Long-Term Benefits from Direct Instruction

Results from a Follow Through study show that high school students who received direct instruction in primary grades scored higher on standardized tests, dropped out less, and applied to college more often than did students in comparison groups. (But some findings are disturbing as well as positive.)

A growing consensus about effective teaching practices for at-risk students in the elementary grades has been developing during the past ten years. This research (Brophy and Good 1986, Stebbins et al. 1977) shows that teachers using direct instruction can enhance academic growth. Direct instruction is a highly interactive approach to teaching. The lesson is structured so that teachers can assess immediately whether students understand the concepts being taught. If there are problems, the teacher guides the students toward comprehension by providing immediate feedback and modeling a pertinent problem-solving strategy (Gersten and Carnine 1986).

Direct instruction, however, has its critics. They assert that students may be stifled by the structure and that the effects dissipate when students are left on their own. In fact, some say direct instruction can cause students future harm.

These criticisms intensified with the release of a study of the later effects of preschool programs for at-risk children (Schweinhart et al. 1986). According to these authors, although 18-year-olds taught with direct instruction in preschool accelerated academic achievement during elementary years, the early academic focus harmed these students in later life, especially in the sphere of social behavior.

On the other hand, eminent educators such as Benjamin Bloom (1981) have asserted that structured instruc-

Libby, Montana, Testifies for Distar
H. Lynn Erickson

While the debate over direct instruction reading raises blood pressures in urban centers, here in rural Montana our kindergarten and first-grade students are benefiting from its use.

After completing two years (K-1) in the Reading Mastery program, not one of our second graders qualified for Chapter 1 assistance. Teachers observe that our students are neither bored nor stressed. Quite the contrary. They love to read and are highly successful. A parent survey last year showed 100 percent support for the program and teachers are thrilled with their students' progress.

We have noticed two additional bonuses from the direct instruction K-1 reading program:
1. Students mature more quickly and begin learning when they experience the structured kindergarten program. They know what is expected in the teaching/learning process and appreciate this clarity.
2. As kindergarten students learn on-task behavior, they experience positive feelings of success. The attitudes and work habits they develop in kindergarten carry over into first grade.

As a curriculum specialist who has taught traditional reading programs and Distar, I can offer some reasons why the SRA Reading Mastery program is superior for K-1 students.

- Students with well-developed visual and auditory perception can begin reading in kindergarten and benefit from an extra year to reinforce their reading skill before meeting the heavier demands for comprehension in social studies or science.
- Learning to read is divided between kindergarten and first grade, which is less stressful for both teacher and student. In most traditional basal programs, the first-grade teacher and student carry the load.
- Students are successful. As they learn a new skill in one task, they apply it to another, and review it in another.
- Direct instruction in reading provides a model for clear, logical thinking. Our district uses Math Their Way, an open-ended discovery program that uses manipulatives. The two methods balance.
- Common reading problems generated by traditional teaching are avoided through direct instruction. A comparison follows.

<table>
<thead>
<tr>
<th>Reading Problem</th>
<th>Reading Mastery approach</th>
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<tbody>
<tr>
<td>Unsure of sounds in decoding</td>
<td>All sounds taught to mastery.</td>
</tr>
<tr>
<td>Dropping of medial vowels</td>
<td>All sounds blended left to right so that no sounds are dropped.</td>
</tr>
</tbody>
</table>
Programs for at-risk students in the primary grades have enduring effects on students’ lives. These educators argue that students who develop academic competence in reading, language, and mathematics in the primary grades are more likely to benefit from any type of instruction in higher grades. Children who can read, for example, will always be able to learn new material, regardless of the quality of teaching in later years. In addition, if young students feel competent, they are more likely to approach learning positively, even when they encounter difficult academic and social situations.

Because of this debate, the findings of a recent longitudinal follow-up study of over 1,000 low-income minority students in compensatory education are illuminating. In both rural and urban areas, we found positive long-term effects, with students achieving higher reading, language, and mathematics scores on standardized tests than students who either had not participated in direct instruction or who had participated in other programs. Participating in direct instruction also lowered dropout rates and raised the proportion of students applying to college.

**Project Follow Through**

At the time of its inception in 1968, Project Follow Through was the largest educational experiment in history. The U.S. Office of Education implemented Project Follow Through by applying innovative programs from 20 universities and research centers to the real world of inner-city and rural schools to determine their effectiveness for educationally at-risk students. Twelve of these interventions were evaluated, including the direct instruction program developed by Englemann and Becker (Becker et al. 1981) and the cognitive curriculum developed by Weikart and his colleagues.

Among the inner-city schools chosen for the experiment were those in Flint, Michigan; New York City; East St. Louis, Illinois; and Washington, D.C. The rural schools included were in Uvalde, Texas; and Williamsburg County, South Carolina. At that time, the U.S. Census ranked Williamsburg County as the poorest county in the 48 mainland states, with one of the highest illiteracy rates in South Carolina.

Abt Associates, who conducted an independent evaluation, concluded that direct instruction was the most effective in teaching academic skills in mathematics, reading comprehension, and language (Stebbins et al. 1977). Low-income students in the four-year kindergarten-to-third-grade direct instruction programs performed at or near the national norm on standardized achievement tests in reading (median of 41st percentile), mathematics (median of 48th percentile), and language (median of 50th percentile), often significantly above their peers in traditional programs in local schools. In contrast, at-risk students using David Weikart’s Cognitive Curriculum performed at the 21st percentile in reading and at the 11th percentile in mathematics (Stebbins et al. 1977). Direct instruction students also produced the highest scores in self-concept, self-confidence, and sense of personal responsibility for success or failure.

Two features that distinguished direct instruction from the other Follow Through models were the curriculum and assistance to teachers. The curriculum taught skills in a detailed, step-by-step process, and teachers were provided with specific remedies to their problems.

**Longitudinal Study**

In June 1981 and June 1982, the first two groups of Follow Through students were slated to complete high school. We decided to investigate whether direct instruction in the primary grades had an effect on their high school careers.

A major problem plugging our study was finding students in each neighborhood comparable to those in the Follow Through program. By using information from welfare agencies, we found a comparison school for each Follow Through school with equiva-
academic kindergarten. Some students had direct instruction only from first through third grades, others, from kindergarten. We thought that students in a four-year program might display more enduring effects than those in a three-year program, and Finley provided a perfect opportunity to examine this possibility. In 1969, their direct instruction program was limited to three years, then was expanded to include kindergarten in 1970, allowing a comparison.

Results

In Finley, the median family income is among the lowest in urban areas. Over 70 percent of the students are in families receiving welfare. In the six participating schools, 98 percent of the students are black. We found that direct instruction produced consistent positive effects in all areas of academic achievement (Table 1). The most dramatic effects are found in the 1970 group of students who received the program starting in kindergarten.

For Follow Through students whose direct instruction began in kindergarten, the average reading score in the ninth grade on the California Achievement Test was at the 40th percentile, or almost grade level, while comparison students were at the 26th percentile. In language, they were above grade level: 59th percentile vs. 39th for the comparison group. In mathematics, they were significantly higher than comparison students, but still below middle income students.

For students who received direct instruction starting in first grade, the effects are more modest but still significant in reading and mathematics. Without kindergarten, both direct instruction students and students in the district’s traditional program perform at a lower achievement level. The direct instruction academic kindergarten seems to accelerate the effect with demonstrable benefit to the students six years later.

In Flint, Michigan, both groups of direct instruction students began school in kindergarten. Through high school, direct instruction students demonstrated significantly fewer attendance problems: 20 percent versus 42 percent for the comparison group. An attendance problem was defined as 10 or more absences per year. Significantly fewer direct instruction students had to repeat grades after Follow Through: 23 percent versus 39 percent. More direct instruction students were accepted at college than comparison students, although the effect was not significant.

In the ninth grade SRA achievement tests, direct instruction students outperformed comparison students in reading at a level that bordered on significance. In mathematics, the comparison for the second group of students significantly favored direct instruction students. They performed at grade level in the ninth grade SRA Achievement Test.

We conducted the New York City study in the Ocean-Hill Brownsville section of Brooklyn, one of the lowest achieving districts throughout the 1970s. This four-year program is one of the most effective direct instruction programs (Meyer et al. 1983), and the results of this follow-up study were the most positive. They are reported in Table 2, adapted from Meyer (1984).

In the rural community of Williamsburg, South Carolina, direct instruction students repeated grades less often, and more students successfully completed high school. For example, 34 percent of direct instruction students repeated grades while 55 percent of the comparison students did so. No differences were found in academic achievement here. The Williamsburg program did not include direction instruction in kindergarten. Three years of intervention may not be sufficient, especially in a community with extreme educational problems.

### Table 1

**Finley 9th Grade Achievement (California Achievement Test)**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Reading Percentile</th>
<th>Language Percentile</th>
<th>Mathematics Percentile</th>
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</thead>
<tbody>
<tr>
<td>1968 (Began in First Grade)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Follow Through</td>
<td>118</td>
<td>22nd*</td>
<td>7.2</td>
<td>18th*</td>
</tr>
<tr>
<td>Comparison</td>
<td>136</td>
<td>17th</td>
<td>6.7</td>
<td>14th</td>
</tr>
<tr>
<td>1970 (Began in Kindergarten)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow Through</td>
<td>54</td>
<td>40th**</td>
<td>8.8</td>
<td>30th**</td>
</tr>
<tr>
<td>Comparison</td>
<td>121</td>
<td>26th</td>
<td>7.6</td>
<td>20th</td>
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</tbody>
</table>

* p < .05, one tail

**p < .01, one tail**
Findings: Positive and Disturbing

In each of the four communities we studied, we found positive long-term effects for students in the direct instruction programs. These effects were consistent at all places and among all groups of students. In some places, such as Finley, the effects were in achievement but not dropout rate; while in others, such as Williamsburg County, they were in graduation rates but not achievement.

Fewer students who participated in direct instruction Follow Through programs dropped out, and more applied to college. In three of the four communities, ninth-grade reading achievement was within ten percentile points of the national median and appreciably above the levels typical of low-income students (NAEP 1979), and students who went through the direct instruction program from kindergarten through third grade benefited the most. These findings lead us to wonder what effects comprehensive, direct instruction K-6 to K-8 programs could have on educationally at-risk students.

Some findings were at once positive and disturbing. We found it gratifying to see adolescents from one of the poorest sections in New York City perform at grade level in reading in junior high, six years after the program ended. These students consistently outperformed the local comparison students and demonstrated a significantly lower dropout rate and a higher college acceptance rate. Despite these important gains, however, 40 percent still dropped out of high school. This is significantly less than the comparison group dropout rate of 58 percent, but it is far from ideal.

But there is more to the study than numbers. I spent six months of 1982 in the communities to work out details of the study, riding the subway lines to every vocational high school in Brooklyn and driving through swampy country roads in South Carolina to isolated high schools. It was impossible not to see how segregated education is or to ignore consistently low teacher expectations, as well as the apathy, sarcasm, and latent hostility present in some of the high schools.

We know that, without effective instruction in grades 4-12, these students lose ground against their middle-income peers and fail to realize their potential. Limited English-speaking students and students in rural communities appear to lose the most (Gersten and Woodward 1985). The same concern for providing an intense, successful experience for students that typified the direct instruction model in Follow Through needs to be extended to continuing grade levels. For at-risk children to succeed as adults, they need high-quality instructional programs not only in kindergarten and the primary grades, but also in the intermediate grades and beyond.

References


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Table 2

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<tr>
<td>Group</td>
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<td></td>
</tr>
<tr>
<td>Follow Through</td>
</tr>
<tr>
<td>Comparison</td>
</tr>
</tbody>
</table>

*Adapted from Meyer (1984)

**p < .001