ability groups, Hasselbring et al. (1987-88) showed results that were similar to this study's. Among high achievers, the gains were 18.4% for videodisc group, 15.3% for the overhead group, and 2.2% for the control group. Among average achieving students, the gains were 26% for the video group, 25% for the overhead group, and 9% for the control group. The Hasselbring et al. study follows the pattern of much greater gains for students taught with Core Concepts materials. Like this study, Hasselbring et al. found slightly lower gains among the high achieving students. The Hasselbring et al. study in general involved higher ability students than the subjects of this study.

In the descriptive portion of research regarding student and teacher attitudes toward the Core Concepts materials, this study also was consistent with other studies in that students and teachers generally showed a preference for the videodisc materials, and that there seemed to be motivational and behavioral gains along with test performance gains. Like this study, Miller and Cooke (1989), Moore and Carnine (1989), and Peterson et al. (1988) showed very positive responses from students and teachers to the videodisc materials.

Summary

Again, none of these studies individually can be considered conclusive or generalizeable to the overall U.S. population, but their general pattern shows clear evidence in favor of the videodisc materials. Core Concepts programs have shown strengths in achieving performance gains as well as attitudinal gains among students, and have been shown to achieve gains with both low- and high-ability students. These materials may be especially useful to special educators who lack math or science expertise. They also show promise for use in the difficult situation of teaching classrooms where there is a wide variation in student abilities. Given the consistently positive results associated with the Core Concepts materials, they merit attention from school leaders involved in selecting curricular materials.

References

- Bereiter, C., & Engelmann, S. (1966). *Teaching disadvantaged children in the preschool*. Englewood Cliffs, NJ: Prentice Hall.
- Borg, W.R. & Gall, M.D. (1989). *Educational research: An introduction* (5th ed.). White Plains, NY: Longman Inc.
- Brophy, J.E., & Good, T.L. (1986) Teacher behavior and student achievement. In M.C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.) (pp. 328-375). New York: MacMillan.
- Bureau of the Census (1993). *1990 census of the population, social and economic characteristics, Wisconsin*. Washington, DC: U.S. Government Printing Office.
- Clark, R.E. (1983). Reconsidering research on learning from the media. *Review of Educational Research*, 53(4), 445-459.
- Cohen, M.P., Elgartten, G.H., Gardella, F.J., Lewis, W.S., Meldon, J.E., & Weingarden, M.S. (1990). *Applications of high school mathematics*. Boston: Houghton Mifflin.
- Doernberger, C., & Zigler, E. (1993). Project Follow Through: Intent and reality. In Zigler, E., & Styfco (Eds.), *Head Start and beyond: A national plan for extended childhood intervention* (pp. 43-72). New Haven: Yale University Press.
- Engelmann, S. & Carnine, D. (1991). *Theory of instruction: Principles and applications* (rev. ed.). New York: Irvington.
- Gersten, R. (1985). Direct instruction with special education students: A review of evaluation research. *The Journal of Special Education*, 19(1), 41-58.
- Gersten, R., Carnine, D., & Woodward, J. (1987). Direct Instruction research: The third decade. *Remedial and Special Education*, 8(6), 48-56.
- Gersten, R., & Kelly, B. (1992). Coaching secondary special education teachers in implementation of an innovative videodisc mathematics curriculum. *Remedial and Special Education*, 13(4), 40-51.
- Good, T.L. & Grouws, D.A. (1979). The Missouri Mathematics Effectiveness Project: An experimental study in fourth-grade classrooms. *Journal of Educational Psychology*, 71(3), 355-362.
- Hasselbring, T., Sherwood, R., Bransford, J., Fleenor, K., Griffith, D., & Goin, L. (1987-8). An evaluation of a level-one instructional videodisc program. *Journal of Educational Technology Systems*, 16(2), 151-169.
- Hofmeister, A. (1989). Teaching with videodiscs. *Teaching Exceptional Children*, 21(3), 52-54.
- Hofmeister, A.M., Engelmann, S., & Carnine, D. (1989). Developing and validating science education videodiscs. *Journal of Research in Science Teaching*, 26(8), 665-677.
- Kelly, B., Carnine, D., Gersten, R., & Grossen, B. (1986). The effectiveness of videodisc instruction in teaching fractions to learning-disabled and remedial high school students. *Journal of Special Education Technology*, 8(2), 5-17.
- Kelly, B., Gersten, R., & Carnine, D. (1990). Student error patterns as a function of curriculum design: Teaching fractions to remedial high school students and high school students with learning disabilities. *Journal of Learning Disabilities*, 23(1), 23-29.
- Kitz, W.R. & Thorpe, H. (1995). Comparing the effectiveness of videodisc and traditional algebra instruction with college-aged students with learning disabilities. *Remedial and Special Education*, in press.
- Miller, S.C., & Cooke, N.L. (1989). Mainstreaming students with learning disabilities for videodisc math instruction. *Teaching Exceptional Children*, 21(3), 57-60.
- Moore, L.J., & Carnine, D. (1989). Evaluating curriculum design in the context of active teaching. *Remedial and Special Education*, 10(4), 28-37.
- Peterson, L., Hofmeister, A.M., & Lubke, M. (1988). A videodisc approach to instructional productivity. *Educational Technology*, 28(2), 16-22.
- Rosenshine, V., & Stevens, R. (1986). Teaching functions. In M. Wittrock (Ed.) *Third handbook of research on teaching* (3rd ed.) (pp. 375-391). New York: Macmillan.
- Sawyer, R.J., McLaughlin, M.J., & Winglee, M. (1994). Is integration of students with disabilities happening? *Remedial and Special Education*, 14(4), 204-215.
- Systems Impact Inc. (1993). *Mastering informal geometry*. Washington, DC: Author.
- Thorkildsen, R., & Lowry, W. (1987). *Determining the differential effect on math achievement levels of implementation of a videodisc-based program with regularly and mildly handicapped students*. Logan, UT: Utah State University. (ERIC Document Reproduction Service No. ED 339 341).
- Woodward, J., & Gersten, R. (1992). Innovative technology for secondary students with learning disabilities. *Exceptional Children*, 58 (5), 407-421.

Why Alex Can't Write: The International Perspective

Natalie Kramer
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Author's note: I work for the Department of Labor in Washington DC as an economist. My field is statistical research in the area of compensation and employee benefits. As I say in the essay, I was born and raised in Russia (Saint Petersburg, formerly Leningrad). I came to America at the age of seventeen. The differences in emphasis in American education as compared with education the way I had experienced it in Russia always interested me. However, it was more of an academic interest until I had my own child and had to make decisions about his education. Seeing direct instruction and the so-called child-centered education both in action at the same time at the same school brought my opposition to the latter into focus.

This is not a sequel to "Why Johnny can't read," although it could well be. Alex is my son. He is ten years old. By a funny twist of fate, he can read and write well in three languages, but...let me back up some.

I am a naturalized American. I immigrated with my family from Russia in the late seventies at the age of seventeen. I had just recently graduated from high school in Leningrad, where we studied (no options given) advanced calculus and trigonometry along with several years of physics, chemistry, geography, biology, liberal arts and social sciences. Most of us enjoyed school even if at times we found it too demanding. To this day, many of the things I learned in school remain a source of valuable reference to me.

Almost as soon as I came to Washington, I heard from recent immigrants with children that schools are "a problem" in this land of opportunity. I had heard stories about Jewish parents enrolling their children in Catholic schools because math instruction was "a little better" there, parents tutoring their children at home because the school is "hopeless," and one couple even camping out at night with their *raskladushki* (the Russian word for "fold-out beds") so they could enroll their children in an alternative public school. Since I was only seventeen, the matter was of no immediate concern to me and I decided that I would cross the bridge when I came to it. I started college. I took a geometry course as an elective in my sophomore year. It happened to have been a required course for education majors who, in a few months' time, would become elementary school teachers. I was immediately struck by the fact that these students' knowledge of geometry was roughly

equivalent to that of my weaker classmates in Russia in fifth or sixth grade. A frightening thought crossed my mind—will these people teach my children in elementary school?

When the time came for my son Alex to start kindergarten, I did my homework. I talked to many parents, some teachers, some children and many adults who had gone through different educational systems. With the only connection to the French speaking world being my double major in French language and literature, I enrolled Alex at the French School in a Washington suburb. Many doubts remained in my and my husband's minds and many questions came to us from others: "Why French? Don't you want him to be American?" "Don't you realize that a non-French child cannot do well in a French school?" My reply was always the same: I liked serious systematic instruction and I was more likely to find it in a French than in an American school, not to mention the benefit of an additional foreign language learned at an early age.

At the French school Alex spent his kindergarten year learning French in a special class for non-native speakers along with the basics of letter formation and a whole slew of social, academic and motor skills. I was pleased with how well the program was structured, how precisely it was carried out, how the teacher always seemed to have mastered the methodology and the sequence of instruction. In first grade the instruction in reading and writing in French began (in English these would not begin until second grade). Alex, thirteen months after having uttered his first word in French, found himself in the top reading group. Some children who spoke only French were placed in the lower two. The parent

who had predicted that my non-French child could never do well in this school acted a bit annoyed, but by then my skin had started thickening. The method used to teach the children reading was called the semi-global, a kind of combination of limited "look-say" and phonics. There was some whole word recognition initially with growing emphasis on letter-sound correspondence and rules of spelling later on in the year. By the end of the year the children could read short books independently, spell many commonly used words and write short sentences correctly with proper capitalization and punctuation. All of the instruction was sequenced, with the teachers at any point in time knowing what they had to teach, how to teach it, the precise amount of repetition required for each skill, the precise ratios of time spent on the various types of skill training, and the precise manner in which to deliver the drills. Students who did not do well received additional reinforcement in smaller groups, often with the help of volunteer moms. Alex proudly finished first grade at the top of his class, eagerly awaiting the same opportunity to begin reading and writing in English, the language he spoke the best of all three.

In the summer I ignored all the warnings not to teach a child to read in two languages at the same time and yielded to Alex's pleas to teach him to read in English. I modeled my teaching on the instruction Alex had received in his French class. We did a little "look-say" using Dr. Seuss. I then explained the rules on consonant blends and the long vowels. In three weeks' time Alex was reading independently and has been an excellent reader since. His English teacher used him as an example of good reading, correct pronunciation and intonation.

However, things did not go as smoothly when Alex entered second grade and the instruction in written English began. There was no instruction in writing the way I knew it. There were some feeble attempts to teach spelling using ditto sheets with columns of hand-written words given out of context. No drills or practice in spelling followed the distribution of these sheets. There were no textbooks or workbooks for writing. The children had fun discussions on various topics picked by the teacher. The topics included Egyptian mummies with many details of the process of mummification which not every adult would want to learn. Whales were next, followed by dinosaurs. Arts and crafts were commonplace in the English classroom; birthday celebrations with cookies and juice took place during class time. At the same time the children came home with writing assignments that they were expected to complete independently. Alex would come to me with a blank page and ask me to write the

essays and the book reports because he had no idea where to begin. Being a firm believer in the child's responsibility to complete assigned homework independently, I first tried to tell Alex to do his assignments on his own. When I realized that all he did was sit over a blank page dousing it heavily in tears, I tried to help. We tried to put his ideas in writing. He didn't know how to spell most of the words he wanted to use or how to build a sentence. His writing was for the most part unintelligible and no one could tell what he wanted to say if he hadn't explained his ideas orally. These assignments were collected by the teacher and not returned until the end of term. No correction or explanation of errors ever took place. Alex soon developed a true aversion to writing in English which he has yet to fully overcome at age ten.

I began reading about instruction in reading and writing and realized that the type of instruction, if you may call it that, that my son was receiving was not inconsistent with the "whole language" approach, wherein there is no direct instruction in the basic blocks of writing; rather, it is learned "holistically" through practice. What I found quite interesting was that, although the whole language approach had only recently begun gaining popularity on a large scale, the teachers were not even vaguely familiar with the concepts that were at the base of education the way we had experienced it as children. In one of the discussions I had with my son's English teacher I explained that the completion of essays that she assigned required skills in sentence structure that he had not learned in class. The teacher smiled and suggested that Alex sit down at home by himself and "write some sentences." Half way through my attempt to explain that eight-year-olds should not have to teach themselves at home what the teacher should teach them in class, I realized that the teacher simply didn't understand what I meant. What I meant was that instead of conducting studies of owl pellets (don't inhale, you will sneeze!) I expected her to deliver systematic instruction in syntax and other areas to my child in class. We were simply speaking different languages. My attempts to reason with the other English teachers in the school were just as unsuccessful. When I protested assignments of large creative writing projects, saying that the children's spelling was still so deficient that they would be better served by learning some spelling basics first, I was told that "we cannot wait until Alex can spell every word in the English language before allowing him to write creatively." When I asked about the sequencing of curricular content—or, in lay language, lesson plans—I was told that no such thing exists because every year stu-

dents show different degrees of proficiency in English and it would be impossible to create a standardized curriculum to suit all of their needs. When I replied that the way they had it, no one's needs were being met and second graders were writing "gowing" and "dooing" and no one bothered to correct them, they told me that they "will learn by doing" and anyway "it's not like they are putting a 'z' in there." When I tried to explain the benefits of a curriculum and methodology developed and sequenced in advance, one of the teachers reacted in an exaggerated disbelief: "What? We would have to know in advance what to teach? What about spontaneity? Don't you think it would be bo-o-ring?" She actually sang the last word while scrunching her nose and sticking her tongue half way out. I don't believe I could be blamed for feeling helpless, especially in view of the fact that this conversation took place literally next door to a classroom in which a French teacher was at that precise moment delivering a lesson using the methodology so derided by the "progressive" English teacher.

What is also very frustrating is that for every criticism or argument coming from a parent there are a number of elaborately crafted excuses for why the children can't write. English is the second language at the school; all children learn differently; they only have four hours to study English; the classes are too large. The list goes on and on. The truth is the children often are simply not instructed in the crucial areas of writing and when they are, the methods are ineffective. Bilingualism is an asset to most children, not a hindrance. As soon as I began tutoring Alex at home, things fell "miraculously" into place. However, in order for him to learn not to write run-on sentences we had to do a few exercises from a "Back to Basics" workbook devoted specifically to that topic. The teacher's comment in his report card "still writes in run-on sentences" disappeared just as soon. I have followed simple step-by-step exercises in "Back to Basics" and "Instructional Fair" workbooks with very adequate results. The standard response from the teacher is that Alex does better with lots of individual attention. The truth is Alex does just fine in a large class if he is properly instructed. The teacher simply had not done the kind of work I do with Alex at home. She does not see any benefit in direct instruction in isolated skills and prefers talking about lunar eclipses and presidential elections in class.

I realize that "learn by doing" is an attractive idea. No methodology need be developed, no rigorous teacher training is necessary, no one is criticized and teachers are free of responsibility to attain results, because "every child is unique and will learn

at his own pace." No one would disagree with this idea if it were not for the compelling evidence that it simply does not deliver good results. My son's school is a good example of a simultaneous use of direct instruction and non-sequenced whole language-style approach. After years of child-centered "own-pace" humane instruction in English, the children come out with a very inadequate grasp of basic grammar and spelling. Many of them refuse to have English-speaking pen pals because they sense how weak their writing is in comparison with their writing in French. Some have been known to declare to their parents that they are "useless" when it comes to writing in English. Some children, even some with English-speaking parents, decide that because of their deficient skills in English they cannot go to an English-speaking university and choose instead to go to a university in France. What they don't realize, perhaps, is that they are not that different from many, if not most American children, except that they have a good foundation in French and other areas, something American children often don't have. I remember being surprised in college when informed that I was exempt from one of the two required courses in English because I had gotten an "A" in English 101. I could scarcely speak English at the time and in English 101, the basic composition course, had relied entirely on the skills I had learned in my Russian school, where English was taught as a foreign language twice a week. I couldn't understand at the time why so many freshmen who spoke nothing but English had to take a remedial class before they were even allowed to take English 101.

In my child's French school the students are subjected to a rigorous course of well sequenced instruction with high expectations of performance. These expectations are derived from centuries of observation of how children learn and precisely at what age they can be expected to attain the various levels of skill. The methodology which helps children meet these expectations has also emerged through centuries of fine-tuning and careful experimentation and research. The results are quite impressive. At age ten, my child knows more about geometry than did the twenty-year-old education majors who played such a pivotal role in the choice of school for him. He can write and spell in French better than most of my American-born colleagues with masters degrees can in English. In history, geography and science, he has studied things that most American children don't learn until high school, if then. The curriculum he is following is the same as that which any child in any public school in France would follow. Yes, the children do have weekly dictations and memory writing, and they must re-

write every misspelled word five times. They do memorize multiplication tables (yes, rote) and learn the mechanics of number division with no calculators. Rote memorization is not a large part of their learning, but it is there; it is done at pre-planned intervals in pre-planned amounts, mixed into the non-rote learning. I have not seen any signs of suffering or boredom on the part of my child; he simply accepts the necessity to memorize certain things and enjoys it when he sees how consistent work helps him master a new skill or accomplish a new task. This is a great way to boost self-esteem. The habits he acquires at school are evident in sports as well. He approaches basketball as a set of skills that must be learned one by one through practice and repetition before he can combine them. Dribbling is different from lay ups and he practices them separately until he is satisfied. Being chosen to play in a decisive quarter is his reward; no need to pile on the praise.

Learning about Zig Engelmann's work on Direct Instruction and about Project Follow Through was a welcome experience for me. It has reaffirmed for me that my arguments in favor of effective instruction methods are echoed across the country and in the academic community. It is an amazing paradox to me that teachers and researchers need to defend the merits of instruction with good materials, proper teacher training and sequencing of curricular content. Direct instruction has been the only way children have been instructed for centuries all over the world. If you approached a French (or a Russian or most other) teacher and told him or her to teach without a textbook or lesson plans, he or she would likely think you are not well. What I have seen termed as direct instruction is, to us, merely professional teaching; we simply don't consider anything else to be instruction. We attack most important complex tasks in life directly in order to maximize the effectiveness of the efforts we expend. It wouldn't

occur to anyone to bring a child to a pediatrician and seek indirect medical attention; why would anyone want indirect instruction? How did such a simple idea get lost? Why are we falling for unproved, harmful fads while ignoring the overwhelming evidence that the solid "old fashioned" instruction is effective and, even if it needs fine-tuning and adjustment, it shouldn't be thrown out all together?

While I have always said that I resent having to do the English teachers' work at home with Alex, I can't help enjoying it. Mothers invariably encounter resistance when they also try to be teachers to their children. But for every argument and for every negotiation session there is a subtle reward. I can't help but think that these rewards are just pay back for me against the teachers who could enjoy them, but have left them to me instead. Just the other day Alex said again that he wants to take Spanish in sixth grade. I replied, as I always have, that he should concentrate on the languages that he already speaks, after all, his devoted and enthusiastic Russian teacher gives them lots of work (with excellent results, I might add, and only two-and-a-half hours of instruction a week). Alex protested; he said that he learned in his geography class that if he knew Russian, English, French, and Spanish, he could speak and write to people almost all over the world. He held his arms out, hugging the imaginary globe. Then he paused for a second and added: "Remember that expression in the yellow workbook? I guess that that's what they mean when they say 'the world is your oyster'."

I hope my experience is an inspiration to parents and educators to continue their fight to bring our children effective instruction and high standards in education.

Author Note:

Special thanks to Mary Kay Rieg for her valuable editorial comments.

CONTRIBUTOR'S GUIDELINES

Effective School Practices provides practitioners and decision-makers with the latest research and development news on effective teaching tools and practices. The journal emphasizes practical knowledge and products that have proven superior through scientific testing. Readers are invited to contribute to several different columns and departments that will appear regularly:

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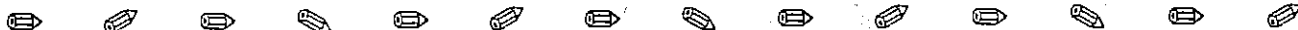
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