

EFFECTIVE School Practices

VOLUME 12, NUMBER 1

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FOCUS: HETEROGENEOUS GROUPING AND CURRICULUM DESIGN

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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 (formerly *ADI News*) is a publication of 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 non-profit, tax-exempt corporation under Section 501(c)3 of the Internal Revenue Code and is a publicly supported organization as defined in Sections 170(b)(1)(A)(ii) and 509(a)(1). Donations are tax-deductible.

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From the Field

To ADI:

I am a member of ADI currently serving as the Education Director at Advocate Schools based in Grand Terrace, California. We are currently in our first year of implementing the use of direct instruction materials with our population.

Advocate Schools has ten Non-Public School campuses and serves students referred from public schools with diagnoses of SED and DD.

We are extremely interested in becoming involved in research efforts and studies. We have already seen growth in academic areas through the use of DI methodology and want to substantiate these findings.

I would appreciate hearing from someone at ADI who could offer us assistance.

Sincerely,
Susan L. Barker, MA
Education Director

Dear Susan:

In this issue we just happen to have several different data presentation forms that you could choose from. Berta Bender (pages 16-19) very cleverly and effectively presents her data in graphs illustrating individuals' academic growth over time in different programs. This is a rather uncomplicated method and, therefore, a useful one for practitioners who may have too little time or may find it impractical to organize a comparison study as illustrated in the Vitale et al. study (pages 26-31). The Colvin, Greenberg, and Sherman article (pages 20-25) also illustrates several other ways to present data about individual growth. I hope you find these models useful. We invite you to organize your data and submit it for publication in our journal. We encourage you to personalize these data into success stories. There are still \$100 awards for success stories.

Sincerely,
Bonnie Grossen, Editor

If you have questions regarding specific functions of ADI, these are the people to contact:

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Errata:

Vol. 11, No. 4, page 9, column 2, last sentence, the following words in italics were omitted. The sentence should read: "I was now sure that the data demonstrating DI's *effectiveness* would convince the educational establishment to embrace DI. What logic had told me, now scientific analysis had confirmed."

Vol. 11, No. 4, page 33, column 2, line 3. The sentence should have read: "Unfortunately, this research agenda is *now* (instead of "not") driving the design of the nation's basal mathematics programs." The point is that research agendas are not something that should be carried out with the whole nation. Research agendas should be carried out with small groups of children, thus minimizing the risks involved in trying something new.

Vol. 11, No. 5, page 23. The publisher source list contains some significant omissions:

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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:

FROM THE FIELD: Submit letters describing your thrills and frustrations, problems and successes, and so on. A number of experts are available who may be able to offer helpful solutions and recommendations to persons seeking advice.

NEWS: Report news of interest to ADI's membership.

SUCCESS STORIES: Send your stories about successful instruction. These can be short, anecdotal pieces. \$100 will be awarded for each success story that is published this year.

PERSPECTIVE: Submit critiques and perspective essays about a theme of current interest, such as: school restructuring, the ungraded classroom, cooperative learning, site-based management, learning styles, heterogeneous grouping, Regular Ed Initiative and the law, and so on.

RESEARCH STUDIES: Present data from your

classroom or the results of scientific research. The data should guide other practitioners and decision-makers in evaluating alternative options for school reform.

TRANSLATING RESEARCH INTO PRACTICE:

Integrate a larger body of empirical research into a defined practice that can be implemented in schools.

BOOK NOTES: Review a book of interest to members.

NEW PRODUCTS: Descriptions of new products that are available will be featured. Send the description with a sample of the product or a research report validating its effectiveness. Space will be given only to products that have been field-tested and empirically validated.

LIST OF DEMONSTRATION SITES: We wish to maintain an on-going list of school sites with exemplary implementations and impressive student outcomes. Submit the name of the exemplary school or classrooms, the names of the programs being implemented, and contact information so that visitations may be arranged.

MANUSCRIPT PREPARATION

Authors should prepare manuscripts according to the third revised edition of the *Publication Manual of the American Psychological Association*, published in 1983. Copies may be ordered from:

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Send an electronic copy, if possible, with a hardcopy of the manuscript. Indicate the name of the word-processing program you use. Save drawings and figures in a separate file. Electronic copy should preferably replace text that is underlined according to the APA format, with italic text.

Illustrations and Figures: Please send drawings or figures in a camera-ready form, even though you may also include them in electronic form.

Completed manuscripts should be sent to:

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Acknowledgment of receipt of the manuscript will be sent by mail. Articles are initially screened by the editor for content appropriateness. The author is usually notified about the status of the article within a 6- to 8-week period. If the article is published, the author will receive five complimentary copies of the issue in which his or her article appears.

The Importance of a Planned Curriculum in Conceptual Change

Research Brief: Students learning from teachers using a planned curriculum had better conceptual understanding in science than those learning from teachers who attempted to spontaneously apply the conceptual change theories they had learned and address individual misconceptions as they occurred.

Smith, E.L., Blakeslee, T.D., and Anderson, C.W. (1993). Teaching strategies associated with conceptual change learning in science, *Journal of Research in Science Teaching*, 30(2), 111-126.

Summary: Thirteen 7th-grade life science teachers taught units on photosynthesis, cellular respiration, and matter cycling in ecosystems in their regular classes under conditions varying as to whether curricular materials were provided or not. Teacher training workshops in conceptual change strategies were provided in both treatments. The two half-day workshops illustrated conceptual change strategies in teaching situations.

Teachers receiving only the training were to apply these strategies in spontaneous response to specific misconceptions that individuals develop in the classroom.

Teachers receiving the training and the curricular materials applied the conceptual change strategies in a pre-planned, non-individualized format. The curricular materials were designed to target commonly held misconceptions according to the authors' analysis of "key issues on which students commonly hold misconceptions" (p. 118). The curricular materials included a student workbook/text, teacher's guide containing a running commentary for teachers, overhead transparencies, and laboratory activities. In most classrooms, the student texts were read aloud and students wrote predictions, choices, or explanations in response to the questions in the text. The questions were usually used as a basis for discussion. Additional discussions were based on the overhead transparencies and the laboratory activities.

The teachers using the curricular material achieved better learning outcomes than the teachers that were given no print materials. Approximately twice as

many students understood the goal conceptions after instruction using the curricular materials. However, the overall frequency of understanding was still not very high (see Table 1). Higher levels of teacher-student interactions and better implementation of conceptual change strategies were also observed in the classrooms where the curricular materials were used.

Comment: This study is significant because it conflicts with a view emphasized in the conceptual change literature that teachers must individually analyze each misconception and spontaneously respond to it, using the principles of conceptual change (Stavy & Berkovitz, 1980; White & Horwitz, 1988; Zeitsman & Hewson, 1986). The findings further corroborate the findings of a study by Muthukrishna, Carnine, Grossen, and Miller that was reported in an earlier issue of ADINews (Summer, 1991, volume 10, number 4). In the Muthukrishna et al. study using a DI curriculum, over 90% of the students understood the goal conceptions, better performance than was obtained in this study (see Table 1).

Other studies have shown that individualized conceptual change strategies are generally unsuccessful in teaching a scientific principle (no higher than 29% of the students understood the goal conceptions), even with small groups of students (Brna, 1987, 1988; Finegold & Gorsky, 1988; Hewson & Hewson, 1983; Roth & Anderson, 1988; Stavy & Berkovitz, 1980; White & Horwitz, 1988; Zeitsman & Hewson, 1986). Furthermore, the logistical problems of identifying the nature of the individual misconceptions and tailoring instruction to each

Table 1. Mean Percentage of Students Understanding Goal Conceptions after Instruction^a

Unit	With materials	Without materials	Significance level ^b
Photosynthesis	58	28	0.03
Respiration	30	14	0.20
Matter cycling	(none available)	17	

^a Mean of class percentages.

^b Significance level for treatment, based on ANCOVA of posttest percentages using pretest percentages as a covariate.

individual's specific misconception seem unrealistic for a classroom teacher (Hawkins & Pea, 1987).

A curricular material, by its very nature, must incorporate instruction for the group as a whole, anticipating predictable misconceptions, rather than the instruction being a spontaneous response to a presumably unpredictable misconception occurring in the classroom, as conceptual change strategies have generally been applied. It has been generally assumed that misconceptions develop in a random, unpredictable manner, and, therefore, cannot be adequately dealt with using a planned curriculum.

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Food for Thought

If the world's population were represented by a village of 100 people, it would consist of:

- 56 Asians
- 21 Europeans
- 9 Africans
- 8 South Americans
- 6 North Americans

Of these people:

- 30 would be Christian
- 17 Moslem
- 13 Hindu
- 5 Buddhist
- 5 Animist
- 9 miscellaneous
- 21 atheist or without religion

Of the 100 people:

- 6 would control half of the total income
- 50 would be hungry
- 60 would live in shanty towns
- 70 would be illiterate

Focus: Heterogeneous Grouping and Curriculum Design

Overview

*What counts is what you do with them,
not where you put them.*

Heterogeneous grouping has come into vogue in America. In heterogeneous learning groups students most "unlike" in skill level are placed together for instruction. Schools are scrambling to put special education kids back into the regular classroom so that these students can work with more able students in the same learning groups (called "full inclusion"). Nongraded primary models even advocate mixed-age grouping of children from Kindergarten through third grade—not to allow for more homogeneous grouping by skill level, but to maximize the differences in skill levels of children in instructional groupings (e.g., the model promoted by the National Association for the Education of Young Children).

Are these extensive heterogeneous grouping arrangements really productive? Will heterogeneous grouping help American education achieve world-class standards? In this issue, we examine these questions. The effectiveness of specific grouping arrangements interacts closely with the design of the curriculum. Heterogeneous grouping assumes wholistic, nonlinear approaches to skill development. Homogeneous grouping assumes a more linear progression in the development of knowledge. Another closely related topic will be featured in the next issue of *Effective School Practices*: Discrimination and curriculum design. The message contained in these two issues is that the source of discrimination in education runs deeper than the design of classroom grouping arrangements. Educational discrimination results more directly from curricula that rely heavily on the child to initiate and design learning, which in effect rely heavily on the child's home milieu.

The sound byte one often hears as the justification for heterogeneous grouping, "homogeneous grouping doesn't work," is generally supported by the research findings (see Gamoran, pp. 9-15). That is to say, there is usually no difference in the learning of homogeneously grouped students versus heterogeneously grouped students. However, these results do not mean that heterogeneous grouping *will* work. The problem is that neither has worked very well. The important question is "why do grouping arrangements not seem to make any difference?"

An important point made by Gamoran is that research studies on grouping often do not even mention curriculum. Studies do not mention whether the same or a different curriculum was used with different homogeneous groups, nor do they describe the nature of the differences in instruction at all. Certainly, if no attempt is made to modify the curriculum and instruction to match the needs of a specific homogeneous group, then no advantage can be expected from homogeneous grouping. If an attempt is made to modify the curriculum to match the needs of groups of students, then the results should be interpreted as an evaluation of that particular curriculum modification.

Assume for a moment that some teachers of the "no-difference" homogeneous groups described by Gamoran used the same curriculum to teach the groups with learning difficulties. In this case, the results would indicate that the curriculum remained ineffective even when the children with learning difficulties were grouped separately from other children. The results further indicate that sometimes these separately grouped children even do worse, because perhaps the teacher assigned to teach that group was the most inexperienced or uninspired teacher in the school.

What if a different curriculum is used to teach the low groups? Kavale (1987) reviewed the studies of special education programs that have used a different, but non-academic curriculum, such as perceptual motor training, and found that these non-academic programs have had essentially no effect on the learning of students receiving this differential treatment. However, just because this type of differential treatment hasn't worked, doesn't mean that all types of differential treatments are ineffective.

Look at the student performance data reported in the next three articles in this issue, where an appropriate, effective, academic curriculum was used for homogeneously grouped children. First, review Berta Bender's data (pp. 16-19) where an appropriate, effective, academic curriculum was used for special education, one that the special education children could actually learn from. These data indicate that the instruction in the special placement accelerated

the learning of the low group children so that they rather quickly caught up with other students their age and were reading at grade level.

Similarly, the data reported by Colvin, Greenberg, and Sherman (pp. 20-25) indicate that separately grouped, severely emotionally disturbed students improved not only in academic skills, but also in behavior and affect, when placed in an effective academic curriculum, as opposed to a non-academic, behavioral curriculum, as often occurs in SED special programs. However, the academic curriculum these students were able to succeed in, was designed differently from the curriculum that is typically used in a mainstream classroom where the original failure and need for pull-out was created.

The experimental study by Vitale, Medland, Romance, and Meshbane (pp. 26-31) also reports the results of a pull-out Chapter 1 program that used an effective academic curriculum. The results indicated that the Chapter 1 students learning from a different, more effective curriculum exceeded the performance of the average students and matched the performance of gifted students on measures of higher-order thinking. The Chapter 1 students in the control group using the same regular education curriculum showed negligible achievement gains and fell further behind average achieving students. Obviously, curriculum design can make a big difference in students' ability to learn. Should children who became successful by learning from a different academic curriculum now be placed back into the curriculum that they originally failed in?

In an earlier issue (Spring, 1992), Lynn Helmke reported results similar to those reported by Vitale et al. Resource room children learning from a different curriculum for reading learned to read better and faster than the general education children. Consequently, the general education teachers in that district have decided to use the resource room curriculum in their general education classes.

Now that the same effective curriculum is being used in both general and special education in that school, does that mean that grouping is now heterogeneous? No. The effective curricula in all of these studies used a Direct Instruction design. The implementation of a Direct Instruction curriculum requires flexible subject-specific homogeneous grouping in some subjects, and allows heterogeneous grouping in others. That is, children are grouped according to the reading skills they have, in order to receive instruction in the reading skills they don't have. These groupings are temporary, just for part of the reading period, and all instruction may occur in the same room. Similarly, the grouping for mathematics instruction is a different homogeneous arrangement,

one that is based on student performance in mathematics. In a Direct Instruction curriculum students can be grouped heterogeneously for assignments that do not require special skills, such as might occur with a field trip or an art project. The research on grouping (see Gamoran's synthesis and the conclusions from Johnson & Johnson and Slavin in the insert) supports the effectiveness of these kinds of subject-specific ability-grouping arrangements, as opposed to tracking or grouping by general ability.

We've reprinted a piece from Barbara Bateman that is sure to become a classic (pp. 32-41). Readers with questions about the Special Education laws regarding placement and grouping decisions will find the answers here. No, the law does not require that severely handicapped children be placed in regular classrooms. Quite the contrary, the law prohibits categorical decisions about grouping arrangements and special education placement. School districts that categorically place special education students in the regular classroom under a "full inclusion" policy are in violation of the law. The law still requires that each placement decision be made individual by individual. Readers may also be surprised to see that the courts place great importance on the teacher's professional judgement in making these placement decisions. In fact, it is a violation of the law to rely entirely on the handicapping label or some formula using test data to make placement decisions.

Dr. Bateman provides a valuable historical perspective on where we have been in Special Education and expresses some hopes for where we might go. She recommends shifting attention from grouping and placement issues to issues in curriculum design as the area where change could result in real educational gains in the future.

In order to achieve real educational gains for all students, some level of homogeneous grouping according to performance in specific subjects seems unavoidable. Grouping children heterogeneously at all times seems possible only with very soft curriculum standards. As Gallagher (pp. 42-43) states in his commentary, "There's that small matter of common sense." We might use exclusively heterogeneous grouping if our goal were only to teach everyone basic literacy and numeracy and nothing more. But we want some world-class scientists and inventors as well. It is one thing to reduce our illiteracy rate from 30% to nearly 0%. This type of equality in educational outcomes is achievable. It is quite absurd to try to make everyone into a Nobel Prize winner. Providing everyone with the same educational foundation is a responsibility; limiting everyone to that education will not inspire individuals to realize their diverse potentials.

Providing equal educational opportunity for diverse learners is a complex challenge. We aren't meeting that challenge by simply providing a mediocre education for the sake of equality. Mediocrity is what we provide if we delay Sally in becoming an electro-physicist, by having her try to teach Johnny and Susie how to read. Yet that is what current heterogeneous grouping models seem to dictate.

"Mediocre" describes how business views American education and the current educational fads, for example, wholistic reading and invented learning. In spite of the current media hype about restructuring education to prepare students for the high-tech job market of the 21st century, the two reprints from *Forbes* magazine and *The Economist* indicate that business is quite sceptical of the direction these current educational reform fads are taking us.

Forbes' writer Janet Novack contrasts two school districts (pp. 44-46). She criticizes West Carrollton for teaching students a course called Dress for Success while asking parents to take over instruction in spelling. She praises Oakwood for neither rushing to buy all the new "gadgets and gimmicks" such as "the latest 'whole language' reading books" nor using computers as "glorified math books." She notes that although Oakwood has no air conditioning and the school is so crowded some students eat lunch in the hallway, students still score above the 90th percentile on standardized national tests.

After reviewing education around the world, the British publication *Economist* (pp. 47-59) concludes that an investor with an "eye to human capital" should look past the Anglo-Saxon world to somewhere "between the Pacific Rim and Germanic Europe." Germanic Europe comes out ahead because of its "unrivalled ability to churn out skilled workers." *The Economist* attributes this success to Germany's "cheerful division of schools into three kinds: grammar schools, technical schools, and vocational schools." This sounds like tracking, but "the transition between school and work, so traumatic elsewhere, is rendered almost painless. Above all the system reinforces a culture in which training is cherished and skilled workers revered."

It is clear that *The Economist* regards the idealistic American attempt to provide everyone with the same education as an unsuccessful experiment. The same education does not prepare students for the diverse demands of a national work force. The scores of the 15 nations assessed by the second NAEP (p. 60) provides student performance data that supports *The Economist's* qualitative evaluation. *The Economist* finds that not only do American students spend too little time learning, but "even when they are working they are not being stretched. The lack of a core

curriculum encourages a shopping-mall approach to education: pile up the soft options and leave the hard stuff on the shelves. Ghetto schools are churning out children whose lack of mental skills and surfeit of emotional problems would render them unemployable in the third world, let alone the first."

It seems quite ironic that the strongest argument for school reform is the need to prepare a more technically skilled workforce, yet little or no attempt has been made to evaluate which of the currently wide-spread school reform ideas will consistently result in higher levels of achievement. Heterogeneous grouping is but one example of a wide-spread reform idea that does *not* result in higher achievement. Reformers promote heterogeneous arrangements for the sake of *equality*, not for the sake of *improved learning*: "The answer to the debate on ability grouping is not to be found in new research. There exists a body of philosophic absolutes that should include this statement: The ability grouping of students for educational opportunities in a democratic society is ethically unacceptable" (Hastings, 1992, p. 14).

The argument that heterogeneous grouping provides equal educational opportunity is flawed, as The Study Group for the International Institute for Advocacy for School Children argues (pp. 61-62). To argue that separating children by ability denies them equity in education assumes that the classroom is much like a bus: If students have equal access to a seat in the classroom, equity has been established. However, this only allows equal opportunity for *exposure* to the lesson. Access to *mastery* of the lesson is not the same. Mastery is much farther from the reach of the low performers. Equal access to the content of the lesson is only possible if the students have *equal preparedness* for the lesson. For low performers to gain access to the curriculum, they should be placed in lessons that permit them to achieve mastery and build skills and knowledge as rapidly as possible. In heterogeneous groups they are discriminated against because (a) they are required to learn at a faster rate than the higher performers, (b) they are placed in a setting where they constantly observe students who are able to master the material with far less learning.

Of course, we all know that homogeneous grouping *can* be used to discriminate, when one group receives better instruction than another. The point is that grouping heterogeneously does not solve the problem of poor instruction. And more importantly, there is clearly no relationship between heterogeneous grouping and our national goal to produce the best-trained work force in the world by the year 2000. Reforms with a goal to improve learning must rather look at the features of the programs that result in

improved learning. Based on the studies reported here, those features include the use of an appropriate, effective, academic curriculum properly implemented by a committed teacher. What counts for academic excellence is not *where* schools put students, but what they *do* with them. The use of individualized non-academic programs in homogeneous environments has not improved learning outcomes (Kavale, 1987). On the other hand, improved learning has been consistently achieved using Direct Instruction and subject-specific homogeneous grouping in reading and mathematics, as the Bender, Colvin et al., and Vitale et al. reports show.

This does not mean that Direct Instruction is the only instructional system that could possibly result in improved learning. However, the current fad to be *innovative* as opposed to *effective*, ignores the effects of reforms and risks wide-spread national disappointment, as the writers from *Forbes* and *The Economist* already forewarn. Doug Carnine, director of the National Center to Improve the Tools of Educators (NCITE), also recognizes the strong possibility that current educational reform efforts may fail to produce the highly skilled workforce that is needed for America to remain a world leader into the 21st century. For those who seek to improve education rather than simply change it, Dr. Carnine presents a model for a more thoughtful and business-like approach to the implementation and evaluation of educational reforms (pp. 63-65). NCITE will offer assistance to any parties interested in carrying out the educational reform management activities he describes. *Bonnie Grossen, Editor*

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Food for Thought

According to *USA Today*, the U.S. spends \$46 million a day on education and \$3.5 million a day on tortilla chips.

Vending Times reports that Americans tossed more than \$24 billion into to vending machines last year—that's \$65 million a day. The publication also counts one vending machine for every 55 people in this country.

Is Ability Grouping Equitable?

Adam Gamoran

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Ability grouping is one of the most common responses to the problem of providing for student differences, but is it an *equitable* response? Few questions about education have evoked more controversy.

Grouping has different effects in different circumstances. As currently practiced, it typically leads to *inequitable* outcomes. To place the debate in its proper perspective, we must remember that decisions about grouping are preliminary and that what matters most comes next: decisions about what to do with students *after* they've been assigned to classes. Given poor instruction, neither heterogeneous nor homogeneous grouping can be effective; with excellent instruction, either may succeed.

Drawing on the best research we have on grouping, I want to describe conditions that make one system or the other more likely to result in high achievement that is equitably distributed. Then I'll look at the challenges educators face depending on which approach to grouping they take. But, first, let's clarify two terms.

Tracking and Ability-Grouping vs. Subject-Specific Grouping

"Curriculum tracking" and "ability grouping" are sometimes used interchangeably. I use "tracking" to mean broad, programmatic divisions that separate students for all academic subjects. For example, high school tracks divide students into academic, general, and vocational programs. Elementary schools "track" students when they divide them into separate classes for the entire day.

I use "ability grouping" to refer to divisions among students for particular subjects, such as special class assignments for math or within-class groups for reading. "Ability," strictly speaking, however, is not usually the criterion for grouping. Rather, students are typically divided according to measured or perceived performance in school. Because school performance is related to social inequality outside the school, such divisions contribute to the separation of students from different racial, ethnic, and social backgrounds (Oakes et al., 1992).

"Subject-specific grouping" refers to grouping in a specific subject based on performance in that sub-

ject only. Students with the same skill level are grouped together for instruction in that specific subject.

Achievement Effects of Tracking

To consider the effects of tracking and ability grouping, we need to keep two questions in mind. First, how does grouping affect the overall *level* of achievement in the school? This is a question about "productivity." Would the school produce higher achievement if ability grouping were eliminated?

Second, how does grouping affect the *distribution* of achievement in the school? This is a question about "inequality." Would achievement be more equally distributed in the absence of ability grouping? In the past, advocates of ability grouping have tended to focus on the first question, and critics have emphasized the second. To engage in a balanced discussion, we must examine both.

Tracking and productivity. Little evidence supports the claim that tracking produces higher overall achievement than heterogeneous grouping. At the elementary level, most tracking systems fail to raise achievement. The issue has received less attention at the secondary level, probably because almost all American secondary schools have some degree of tracking (Oakes, 1985).

In a well-designed British study, Fogelman (1983) and Kerckhoff (1986) followed more than 9,000 students in tracked and untracked secondary schools for a five-year period, finding little difference in average scores on standardized tests of math and reading achievement.¹ The absence of overall differences between types of schools, however, masked important differences that occurred *within* the grouped schools.

Tracking and inequality. In the British study, there were no average differences between tracked and untracked schools because within the tracked schools, high-track students performed better than similar students in untracked schools, but low-track students did worse. Students in remedial classes performed especially poorly compared to untracked students with similar family backgrounds and initial achievement. With low-track losses offsetting high-track gains, the effects on productivity were about zero, but the impact on inequality was substantial.

In the United States, high school tracking results in similar increases in inequality. In a national survey that followed more than 20,000 students from grades 10-12, academic track students gained significantly more on tests of math, science, reading, vocabulary, writing, and civics, compared to similar students in general and vocational tracks (Gamoran, 1987).² In fact, achievement gaps between students in different tracks widened more than the overall disparity between students who dropped out of school after 10th grade and those who stayed in school. This means that which program a student pursued in high school mattered more for achievement than whether or not he or she was in school! Unfortunately, studies like this one do not show whether increasing inequality occurred in the context of rising or falling achievement for the school as a whole, because tracked and untracked schools were not compared.

Elementary school studies also show increasing inequality over time (Weinstein, 1976; Hallinan & Sorensen, 1983; Gamoran, 1986). Even when overall achievement rises, inequality may grow because high-track students often gain more than students in low tracks (Oakes et al., 1992).

Slavin's "best evidence syntheses." Perhaps the most comprehensive and careful reviews of research on ability grouping are Robert Slavin's reports of grouping and achievement in elementary (1987) and secondary (1990) schools. At the elementary level, some forms of subject-specific grouping—particularly within-class grouping for math and cross-grade grouping for reading—tend to have positive effects on overall achievement (Slavin, 1987). Generally, Slavin argued that ability grouping has no effects on either productivity or inequality: grouped and ungrouped schools produce about the same level of achievement, and neither high, nor low, nor average groups obtain any special benefit or suffer a particular loss due to grouping. Slavin reached these conclusions after examining a diverse array of studies conducted over a 60-year period. Some of the studies showed positive effects; others yielded negative results, for productivity and inequality, as a result of ability grouping. Because the results averaged out to zero, Slavin concluded that ability grouping has no effects and that the effects that appeared in many studies resulted from random or systematic errors of measurement (Slavin, 1990).

I think another interpretation is more likely: the diversity of results does not mean the true effects are zero but, rather, that ability grouping has different effects depending on where and how it is implemented. The studies Slavin reviewed provided almost no information on what occurred inside the classrooms after students were assigned. In some

studies, teachers may have provided exactly the same instruction to the grouped and ungrouped classes, and there would be little reason to expect achievement benefits or detriments to ability grouping. In other studies, teaching quality may have favored one group or the other, leading to outcomes that differed by group. Slavin's ultimate conclusion echoes a finding that is more than half a century old: ability grouping has no effects on achievement unless teachers use it to provide different instruction to different groups.

"For ability grouping to be effective at the elementary level, it must create true homogeneity on the specific skill being taught, and instruction must be closely tailored to students' levels of performance" (Slavin, 1987, p. 323).

"The lesson to be drawn from research on ability grouping may be that unless teaching methods are systematically changed, school organization has little impact on student achievement" (Slavin, 1990, p. 491).

"The results of ability grouping seem to depend less upon the fact of grouping itself than upon ... the differentiations in [curricular] content, method, and speed, and the technique of the teacher" (E.L. Cornell, 1936, p. 304).

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I conclude that grouping and tracking rarely add to overall achievement in a school, but they often contribute to inequality. This finding is most consistent for high school tracking, but it is not uncommon

The studies Slavin reviewed provided almost no information on what occurred inside the classrooms after students were assigned.

in other forms and at other levels. Typically, it means that high-track students are gaining and low-track students are falling farther behind. But the effects of ability grouping are not the same in every context, and we need to discover how they come about in order to improve productivity and reduce inequality.

Sources of Achievement Inequality

Why does tracking often benefit high achievers but not their counterparts in other groups? Most research on grouping and achievement has failed to

...ability grouping has no effects on achievement unless teachers use it to provide different instruction to different groups.

consider how students were treated after they were assigned to their classes. Fortunately, a number of case studies and a few surveys provide information on what goes on in different groups and tracks. These reports suggest that the quality of instruction and the climate for learning favors high-level groups and honors classes over low groups and remedial classes.

Unequal instruction. At the elementary level, several researchers have documented fast-paced reading instruction in high-level groups and slow-moving progress in low groups. This occurs for both within-class and between-class grouping (Barr and Dreeben, 1983; Gamoran, 1986; Rowan and Miracle, 1983). From these studies, one cannot tell whether slower instruction in low groups meets the needs of these students or unnecessarily holds them back. When middle- and low-group students of similar prior achievement are compared, middle-group students gain more, suggesting that slow-paced instruction contributes to the low-group deficit. This interpretation is bolstered by a recent survey of elemen-

tary school mathematics classes, in which middle- and low-group students were significantly more likely than high-group students to say their class was too easy (Coley et al., 1992). Other researchers indicate that low reading groups offer a less conducive learning environment, with more interruptions than middle and high groups (Allington, 1980; Eder, 1981).

Differences in context and climate have also been described at the secondary level. First, college-track students take more academic courses than students in other tracks, contributing to their achievement advantage (Gamoran, 1987). Second, observers report that high-track teachers are more enthusiastic and spend more time preparing (Rosenbaum, 1976; Oakes, 1991). Teachers may compete for the opportunity to teach honors and accelerated classes, and those with more experience or better reputations tend to win the privilege (Finley, 1984; Oakes, 1991). Although problem solving and critical thinking are not especially common, they are more likely to occur in high tracks than low tracks (Oakes, 1985; Gamoran & Nystrand, 1990). In contrast, low-track instruction tends to be fragmented, emphasizing worksheets and recitation (Page, 1992). Teachers in low-track classes spend more time on behavior management and less time on instruction (Oakes, 1985).

Unequal behavior and attitudes among students. These differences cannot be ascribed solely to teachers, however, because *students' responses* to instruction also differ across tracks and ability groups. Low-track students are off-task more often, spend less time on homework, and turn in fewer assignments (Oakes, 1985; Gamoran and Nystrand, 1990). Current data do not indicate whether low-track students respond less well because instruction is less engaging or whether instruction is less engaging because students are not responsive. Both processes are probably at work. Case study writers have long contended that tracking polarizes the student body into "pro-school" and "anti-school" groups (for example, Lacey, 1970; Abraham, 1989). The latest survey research supports this claim: Berends (1991) found that college- and noncollege-track students differ more over time in the extent of disciplinary problems, in engagement with schoolwork, and in expectations for future schooling.

What Can Be Done?

Although the research is not definitive, it does suggest two actions: reduce the use of tracking and improve the way ability grouping is used where it is retained.

Reduce the use of tracking. Generally, the more rigid the tracking system, the more research studies have

found no benefits to overall school achievement and serious detriments to equity. Students who report being assigned to different tracks in high school become more unequal in their achievement over time, and the increase in inequality is greatest in schools where students rarely change tracks (Gamoran, 1992). In elementary schools, between-class grouping for the entire school day is least likely to show any benefits (Slavin, 1987). As Slavin (1987) explains, rigid tracking systems are likely to fail because when a single division by ability is made for all subjects, classes remain heterogeneous on most skills, so there is no improvement in the fit between students' needs and the provision of instruction. In addition, rigid tracking systems may be more likely to induce polarized attitudes toward schooling (Gamoran, 1992). In moving to reduce the use of tracking, then, the first step should be to eliminate the most rigid forms of tracking, such as broad, inflexible program assignment in high schools and between-class tracking for the whole day in elementary schools.

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Efforts to reduce tracking must grapple with the fact that in at least some cases, high-track students perform better than similar students in heterogeneous classes. The elimination of grouping must be accompanied by staff development opportunities for teachers to learn strategies for enhancing the learning of all students in classes that are more diverse than those to which they are accustomed. At the same time, those who strive to maintain ability grouping out of concern for high-track students must come to grips with the growth in inequality that occurs in many cases.

Improve the use of ability grouping. To the extent that grouping is not completely eliminated, it must be implemented more effectively than is typical. First, it is essential to avoid locking in teachers and students to their track assignments. Permanent assignments result in a vicious cycle, in which the expectations of teachers and students enter a downward spiral (Page, 1992). Schools must make at least two sorts of investments to bring greater flexibility to their grouping systems: (1) they must reassess stu-

dents' capabilities and take new information into account when making assignment decisions, and (2) they must enable students to make up curricular material they may have missed—for example, in tutorials during the school year or the summer—so

What to Say to Advocates for the Gifted

For those who fear that cooperative learning is detrimental to high-achieving students, here are research-supported answers to some of the most frequently asked questions.

"When discussing whether or not high-ability (the academically top 33 percent) and gifted (the academically top 5 percent) students should learn in cooperative groups, three points are important. (The terms 'high-ability' or 'high-achieving' include gifted students.) First, high-achieving students should not always work in cooperative groups (see Johnson and Johnson, 1991). There are times when high-ability students should work in isolation from other students, and there are times when gifted students should compete to see who is best.

Second, when high-achieving students do work in cooperative groups, the groups should not always be heterogeneous. Sometimes these students should be prepared for fast-paced accelerated work.

Third, well-structured cooperative learning groups are quite different from traditional classroom grouping and poorly structured cooperative groups (Johnson, Johnson & Holubec, 1990). To be most effective, cooperation must be structured so that group members:

- believe they are responsible for and benefit from one another's learning;
- promote one another's learning face-to-face by helping, sharing, and encouraging;
- are accountable to do their fair share of the work;
- practice the required leadership, communication, decision-making, trust-building, and conflict resolution skills required for the group to ensure the success of each member;
- regularly process how effectively the group is functioning" (Johnson & Johnson, 1992).

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that those who are ready to advance are not held back by lack of curriculum coverage. The latter requires investment not just by schools, but by students as well, who must undertake extra work to catch up. Implementing more flexible grouping systems also means rotating teachers so that all students have opportunities to learn from the most effective teachers and to prevent the loss of morale that sometimes occurs for teachers who are assigned to low tracks year after year.

Second, those who use ability grouping must improve instruction in low groups. This could, at the same time, reduce the inequality that often results from grouping and raise the overall level of achievement in the school. This recommendation is extremely difficult to follow—indeed, were it not so difficult, ability grouping would be a lot less controversial! It is difficult because (1) by virtue of their assignment, teachers and students in low tracks have low expectations for academic work; and (2) low-track students often resist challenging academic work. One observer found that low-track students preferred worksheets to discussion because the seatwork kept private what students did and did not know (Metz, 1978).

...those who use ability grouping must improve instruction in low groups.

Is it even possible? Can high-quality instruction ever take place in low-status groups? We have many more examples of unsuccessful low-track classes than successful ones, but there are some circumstances under which low-group students receive effective instruction. At the elementary level, grouping systems that divide students on the basis of skills closely related to the curriculum and those that adjust curriculum and instruction to address students' needs are more likely to be effective. This conclusion is based on studies of within-class grouping for math and cross-grade, subject-specific grouping for reading (Slavin, 1987), but the conclusion is probably generally valid.

...grouping systems that divide students on the basis of skills closely related to the curriculum and those that adjust curriculum and instruction to address students' needs are more likely to be effective.

At the secondary level, a few case studies suggest that low-track classes may serve their remedial purpose—that is, they allow students to catch up, or at least prevent them from falling further behind—under the following conditions:

- Teachers hold high expectations, manifested by their emphasis on academic work.
- Teachers exert extra effort, compared to their efforts in other classes.
- Teachers and students have opportunities for extensive oral interaction.
- There is no procedure in place that assigns weak or less experienced teachers to the lower track (Page and Valli, 1990; Gamoran, 1991).

These case studies rely on private schools mostly with middle-class students, and we have as yet no evidence that they generalize well to other situations.

One 9th grade English teacher I observed, whose low-group students kept pace with their peers in other classes, told her students: "I know it's not easy,

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you guys—I know it's not easy—but we're not going to read *Weekly Reader* in this class. All right? You deserve to have this information, so stick with it." With such a persistent teacher, and equally persistent students, low-track classes may be effective, but the phenomenon is too rare for one to have confidence that it will become the general case anytime soon.

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¹ The British study is remarkable in its comprehensiveness: it began with nearly every child born in England, Scotland, and Wales during the first week of March 1958 and followed them from birth to age 23. The analyses covered the period from age 11 to 16. The study is also especially valuable because it includes a large number of comparable schools that used and did not use tracking, or "streaming" as it is called in Britain. In the United States, it is impossible to find a representative sample of secondary schools in which students are not tracked in math and English.

² These differential gains occurred for students who were statistically equated in prior achievement and background characteristics. In general, students in the different tracks are far from equal in these areas, so the gross differences between tracks were much larger.

What Makes a Pull-out Program Work?

Roberta Bender
Carmel River School, Monterey County

Abstract: The following report describes a very successful resource room. The teacher implemented an effective, appropriate curriculum with energy and high expectations. The students she taught learned at an accelerated rate, even though they were classified as special education students.

"Pull-out Resource Specialist Programs (RSP) do not work." That is what I keep hearing. When I first heard that, I began to take a harder look at our pull-out Resource Program.

When we consider placing students in RSP, we hope that the outcome will be an increase in the rate of skill acquisition. But how much must the learning rate increase before it can be said that a program "works"? I still don't know the answer, but this is where the question took me.

I used a graph (Figure 1) to compare grade level achievement and grade placement for each student.

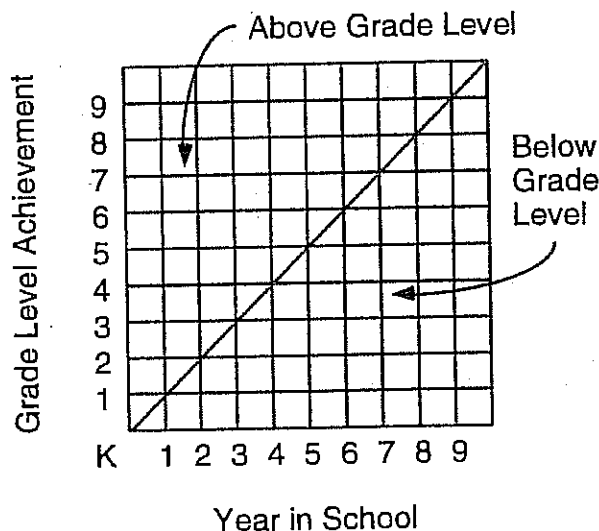


Figure 1.

The diagonal line indicates, given one year's progress per year of instruction, grade level achievement. The dotted line indicates the progress rate while enrolled in regular education. A solid line indicates the achievement rate while enrolled in this pull-out program. Grade level scores were used from the Brigance Test of Written Spelling and Key Math-r.

Figures 2, 3 and 4 are typical of students from regular education. Dramatic increases in achievement are quickly obtained from special placement in a resource room where a different curriculum (Direct Instruction) was in place.

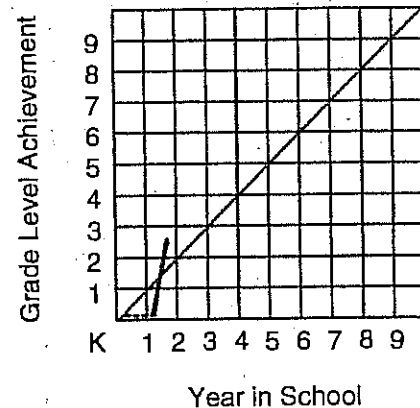


Figure 2.

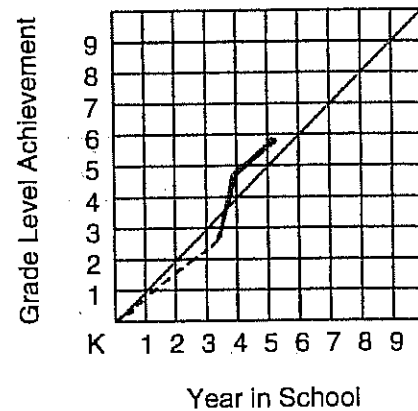


Figure 3.

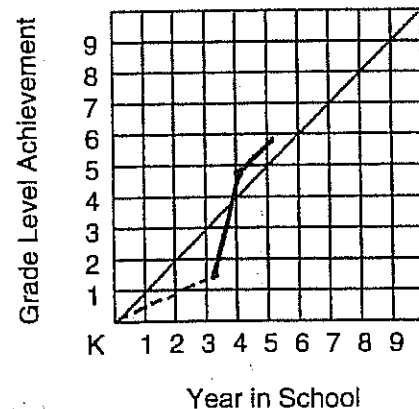


Figure 4.

Figures 5, and 6 are from students who entered our school already placed in special education. The student for Figure 5 began special education in first grade. The figure 6 student had been enrolled in a private special education school in grades 2-3 and in a different private special education school in grades 4-5. The dotted line indicates the progress of these students while in these other programs. These other programs emphasized self-esteem and getting along with others. The solid line indicates progress the students made in our program where a different curriculum was used—the same Direct Instruction Curriculum we used with the students in Figures 2, 3, and 4.

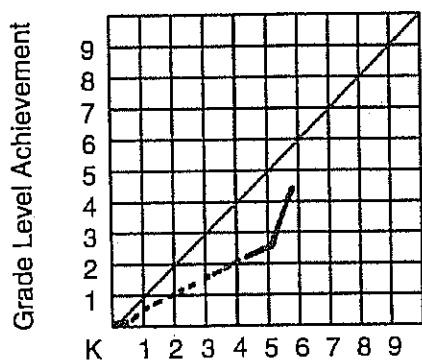


Figure 5.

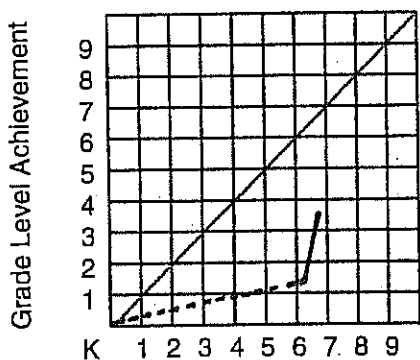
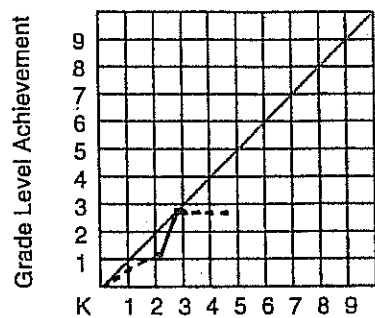
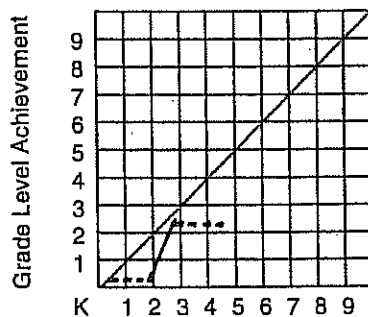


Figure 6.

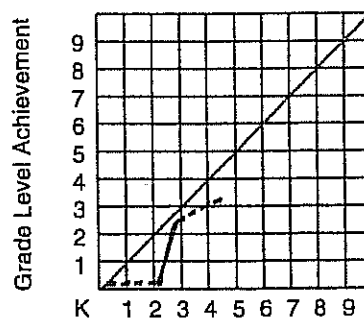
The student in Figure 7 began a special education pull-out program in first grade in another school. He began working in our program in second grade, then he left. He returned to our school this week as a fourth grader, allowing us to compare his growth rate in another program after working in our Direct Instruction program. His scores on the reading and spelling subtests of the Brigance Comprehensive Inventory of Basic Skills over the 4-year period are shown in Figure 7.



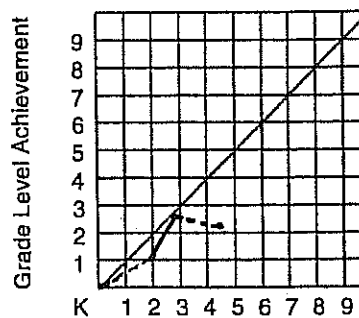
Reading Vocabulary



Passage Comprehension



Oral Reading



Spelling

Figure 7. Brigance Comprehensive Inventory of Basic Skills subtest scores in reading and spelling.

The increase in learning rate certainly varies with attendance, attitude and severity of disability. Overall, it appeared that students were averaging a year and a half of progress for each year of instruction in our program. It was possible that they would get to grade level eventually. So, is this a pull-out program that "works"? Maybe, maybe not.

Figure 8 is from a student who moved to our school with an IEP. She entered special education early in second grade. At the end of that year, it was decided that she be retained in second grade. She transferred into our school at the beginning of the retention year. She has received help in Spelling, Reading and Math. Figure 8 shows only the reading progress. Her IEP was reviewed early in third grade. The team recommended that RSP reading continue.

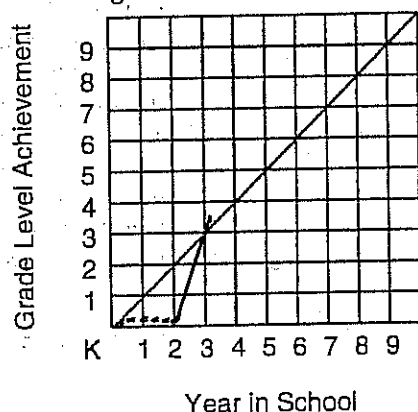


Figure 8.

Why? She had grade level scores, grade level work, a great attitude, good behavior and study skills. I found myself asking, "Good grief, what do they expect?"

I looked at the scores from the Comprehensive Test of Basic Skills (CTBS) for all students in grades 3-5 for the last four years. Mean Grade Level and Median National Percentile tend to be higher than average and get higher each year in all areas of instruction. Figure 9 shows the general picture for Total Reading scores over the last four years.

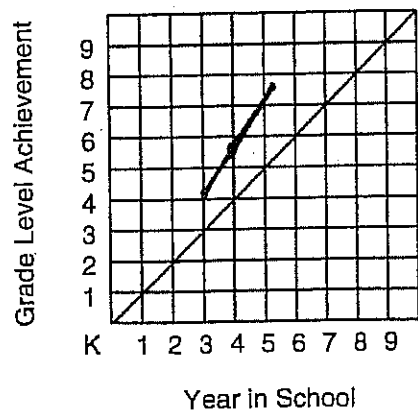


Figure 9.

Average third, fourth and fifth graders are above grade level and increasingly so every year. These children are taught by excellent teachers who use a combination of direct instruction techniques and whole language. Their high performance level may also be attributed to the high economic level of our community.

Figure 10 compares the CTBS scores of the same student with average, regular education progress.

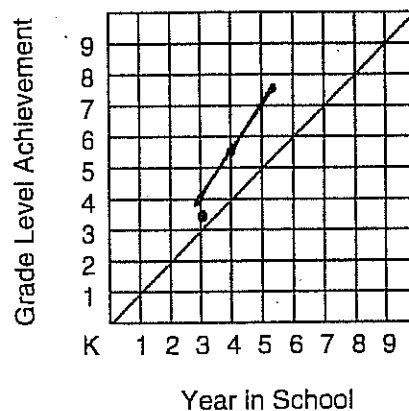


Figure 10.

It is clear now. The student has an increased rate of progress. The student is at grade level. However, the student has not caught up

- not with her peers who are, on the average, a year above grade level, and
- not with the instructional level geared to the average student in the class.

Indeed, she may never be far enough above grade level to be caught up.

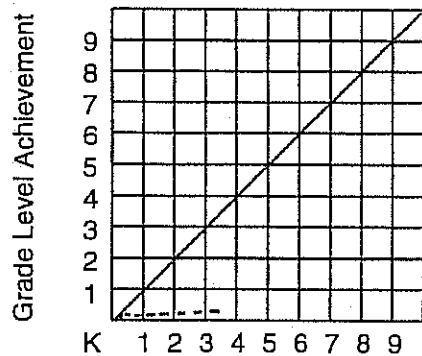
Pull-out programs do not work. Did they mean that students learn nothing, never get to grade level or never catch up with their peers?

I do not know what they meant. But if getting out of special education is what must happen before a pullout program is said to "work," then maybe we have failed . . . failed to do the impossible.

The remaining figures represent students new to our school this year. All of these students were retained before entering our school. All three were in special education last year. The first had been in special education for three years.

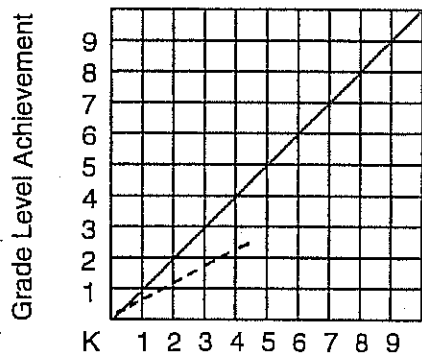
The first student (with a three-year special education history and a retention) is now a third grader. In math, she can add. She can +1 and +2 if the first number is under ten. She does not seem to have heard of subtraction. In the classroom, they are doing subtraction with three digits and borrowing across zero.

In spelling, she can spell some two-letter words and some CVC words. In class, they take notes when they watch movies.



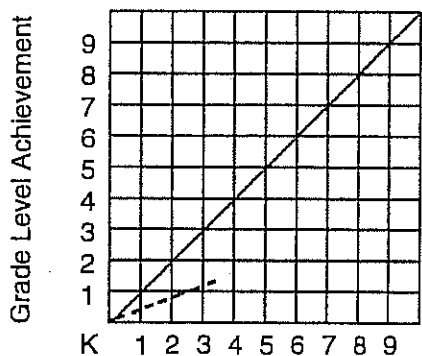
Year in School

Figure 11.



Year in School

Figure 12.



Year in School

Figure 13.

The other students' stories are just as distressing. The discrepancy between their skill levels, that of their peers, and the instructional level in the regular classrooms is overwhelming. I do not believe that this gap can be closed more rapidly or at all with a push-in program, cooperative learning and/or peer tutoring.

I do know that all these students will eventually be placed in our pull-out program. I do know that we can increase their progress rates as we have with past students. We will do it with the Direct Instruction

programs. I also know that earlier intervention would produce similar and possibly better results.

Education programs vary in quality, effectiveness and the challenges they are expected to meet. We should compare the resulting progress rates of different types of programs before selecting, or changing program models.

Direct Instruction is a precise technology involving the application of knowledge about the relationship between teaching and learning to the design of effective schooling. It is concerned with the ways teachers behave, the curriculum they use, the use of time and other resources, the role of administrators—all of the factors that influence school effectiveness. Direct Instruction is not a specific teaching strategy or method. It is the specific matching of a whole array of research-based teaching strategies and methods to a specific purpose and a specific context in education. B.G.

The Forgotten Variable: Improving Academic Skills for Students with Serious Emotional Disturbance

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We are becoming all too familiar with outcome data for students identified with seriously emotional disturbance (SED) or with severe behavior disorders (SBD). These students have a higher failure rate than any other group of special education students, and about 4 in 10 students drop-out-nearly 50% higher than the next special education category (U.S. Department of Education, 1990). Approximately one third of these students neither work nor receive job training when they leave school (Neel, Meadows, Levine, & Edgar, 1988). More than 40% have criminal records within three years of leaving school (Jay & Padilla, 1987); Bellamy (1989) reported this figure is increasing.

The impact of working with these students is also reflected in data on SED teachers. Carriker (1989) reported that 30% of SED teachers are on emergency certificates, and that one third of all SED teachers quit after 4 years (Jones, 1992).

It is disturbing that the SED population is doing very poorly in school, the work place, and in the community. These data should prompt professionals and service providers to seriously evaluate the present service models and their components. The job is not getting done.

The purpose of this article is to examine the relationship between the disability of serious emotional disturbance or behavior disorder, and academic performance. The basic premise is that this relationship is central to the disability and is largely ignored in both research and practice. Descriptive studies are presented to demonstrate the relationship between a curriculum intervention with SED students and academic and behavioral gains. The article is divided into five sections:

1. An analysis of the relationship between the definition of the disability serious emotional

disturbance and academic performance; implications for interventions also are considered.

2. A review of classroom practice and research on academic interventions for SED students.
3. Academic skill deficits of SED students and implications for curriculum design.
4. Descriptive studies using Direct Instruction curricula to teach academic skills to SED students.
5. Summary and conclusions.

The Relationship between Serious Emotional Disturbance and Academic Performance

Serious emotional disturbance in the Education of the Handicapped Act is defined in terms of educational *performance*, and the first characteristic for eligibility is described in relationship to *learning*: "Serious emotional disturbance is defined as a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree which adversely affects educational performance: an inability to learn which cannot be explained by intellectual, sensory, or health factors" (Federal Register).

Javorsky (1992) conducted an extensive review of research which demonstrated the significant correlation between deficits in basic academic skills (reading and language specifically) and behavioral/emotional disorders. Other studies have reported that SED students are underachieving in academic areas (Epstein, Kinder, & Bursuck, 1989; Kaufman, 1985; McDonough, 1989). Moreover, the gap in academic performance levels between SED students and general education students increases with age. Coutinho (1986), in a follow-up study, reported that the reading levels of a

group of elementary SED students was 1.5 to 2 grade level below that of their non-handicapped peers. The discrepancy with the same students had increased to 3.5 grade units by the time these students had reached secondary level.

Approaches or systematic interventions for the treatment of SED students should address the central problem of the relationship between the emotional problem and the educational performance of the students. In effect, we should expect to see academic interventions designed to address educational performance in research literature and in classroom practices.

Classroom Practice and Research on Academic Intervention

Knitzer, Steinberg, and Fleisch (1990) conducted a nationwide study (based on surveys and observations) of current teaching practices in self-contained classrooms in public school settings and found very little systematic teaching or instruction in academic areas. The teaching activities were centered around behavior management goals (such as point systems, level systems, contracts, and self-management plans) to the relative exclusion of academic goals. In addition, the instructional activities were largely in the form of seat work administered by a teaching assistant. In effect, the classroom teacher functioned as a "case manager" responsible for teaching and managing behavior. The following educational performance outcomes from other research also were identified in the study:

1. In many cases, neither behavior nor academic performance improved.
 2. Less than 30% of students were functioning at or above grade level in any academic area.
 3. Seventy-three percent of students were reading below grade level, and deficits were more severe with older youth.
 4. Forty-five percent of high school students failed at least one subject.
- Ruhl and Berlinghoff (1992) reviewed published experimental research on improving academic performance of SED students, identifying four criteria for considering these studies:
1. Subjects in the study had to be identified BD or SED.
 2. Subjects needed to be in grades K-12.
 3. Subjects had to be placed in public school settings or university-affiliated programs, as distinct from private residential or psychiatric settings.

4. Studies measured the effect of academic interventions on academic skills.

Berlinghoff and Ruhl made two conclusions: First, there is a scarcity of published experimental research in the area of academic interventions for students identified as behavior disordered or seriously emotionally disturbed in public school placements.

The teaching activities were centered around behavior management goals (such as point systems, level systems, contracts, and self-management plans) to the relative exclusion of academic goals...In many cases neither behavior nor academic performance improved.

The search procedures produced only 12 articles through 1988 using these criteria. Second, the research essentially addressed motivation variables and some instructional techniques, such as methods for delivering instruction and providing feedback.

There did not appear to be any published research on the effect of curriculum interventions or specific curricular approaches as an independent variable and subsequent changes in academic skill (performance) levels as the dependent measure. Engelmann (1992) and Carnine (1992) pointed out in the context of school reform, that curricular approaches represent a potent variable which needs to be addressed more systematically and rigorously.

Academic Skill Deficits of SED Students and Implications for Curriculum Design

The academic skill deficits for SED students presents a challenging profile to educators. Rhode, Jenson and Reavis (1992) reported that SED students are on task 60% less than their peers. These students are significantly lacking in academic survival skills of attending to tasks, following directions, remaining on task and completing assignments (Foley, & Epstein, 1992; Greenwood, Delquadri, Hops, & Walker, 1977). In a study measuring academic learning time, Fisher, Beliner, Fibby, Marliave, Cahen, and Dishaw (1980), reported that the range for SED students varied from 4 to 52 minutes per day. Academic under achievement also has been well documented (Epstein, Kinder, & Bursuck, 1989; Kaufman 1985; Mastropieri, Jenkins, & Scruggs, 1985). In a survey of school psychologists, Gleason, Colvin and Archer (1991) found that SED students exhibit a high rate of "spotty" or splinter skills in basic academic areas. The overall classroom profile of an SED student could be characterized as:

1. Off task.
2. Poor academic work-related skills.
3. Splinter skills in basic academic areas.
4. Under achievement.

It is possible that these skill deficits interfere with instruction or make the delivery of instruction very difficult. Consequently, managing behavior becomes the primary function in the classroom at the expense of instruction. One possible remedy might be to use curricula with design features that directly address the skills deficits exhibited by SED students. On this basis, an appropriate curricula for SED students should have design features that:

1. Obviate or preempt the impact and influence of behavioral problems exhibited by SED students during instruction.
2. Enable teachers to instruct SED students so that academic achievement occurs at a level commensurate with their ability.
3. Strengthen academic skills that are weak.
4. Enable students functioning below grade level to "catch up."

Direct Instruction curricula possess a number of design features that should be particularly suitable for implementation with SED students to meet these challenging needs. Direct Instruction is a highly structured, intensive curriculum intervention designed to increase learning and to set the stage for students to acquire new knowledge. The curricula involve activities that build understanding. "In this process, mechanistic skills evolve into flexible strategies, concepts combine into schemata, and success in highly structured situations develops into successful performance in naturalistic, unpredictable, complex environments" (Carnine, Grossen, & Silbert, in press).

The Direct Instruction model grew out of research conducted by Siegfried Engelmann and Carl Bereiter in the mid-1960s, on teaching at-risk preschoolers. A comprehensive model was developed consisting of curricular materials, teaching techniques, staff development, and a data management system (Carnine, Granzin, & Becker, 1988). The success of this model in terms of student achievement in basic and cognitive skills, self concept, self esteem, and in parental approval has been well documented (Abt Associates, 1977; Becker & Engelmann, 1978; Haney, 1977).

Engelmann & Carnine (1989) presented in detail the critical design components of the Direct Instruction Programs. Some of these design features that have particular application for instructing SED students are as follows:

1. Concepts are presented to control for misinterpretations.
2. Skill components are carefully sequenced to ensure the students learn the basic building blocks.

3. Procedures are specified in detail to assist teachers in presenting the content.
4. Correction procedures are carefully specified.
5. Sufficient practice is prescribed.
6. Cumulative review and practice is systematically built into the curricula.

Studies Using Direct Instruction Curricula to Teach Academic Skills to SED Students

A search was conducted for research studies which met the following criteria:

1. Direct Instruction curricula were used as the independent variable.
2. Changes in academic performance were used as the primary dependent measures. Behavioral changes were used as secondary or covarying dependent measures where available.
3. Subjects were identified as seriously emotionally disturbed according to the criteria specified by the federal definitions in P.L. 94-142.

Only three studies were found using these criteria. Each of these studies are presented as descriptive research in that experimental-control conditions were not present.

Study One

La Cava (1992) implemented the Direct Instruction *Corrective Reading Program* (Engelmann, Hanner, & Johnson, 1989) for a daily fifty minute period of 18 weeks with 25 seventh grade students classified as behavior disordered according to the guidelines of the state department of education in Florida. On the average the students were three to five grades below grade level in reading. Twelve students remained in the program over the intervention period. Most of the students who dropped out of the study either were excessively truant or had received a placement change during the course of the study. Pre-Post measures were taken using the SRA Reading Tests. At the end of the 18-week intervention period, using the Science Research Associates' *Corrective Reading Program*, the overall reading grade ability increased from three years eight months to four years and six months. That is, on the average, these students *made gains of 10 months in an 18-week period of instruction*. In addition: an overall gain of 30% on-task behavior and an increase of 50% in average points earned were reported. In summary, the students certified as seriously emotionally disturbed made significant gains in reading through the implementation of a Direct Instruction program (*Corrective Reading*) and, at the same time, made gains in behavior.

Study Two

Jones (1992) implemented two Direct Instruction programs (*Corrective Reading* and *Fast Cycle Reading*) with 21 elementary-aged students identified as emotionally handicapped according to the criteria of Broward County School District, Fort Lauderdale, Florida. The classes ranged from grade one to grade five.

...the students certified as seriously emotionally disturbed made significant gains in reading through the implementation of a Direct Instruction program (*Corrective Reading*) and, at the same time, made gains in behavior.

The *Corrective Reading* lessons were conducted five days a week for a 50 minute period. Students were instructed in six groups within each class based on performance on the *Corrective Reading Placement Test*. This test also was used for pre-test measures on reading rate (number of words read correctly per minute). All students showed an increase in the number of words read correctly. The average percentage increase in rate (number of words read correctly per minute) from the pre- to the post-test was 79% (range 38% - 102%).

Similar gains were obtained with the *Reading Fast Cycle Program*. These lessons were conducted with 6 students (Grades 1-4) for 30 minutes per day, five days per week. Pre-Post measures were taken on Lesson 81 comprised of 104 words. All students showed improvement in reading rate. The average percentage gain in numbers of correct words read per minute per group was 125% (Range 81%-173%).

Jones (1992) also reported the 10 students in her classroom made substantial gains in behavior measures. From the period of January 1991 to the end of the school year the students met their daily goals during the reading periods (such as: "stay on task," "follow directions," and "complete your work") on an average of 95% of the time. Two of the students were mainstreamed at grade level in reading and three others were given schoolwide responsibilities (such as safety patrols). It is evident that, as the students made gains in their reading, their behavior improved.

Study Three

Sherman (1993), conducted a single case study with a 14 year old, 6th grade student certified seriously emotionally disturbed according to the state of Oregon guidelines. This student was 4 to 5 years behind grade level in basic skill subjects (reading,

math, language arts, and written language) and was classified as a non-reader. A Direct Instruction reading program was implemented, *The Multisyllabic Word Reading Program* (Archer, 1988) for a 30 minute period, 5 days per week, over 10 weeks. A homework program also was introduced at the same time in which the student was required to practice reading a list of sounds and words to his parent. This list was comprised of items that had been newly taught as a criterion at school and a cumulative review of previously learned skills. A sound screener comprised of 70 sounds, beginning and ending word parts and words was used for pre- and post-test measures. The student scored 10% correct on the average for pre-test scores and scored 97% correct for post-test scores. Towards the end of the program the student met the criteria to begin the *Reading Mastery III* program (Engelmann & Hanner, 1988) and was able to read several pages with minimum assistance at school and at home. Improvement in behavior also was reported. At the time the sound screener pre-test was given, the student was averaging one negative consequence per day for behavior infractions. At the time of the post-test, the negative consequences for behavior infractions had been reduced to one per week. Parent reports also indicated a significant improvement in the student's cooperation with the homework routines and behavioral expectations over the ten week period.

Summary and Conclusions

Outcome data for students with serious emotional disturbance or severe behavior disorders is grim. These students are doing very poorly in school, in the community, and in the work place.

There is a paucity of research in which academic interventions are used as an independent variable and academic improvement is used as the dependent measure. Similarly, reviews of literature on classroom practices show instruction on academic basic skills areas has low priority. Teachers of SED students are largely engaged in teaching behavior or addressing problem behavior in some way. These results are puzzling in that serious emotional disturbance is defined in terms of educational performance. It should be expected that instruction in academic areas and measurement of educational performance should have high priority in research and classroom practice. Such is not the case. It should also be expected that one dependent measure of classroom interventions for SED students should be educational performance. Or perhaps, that interventions or treatments for SED students should be validated in terms of educational performance.

The skill deficits in academics and behavior of SED students have strong implications for curriculum design. It is possible that instruction on academics has a low priority in research and classroom practice because of inadequacies of the structure or curriculum design of the instructional programs. If the curriculum is designed to address the specific skill deficits of SED student, then there is more likelihood that these programs will be implemented successfully. The Direct Instruction programs for basic academic skills appear to have the curriculum design features that should be effective with SED students.

While these studies lack experimental-control conditions, there appears to be a strong relationship between the structured detail of curriculum design of the Direct Instruction programs and gains in basic skill areas and behavior for SED students. It is imperative that further research document this relationship.

Some descriptive studies were presented in which Direct Instruction programs were implemented as the independent variable and gains in academic performance were used as dependent measures. Improvement in behavior measures also were noted as covarying dependent measures. In each study, substantial gains were made in both academic and behavioral measures. While these studies lack experimental-control conditions, there appears to be a strong relationship between the structured detail of curriculum design of the Direct Instruction programs and gains in basic skill areas and behavior for SED students. It is imperative that further research document this relationship. Ultimately, we would hope that effective instruction in academics becomes a high priority in classroom practices and that students with serious emotional disturbance may become more successful in school. We cannot be satisfied with the present practices where instruction has such a low priority.

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Accelerating Reading and Thinking Skills of Low-achieving Elementary Students: Implications for Curricular Change

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Abstract: Low-achieving Chapter 1 students in grades 4 through 6 were assigned one of two levels (Level A: N=12; Level B: N=14) of a direct instruction remedial reading program, Corrective Reading, emphasizing higher-order thinking skills in combination with decoding strategies. Performance of the students after an 85 day treatment period revealed a substantial achievement acceleration (vs Chapter 1 comparison students) on both ITBS reading (1.6 months per month grade equivalent gain vs .8) and ITBS vocabulary (2.1 months per month grade equivalent gain vs .6), with parallel findings on error reductions on the program criterion-referenced decoding and thinking performance tests. Additionally, in interpreting the patterns of achievement levels, the mean end-of-treatment criterion-referenced test performance by the experimental Chapter 1 group (pre-treatment ITBS Reading percentiles below 35) exceeded those of average (ITBS percentiles 50-65) students on decoding while equaling those of gifted (ITBS percentiles 85-99) students on thinking. Results were discussed in terms of curriculum implications for both remedial and average achieving students.

Recent research has profiled low-achieving students as generally "at-risk" because of a history of continuous academic failure and previous grade retention coupled with ineffective traditional instruction (Means & Knapp, 1991; Resnick, 1989; Rothman, 1990). For these students, the decision to drop out of school is a cumulative one based upon the culmination of these ongoing school (and associated out-of school) factors. Yet, surprisingly, the characterization of at-risk students as being less able to learn has not been substantiated in the research literature (Pogrow, 1990). Thus, such students would be expected to relate positively to motivationally strong and educationally rich remedial instructional programs that reverse their prior pattern of educational failure and establish a foundation for future school success (Means & Knapp, 1991).

Despite an expressed intent to improve all aspects of schooling, the ongoing movement toward educational reform has focused primarily upon improving teacher behavior in the classroom and raising student achievement standards (Carnine, 1992). One unfortunate consequence of this limited focus has been the redirection of attention away from qualitative changes in school curricula (vs "more of the same") that may be required to solve most significant school problems (e.g., Carnine & Kameenui, 1992). With regard to low-achieving elementary students who are potentially "at-risk," among the most important of these problems is the identification of remedial reading practices whose goal is to accelerate the

mastery of reading and thinking skills necessary to compete successfully within regular classrooms during subsequent years in schools.

With the preceding in mind, the present study was designed to explore the effects of using a research-based remedial reading program, *Corrective Reading*, within which advanced comprehension and thinking skills in combination with decoding strategies are taught to low-achieving students using direct instruction design strategies (Engelmann & Carnine, 1982). In doing so, the study addressed two complementary research questions:

- * Would the direct instruction reading program accelerate the decoding and higher-order thinking skills of low-achieving remedial students in relation to remedial, average, and gifted comparison students, as measured by program criterion-referenced tests, and,
- * Would the direct instruction reading program accelerate the reading comprehension and vocabulary achievement of low-achieving remedial students in relation to comparison students, as measured by a nationally-normed achievement test.

Method

Subjects

The study was conducted in a K-6 elementary school in a large urban school district in the Southwest that offered

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student ratio) for a total of 85 days during January through May of the school year. Because delivery of the program required specialized teaching skills, the experimenters initially served as instructors, with the classroom teachers observing. Eventually, over a 4 to 8 week period, the regular classroom teachers assumed responsibility for their classes, with technical support being provided by the experimenters. At the end of the 85 day treatment period, the experimenters administered the criterion-referenced tests to both sets of students and to appropriate groups of controls within the school and to the reference groups of students in the comparison school. In addition, the performance of the experimental Chapter 1 students was compared to the districtwide population of Chapter 1 students on District-administered standardized ITBS Reading subtests. Table 3 summarizes the overall design of the study.

Table 3. Design of the study.

Treatment Comparison	Criterion Measure	Design Focus
Experimental vs All District Chapter 1	ITBS reading, vocabulary	growth rate (month/month) associated with regular Chapter 1 program
Experimental vs within School Chapter 1	program decoding, thinking skills	growth during 85 day treatment period associated with regular Chapter 1 program
Experimental vs Companion School: Chapt. 1, Average, Gifted	program decoding, thinking skills	end-of-treatment performance levels re: range of performance

Results

Reading Achievement on Standardized Tests. Table 4 shows the standardized ITBS achievement gains for experimental and district Chapter 1 control students in Reading Comprehension and Vocabulary. As Table 3 shows, the achievement of the experimental students was accelerated to 1.6 and 2.1 months gain per month instruction (over 85 days) in reading and vocabulary, respectively, compared to the district Chapter 1 students who averaged less than one months gain per month instruction over the school year (considered conservatively as 10 months). Thus, the accelerated rate of achievement of the Corrective Reading students would allow them to "catch up" to their more successful peers, the ultimate goal of a remedial program. But, in comparison, the lowered achievement rates displayed by the control students would insure that they continue to fall farther and farther behind their classmates.

Table 4. ITBS Grade equivalent achievement gains for experimental and control students.

Group	Subtest	Gain per Month of Instruction	Pre-post Treatment Period
Experimental Students	Reading	1.6	85 days
	Vocabulary	2.1	85 days
Chapter 1 Controls	Reading	.8	10 months
	Vocabulary	.6	10 months

In interpreting these results, it should be kept in mind that the accelerated rates of achievement displayed by the experimental students are *not* due to statistical regression effects. Rather, any expected statistical regression effects for the total Chapter 1 population would imply a *conservative* treatment comparison. This is true for the following reasons. First, the eligibility of all Chapter 1 students (including the experimental students) was determined from a common administration of the ITBS tests the preceding spring; thus, there is no differential regression effect associated with sample selection. Second, since the ITBS *pre-test* used for experimental students was administered just prior to the 85 day treatment period at the middle of the school year, these pre-test scores *would* reflect regression effects. Thus, while the post-test scores are comparable, the pre-test scores of the experimental students would be spuriously higher (due to regression) than the pre-tests of the controls. As a result, any regression effect would cause the pre-post scores of experimentals to be lower than controls rather than the same.

Achievement on Criterion-Referenced Tests. Table 5 shows the pre-post improvement in decoding errors made by the *Corrective Reading* students compared to Chapter 1 controls sampled from the same school on the criterion-referenced program test which included story reading, word reading and blending. For the experimental students, decoding errors (word omissions, word repetitions, mis-identifications, line-skipping, and sound-out errors) were reduced to one-half their pretest after the 85 days of instruction, during which the error rate of the

Table 5. Program decoding and thinking skills achievement for experimental and control students.

Group	Subtest	Pre-Post Error Reduction	Pre-post Treatment Period
Experimental Students	Decoding	28-14 (-14)	85 days
	Thinking	18-8 (-10)	85 days
Chapter 1 Controls	Decoding	33-31 (-2)	85 days
	Thinking	21-19 (-2)	85 days

districtwide remedial reading services through a variety of programs. The experimental students in grades 4-6 consisted of 25 black and 1 white (N=26) Chapter 1 students assigned to remedial reading classrooms whose reading scores on the Iowa Test of Basic Skills (ITBS) ranged from 1.5 to 3.0 years below grade placement (i.e., a percentile rank below 35 which determined Chapter 1 eligibility).

Three different student groups were used as controls. First, comparable Chapter 1 students within the experimental school in grades 4-6 served as direct controls. Second, additional Chapter 1, average, and gifted students in grades 3-6 in a comparison school provided a more general interpretative context for program effects. In this group, low-achieving Chapter 1 students were those with ITBS percentiles below 35, average students, those with ITBS percentiles between 50-65, and gifted students, those with ITBS percentiles between 85-99. And, third, all District Chapter 1 students provided a standard of comparison for standardized test achievement in reading.

Experimental Treatment

Portions of the decoding and comprehension series of SRA's *Corrective Reading Program: Decoding (Levels A,B)* (Engelmann et al., 1988) and *Comprehension (Levels A,B)* (Engelmann, Osborn, & Hanner, 1989) served as the experimental curriculum. The *Corrective Reading* series materials were selected for use in the study because of a number of key curriculum design features. First, the materials were designed for direct instruction by teachers in a fashion that was consistent with the existing empirical research on teaching. Second, the series was designed specifically for remedial (vs initial) learners and contained specific instructional tracks for teaching not only decoding, but also higher-order thinking (comprehension) skills. Table 1 outlines the major instructional tracks included in Levels A and B of the remedial series.

Table 1. Overview of Levels A and B of the Corrective Reading series.

Program Focus	Level A (60 Lessons)	Level B (140 Lessons)
Decoding	<u>Word-Attack Basics</u> Emphasizes basic reading skills: sounds, rhyming, sounding-out, word and sentence reading	<u>Decoding Strategies</u> Emphasizes critical letter and word discriminations, letter combinations, story reading, and questions
	<u>Thinking Basics</u> Emphasizes oral language skills: deductions, inductions, analogies, vocabulary building, inferences	<u>Comprehension Skills</u> Emphasizes literal and inferential/thinking skills, reading for information, following sequenced instructions, analyzing contradictions, learning information

Instruments

Both program criterion-referenced and standardized achievement tests were used as criterion measures. The criterion-referenced tests measured student mastery of decoding and thinking skills. Skills on the decoding test were assessed through oral tasks in story reading, word reading (e.g., "liked", "never", "rested") and blending (e.g., "fam", "rog", "wef", "dup"). Skills on the thinking test were assessed by items focusing on analysis, classification, logical reasoning, and information items (see Table 2). In order to assess skill application, all specific decoding and thinking items in the criterion-referenced tests were new to students in that those items were not specifically taught in the *Corrective Reading* program itself. Complementing the criterion-referenced decoding and thinking tests, the ITBS Reading Comprehension and Vocabulary subtests were used to measure student performance in relation to national norms in those areas.

Design and Procedure

Based upon the series program placement tests administered individually by the experimenters, students in two randomly-selected regular Chapter 1 classrooms were regrouped and assigned to either a Level A classroom (N=14) or a Level B classroom (N=12). These class sizes were typical of Chapter 1 classrooms throughout the district. Immediately after the initial grouping, the appropriate Level A or Level B instructional materials, respectively, were presented during daily 1 hour periods within a whole-group instructional format (i.e., 1:14 or 1:12 teacher-

Table 2. Examples of items on criterion-referenced thinking test.

- | | |
|--|-----------------------------------|
| 1. Name three ways that an ice-cream cone is different from a hamburger. | 1a. One is hot. |
| | 1b. A hamburger has a bun. |
| | 1c. One is sweet |
| | 1d. One has meat |
| | 1e. An ice-cream cone has a cone. |
| | 1f. etc. |
| 3. Name three ways that a tree is the same as a cat | 3a. They are alive. |
| | 3b. Each is bigger than an ant. |
| | 3c. Both die. |
| | 3d. Both have coverings. |
| | 3e. etc. |
| 5. Finish this sentence: An airplane is to vehicles as a fish is to... | 5. Animals, food, etc. |
| 16. Here's a rule. It has silly words, but you can still answer the questions. Listen: All lerts have pelps. Listen again: All lerts have pelps. | 16a. Idea: It has pelps. |
| a. Tom has a lerb. What do you know about his lerb? | 16b. Idea: Pelps. |
| b. What would you look for to find out if something is a lerb? | |

test, which included analysis, classification, logical reasoning, and information items (see Table 2). As with decoding, the experimental group reduced their errors by approximately one-half, while the controls showed negligible improvement across the 85 day treatment period.

Continuing to parallel the results on the decoding skills test, Figure 2 shows how thinking skills errors for typical Chapter 1, average, and gifted students changed developmentally from year to year across grades 3-6. Again, inspecting these data shows how the thinking skills of the Chapter 1 students served by the district remedial reading programs remained deficient throughout the elementary levels when compared to average and gifted students.

However, in comparison, the post-test performance for the Chapter 1 experimentals on the thinking skills test exceeded not only those of the within-school Chapter 1 control group, but those of the average students as well. In fact, after the 85 day treatment period, the thinking skills of the experimental Chapter 1 students reached the level of the gifted students whose ITBS Reading percentiles ranged from 85 to 99.

Discussion

The overall pattern of results showed that students enrolled in the *Corrective Reading* program for 85 instructional days achieved highly accelerated rates of progress on both the decoding skills commonly present in remedial

THINKING SKILLS

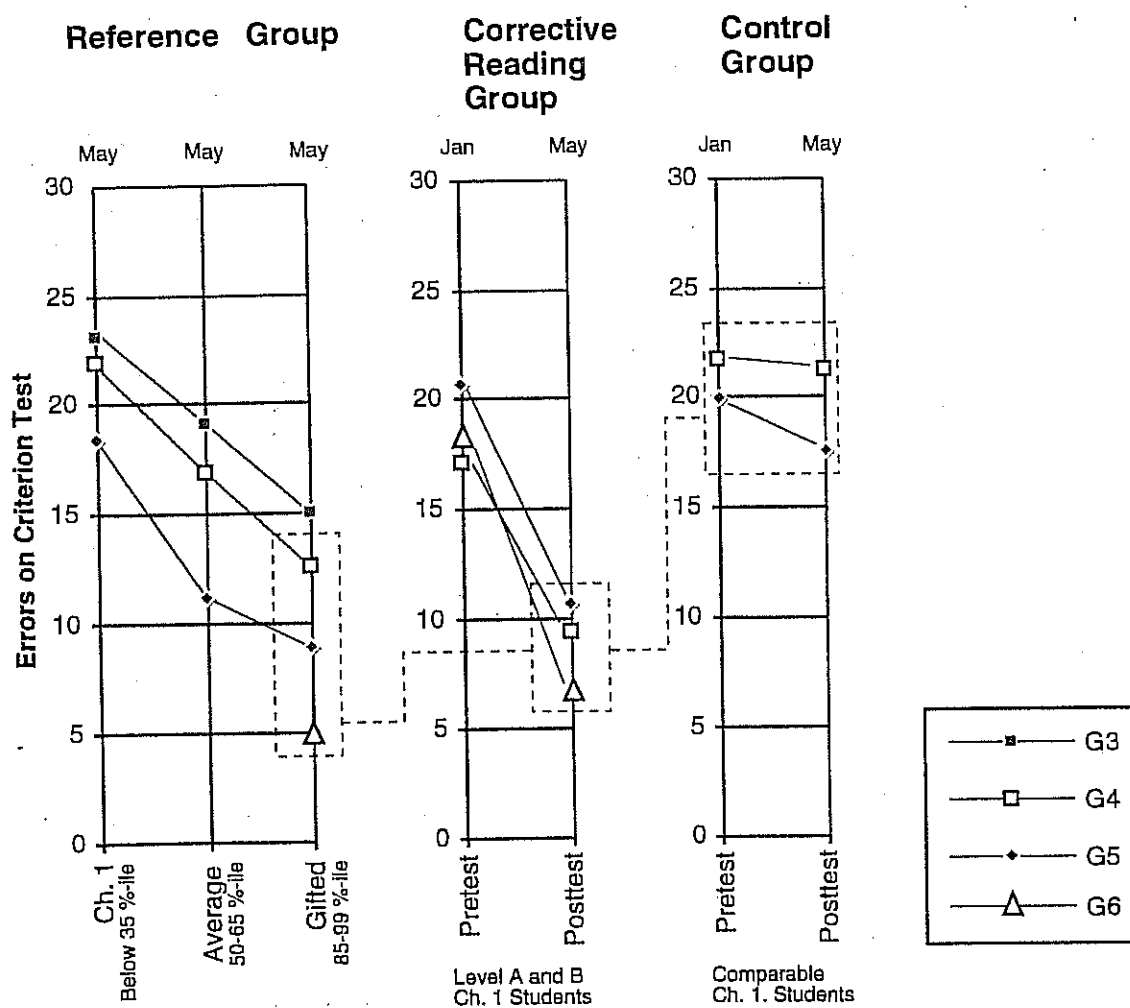


Figure 2. Mean number of errors on Corrective Reading test measuring thinking skills (see Table 2). G3, G4, G5, and G6 denote student groups at given grade level.

Chapter 1 control group remained unchanged. This provides strong evidence for the effectiveness of the *Corrective Reading* program design.

In addition to the pre-post comparison with the within-school Chapter 1 control group, Figure 1 also shows how decoding errors for typical Chapter 1, average, and gifted students changed developmentally from year to year across grades 3-6 in a comparison school. Inspecting these data shows that Chapter 1 students continue to make high numbers of decoding errors throughout the elementary

levels, even though they are receiving regular district-provided remedial reading services. In contrast, the experimental Chapter 1 students broke the stable error pattern in a relatively short instructional time period, with their performance falling between the Chapter 1 and average student performance levels.

Paralleling the results for decoding, Table 5 shows the pre-post improvement in thinking skills made by the *Corrective Reading* students compared to the within-school Chapter 1 controls on the criterion-referenced program

DECODING SKILLS

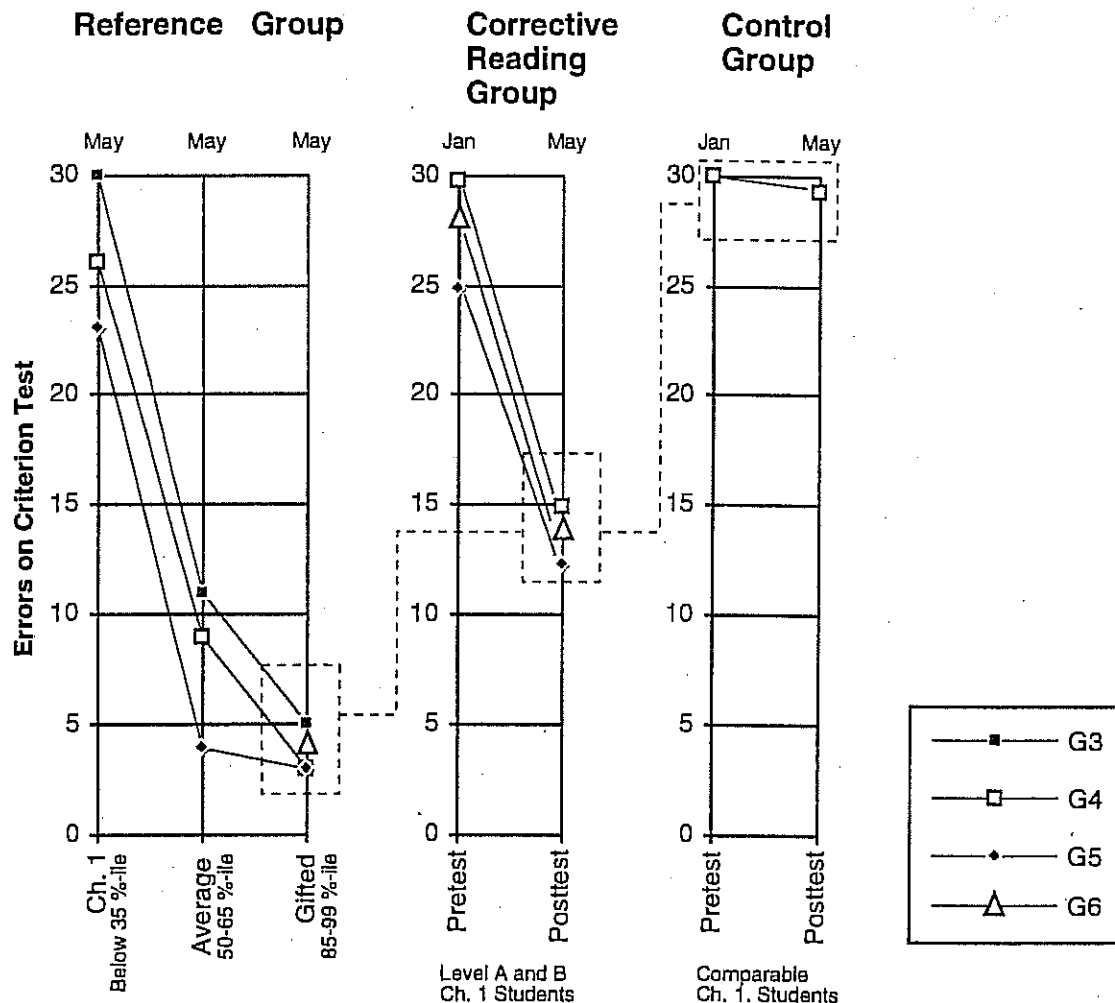


Figure 1. Mean number of errors on Corrective Reading test measuring decoding skills (story reading, word reading, blending). G3, G4, G5, and G6 denote student groups at given grade level.

reading programs and on advanced thinking skills typically not included in remedial reading instruction. This effect also carried over to vocabulary and reading comprehension performance on the standardized ITBS on which experimental students displayed 1.6 and 2.1 months growth per months instruction on national norms. Compared to the alternative remedial reading treatments received by other Chapter 1 students, the joint emphasis upon decoding and thinking in the *Corrective Reading* program was very powerful indeed. In contrast, unlike the achievement progress of the experimental students which showed them catching up to their on-grade-level peers, the Chapter 1 control students showed negligible achievement gains on decoding and thinking, while falling farther behind average achieving students.

An even more important finding, however, was the level of performance achieved by the experimental students in the category of higher-order thinking skills. Not only did the thinking skills performance of the experimental students exceed that of control groups of Chapter 1 and average students, but, more importantly, it also equaled that of more gifted students. Implications of this finding strongly suggest the necessity of augmenting the curriculum of remedial reading programs to include specific instructional tracks on advanced thinking skills. Additionally, however, the pattern of comparisons between experimental Chapter 1 students, average students, and gifted students is strongly suggestive that regular students also would benefit from an expansion of the regular basal reading curriculum to include the thinking skills taught by *Corrective Reading* as well.

Although the general importance of introducing the additional thinking skills materials into the remedial reading curriculum was anticipated, some findings of the study were not. First, inspection of the average and gifted students across grade levels on the thinking skills test in grades 3, 4, 5, and 6 in relation to the experimental students clearly points to a major curriculum deficiency in this (and other) regular basal programs that warrants more careful exploration (e.g., Carnine & Kameenui, 1992). And, second, since most remedial reading programs focus upon decoding skills, the dramatic superiority of the *Corrective Reading* program in decoding as well as thinking was not anticipated. Again, further exploration of this finding is worthy of further differential comparisons of the effectiveness of the *Corrective Reading* program with other traditional remedial reading programs not designed in accordance with direct instruction principles (Engelmann & Carnine, 1982).

Finally, it should be noted that only a portion of the *Corrective Reading* series was covered across the 85 day treatment group (80 of 140 lessons in Level B for the higher group and 60 lessons in A plus some 25 lessons in B for the lower group). Clearly, an important future question would be to assess the achievement gains for a more

complete implementation of the series over an extended two-year treatment period that would include Level C of the program in addition to levels A and B. This last question is being pursued by the authors as a major research project.

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Learning Disabilities: The Changing Landscape

Barbara Bateman

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Editor's comment: This sage of Special Education, Barbara Bateman, reflects on the progress of Special Education as a field. She updates us on the progress in the courts' interpretation of the law and comments on application of the law and the Regular Ed Initiative. She ends with sound advice for the future of the field: It is time to examine the effects of curriculum on learning with the same intensity that we have given to examining children's biological problems for the last 30 years.

To stand back and view learning disabilities from afar is to see a landscape of rugged and diverse terrain. Over the past quarter of a century the field has grown up; that is, the young schoolchildren whose parents banded together in the early 1960s to get services for them are now thirty-something and going to their children's IEP meetings. Conferences on learning disabilities now include sessions on transition, college programs, and employment.

Some corners of the landscape have been repainted. "Hyperactivity" and "short attention span" have become "attention deficit-hyperactivity disorder" and "attention deficit disorder." Some rugged canyons are untouched. Many people still do not believe that learning disabilities are real. The classroom teacher who recently scrawled across his student's IEP the words "he is just poorly motivated and could do the work if he only tried" is far from unique. The disciplinarian who suspended the chronically late student with learning disabilities saw only a poor attitude, not a temporal disability. Many regular educators are quite amenable to the concept of learning disabilities, until they are required to do something differently than they would otherwise. Then a learning disability dissolves into a fancy excuse for getting undeserved special consideration.

Drastic winds of change swept across the field of learning disabilities in the mid 1970s, reforming the entire scene. With the advent of the Education for All Handicapped Children Act of 1975 (now the Individuals with Disabilities Education Act, or IDEA), learning disabilities moved from the clinic to the classroom. The numbers of children identified as learning disabled grew from a few thousand to over 2 million. The average level of expertise of the people serving the children could only plummet disastrously.

The fundamental problems facing the field have not changed. First, there are too few teachers adequately trained in effective teaching strategies. Sec-

ond, most curricular materials are inadequately designed for use with low performing children. Third, there are still gaps in our basic knowledge about learning disabilities. Lastly, one major problem has been added to the learning disability scene—a superb federal law (IDEA) not yet correctly implemented. This law and its implementation are fundamental to all of special education, including learning disabilities, and it, in turn, provides a framework from which the whole field can be viewed.

The Legal Aspects of Learning Disabilities

Whether IDEA will survive the onslaught of the Regular Education Initiative (Fuchs & Fuchs, 1991) intact remains to be seen. If the law is lost to this full integration movement, it will be said that widespread failure to implement it correctly contributed much fuel to the critics' fires. The law itself is far superior to practice.

One of the most visible of the major implementation failures has been the overidentification and misidentification of children with learning disabilities. Many of the observations, concerns, and criticisms voiced by Dunn (1968) about children being inappropriately labeled mildly mentally retarded have now been shifted, as have been the children themselves, to learning disabilities (General Accounting Office, 1981). The key to preventing further overidentification and misidentification is to exercise trained professional judgment. Our widespread reluctance to use this essential professional judgment in determining eligibility has been due not only to the eligibility teams' lack of experience, but also to a fear that courts expect objective quantification as the sole or major basis for decision making. Nothing could be further from the truth. The courts show the highest respect for professional judgment, originally of medical doctors, and now of most other qualified experts, too.

A second failure of implementation has its roots in special education history, rather than in misperceptions about the workings and values of another discipline. Barsch (1968) spoke eloquently to this history when he observed:

Educators of the deaf, blind, physically handicapped, emotionally disturbed, trainable and educable mentally retarded have spent many years developing specifically defined curricula to meet the educational needs of these different groups of children. These curricula have a well-established rationale and, for the most part, are enacted by teachers in a high degree of comfort. A great deal is known about effective teaching methods and techniques for each of these groups. (p. 15)

The belief was that appropriate programs (i.e., special classes and special teachers with special curricula) existed by disability category, and, therefore, proper special education was done categorically. The practice followed suit—we determined or diagnosed the disability and placed the child in a special program for her or his type of disability. The model presented by IDEA (then P.L. 94-142) in 1975 was very different and probably much better. However, it violated a venerable principle that holds that law should not lead attitudes, beliefs or practices by too much, nor should it lag too far behind. IDEA arguably led by too much. As seen in Figure 1(A), it required (a) the evaluation and identification of an eligible student; (b) the development of a truly individualized education plan (IEP), without regard to the category of disability or the availability of services; and (c) an individual placement decision based on the IEP, not on disability or administrative convenience. Our common practice both before and after

the law is seen in Figure 1(B). Our response to the law included the human, and very understandable, error of trying to implement the law with as little change in practice as possible. Consequently, we maintained our old ways and said, "Joe is learning disabled, we'll put him in the resource room for learning disabled and then have the resource teacher write up one more copy of the ongoing program in that room

... when a child is mainstreamed she or he is entitled to all the supplementary aids and services necessary to enable her or him to earn passing marks, pass examinations, and legitimately move from grade to grade.

and call it the IEP." Instead, we should have said "Joe is eligible, Joe's individual needs are x, y, z and can be met by services A, B, C and his IEP, providing those services can be implemented in placement P." We tried to fit children into programs, just as we had long done, rather than flexibly and creatively creating new programs, one child at a time.

The first special education case to reach the U.S. Supreme Court was the well-known *Hendrick Hudson District Board of Education v. Rowley* (1982), dealing with a very capable deaf student. In that case the court declared that the standard all public agencies must meet in providing an "appropriate" program was that it be (a) developed in a procedurally correct way, (b) individualized, and (c) reasonably calculated to allow the child to receive educational benefit. The court explicitly declined to address the issue of *how much* benefit children with disabilities are entitled to, *except in one circumstance*. The one situation for which the court established a benefit

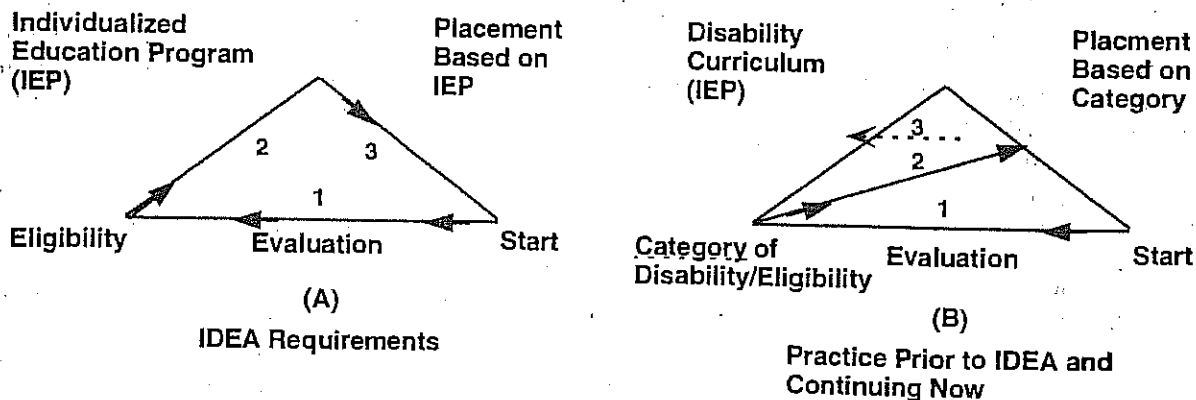


Figure 1. IDEA requirements versus common practice.

FIGURE 1. IDEA requirements versus common practice.

standard affects the huge majority of children with learning disabilities. Unfortunately, this part of the court's ruling has gone relatively unnoticed. It is as though the education world has not been ready to learn the lesson the court taught, namely, that when a child is mainstreamed she or he is entitled to all the supplementary aids and services necessary to enable her or him to earn passing marks, pass examinations, and legitimately move from grade to grade. Justice Rehnquist wrote for the court:

When that "mainstreaming" preference of the Act has been met and a child is being educated in the regular classrooms of a public school system, the system itself monitors the educational progress of the child. Regular examinations are administered, grades are awarded, and yearly advancement to higher grade levels is permitted for those children who attain an adequate knowledge of the course material. The grading and advancement system thus constitutes an important factor in determining educational benefit. Children who graduate from our public school systems are considered by our society to have been "educated" at least to the grade level they have completed. (458 US 176, at 202)

The reality is that special educators mainstream hundreds of thousands, if not millions, of children with learning disabilities, and other children, with no expectation that they perform at grade level and with nothing near the support that would be essential to increasing their chances of performing near that level. The discrepancy between what the U.S. Supreme Court believes mainstreaming practice to be and what it actually is, is a mile wide and equally deep.

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The court in *Carter v. Florence County School District Four* (1991) addressed the IEP of a high school

student with severe learning disabilities and applied *Rowley* (supra) admirably. It found that her IEP did not provide her with an appropriate program because

even if all of the goals of the document had been met, Shannon would continue to fall behind her classmates at an alarming rate. The stated progress of only four months in her reading and math skills over an entire school year ensured the program's inadequacy from its inception. Furthermore, the district's offer of only three periods of itinerant study a week failed to meet Shannon's educational needs. At a minimum, which is all the EHA requires, the district was obligated to provide Shannon an individualized program that would allow her to receive passing marks and advance from grade to grade. (17 EHLR 452, at 455)

One can only imagine the impact on the field if parents and professionals were suddenly to understand the extent of support required when a child is mainstreamed.

Other areas pertaining to learning have been treated in state education agency hearing decisions, court cases, and federal agency rulings. Determining eligibility and the limits of required assessments has been troublesome. Among the recent important clarifications is that a processing deficit or disorder need not be established for eligibility (Office of Special Education Programs, 1990). Many questions have been raised about whether children with ADD and ADHD are eligible under IDEA or under §504, and whether they have learning disabilities. In spite of all the words, written and spoken, the legal stance has always been simple and the same: If such a child needs special education, she or he will be eligible under an existing IDEA category of disability, possibly as learning disabled or emotionally disturbed and almost certainly as other health impaired. Eligibility under §504 is assured if the ADD or ADHD constitutes a substantial limitation in a major life activity.

Discipline, and determining when misconduct is related to the learning disability, has predictably drawn its share of attention. The majority rule is that an attenuated relationship, such as when the learning disability causes self-esteem problems, which in turn cause misconduct, is sufficient to present long-term exclusion. Only the Ninth Circuit requires a direct, causal relationship.

Many issues have arisen, and more can be expected to, around problems of competency testing

and graduation requirements. Schools have been caught in a very narrow bind between being allowed to establish and enforce reasonable standards for credit or graduation on the one hand, and also being required to make reasonable modifications and accommodations on the other.

Predictably, many legal battles have been waged over the financing of private and residential placements. The rulings for students with learning disabilities are no different than for others, that is, placement decisions must be individualized, residential placements may be appropriate for a given student, and the private or residential program must be provided at no cost to the parents if it is appropriate and if the district's offering is not appropriate.

All of these issues can be expected to persist and undoubtedly there will be an increase in litigation over the kind and amount of support services to be delivered when students with learning disabilities are placed in mainstream settings.

Educational Perspectives

Much has happened in the education of students with learning disabilities since the early days of the field. In the 1960s much effort was focused on defining the population and developing new evaluation tools that would point clearly and specifically to the necessary individualized instruction. Meta-analyses of the research on that effort, including much of the work of Barsch (1967), Cratty (1981), Delacato (1966), Kephart (1964), Frosting and Horne (1964), Ayres (1968), and others have shown that the hopes and expectations of that effort were not realized (Kavale & Forness, 1985). In an interesting sidelight to that era, the once-preeminent Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk, 1968) was attacked heavily on technical adequacy grounds (e.g., Hammill & Larsen, 1974, 1978), and yet rela-

Perhaps the 1990s will see, finally, the all-important focus on curriculum.

tively little effort was made to investigate critically the remedial effects obtained from employing the ITPA model. Nevertheless, the model was largely swept away with the debris of the diagnostic-remedial or process-training approach.

The 1970s saw both the widespread acceptance of task analysis and behavioral approaches in special education and the passage of the Individuals with Disabilities Education Act (originally the Education for All Handicapped Children Act of 1975).

In the 1980s the field once again examined the definition of learning disabilities (e.g., Hammill, Leigh, McNutt, & Larsen, 1981) and the technical adequacy of evaluation instruments and procedures. Many legal disputes centered on whether a child did or did not have learning disabilities. By the mid 1980s, major attention had shifted to the issue of where children with learning disabilities—or any other disabilities—should be served.

Perhaps the 1990s will see, finally, the all-important focus on curriculum. Perhaps. The evolution of the field of learning disabilities has seen shifting emphases among at least three education-related topics: (1) the definition and evaluation of the children to be identified as learning disabled, (2) the instruction to be provided to them, and (3) the placements or service delivery models to be employed.

Definition and Evaluation

A persistent issue, clearly articulated by Barsch and still debated today, has been whether learning disabilities should be conceptualized as a category of disability, parallel and analogous to visual impairment, mental retardation, or orthopedic disability, or whether it should be a "safety net" concept, catching and including children who have "Plain vanilla learning disabilities" (no known cause for persistent learning difficulties), and all children with other categorical disabilities who present learning problems beyond those of other children with that disability (e.g., a blind child not progressing in the curriculum for blind individuals). Barsch fought hard but unsuccessfully for the latter concept. However the categorical definition now embodied in federal law does include most, if not all, the children Barsch (1968) described. He wanted to define a child with a learning disability as "any learner who fails to benefit from an existing curriculum into which he has been placed." He warned that a narrow definition would lead to massive exclusion and would be an "entrapment" in traditional thought. Nevertheless, the field adopted, with great reluctance by many, a categorical discrepancy definition. This definition, as operationalized in federal regulation (34 CFR 300.541), has been soundly criticized on almost every conceivable ground *except* undue exclusion of children.

Rather, its critics claim the diagnostic use of the federal definition has included too many children who do not really belong, rather than excluding those who do belong (General Accounting Office, 1981). In a slight variation on this theme, other critics (e.g., Ysseldyke et al., 1983) have argued that there are no clear psychometric differences between low

performers who are labelled learning disabled and those who are not. There is little reason to dispute this psychometric finding per se. However, caution should prevent us from concluding that children with learning disabilities cannot be diagnostically distinguished from others. The fact that many diagnosticians (perhaps psychometrician is a better word) do not distinguish learning disabilities from generic low performance does not mean it cannot be done. When we examine the actual experience and training of many teams required to make learning disabilities eligibility determinations, and add into the equation the evidence that teachers have relatively little influence within the team, it becomes clear why confusion abounds. In many states the learning disabilities eligibility decision is actually made by someone, often a school psychologist, who has never taught and who has little frame of reference in which to evaluate a child's response to instruction. Further-

But it is that same experienced teacher judgment that is too seldom heard and even less often relied upon in eligibility decisions.

more, in far too many instances the "assessment" consists of a WISC-R and a Woodcock-Johnson or a PIAT. There may be little real diagnosis, no exploration of response to instruction, of error patterns or correlated disabilities, and so forth. Two children can score similarly on certain tests but perform significantly differently from each other in the classroom. Many experienced teachers can judge readily that one child is learning uniquely (learning disabled) and that the other is having only common, ordinary, and predictable difficulties. But it is that same experienced teacher judgment that is too seldom heard and even less often relied upon in eligibility decisions.

Academicians will probably continue to be less than satisfied with each other's definitions of learning disabilities. The heterogeneity of the population we are attempting to identify and the practical impossibility of requiring a definitive, hard neurological criterion means that we will continue to need a larger emphasis on professional judgment than many people wish to employ. The common feature we are probably seeking is that children should be labelled learning disabled only when they are not mentally retarded but have more severe difficulty in acquiring, applying, and retaining information than we would predict from the other information we have about that child and his or her instruction.

This discrepancy concept has been at, or at least near, the heart of learning disabilities since the inception of the field (Kirk & Bateman, 1962; Bateman, 1965). Once "severe discrepancy" between ability and achievement was imbedded in federal law as a necessary feature of a learning disability, some began to attempt to quantify "severe," apparently in an effort to limit the numbers of children who would be identified and to avoid the need to rely on professional judgment. At least four methods of quantifying severe discrepancy have been employed, including deviation from grade level, expectancy formulas, standard score comparisons, and regression analysis.

The problems in using a formula to identify students who have learning disabilities are many, serious, and too often disregarded. First, if not foremost, it is a violation of law to rely on anything other than professional judgment. Experience suggests that when a formula is used, it too often is the sole basis for the eligibility decision. In the event of a legal challenge, the burden on the school to show that it did not rely on the formula often proves impossibly heavy. Ironically, some professionals' reliance on a formula is mistakenly premised on the belief that a courtroom would respect it more than professional judgments. Of course, exactly the opposite is true.

Further, it is arguably true that the more elaborate and technically adequate a formula seems to be, the greater is the tendency to rely upon it. Thus, if a quantitative guideline were desired, it would be

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advantageous to use a crude measure, such as years discrepancy between estimated potential and actual achievement. Most professionals are aware of the serious technical inadequacies of such a measure and therefore would be far more likely to use it as the mere guideline it must be, and to temper it with other considerations.

Yet another problem involves the assumptions in the use of a formula. Reliance on a formula presumes that the computation (even if made easy by tabled values) is based on real data, that is, that the original scores put into the formula are accurate and that they meaningfully represent the child's performance. This is of course not the case for the majority of children with LD, because of their erratic performances and because learning disabilities inevitably affect most or all test scores. And, yet, IDEA requires that tests be selected so that the results reflect whatever the test purports to measure, rather than reflecting the child's impairment.

Another practical problem with quantifying learning disability eligibility decisions involves communicating with parents. Often, parents are put off by an explanation of their child's status or are unable to fully grasp it, which are good reasons to look diligently beyond a formula for other aids to operationalizing discrepancy.

The immediate future, according to a nearby crystal ball, will see continued simplistic, quantified, and often erroneous identification procedures, continued debate over definition, and new and growing obfuscation of the identification scene by the increasing use of "prereferral" intervention strategies. These will muddy the waters surrounding the legal requirements of notice and consent prior to evaluation. When do prereferral interventions become evaluation activities that require notice and consent? When do they become special education, which cannot be provided without due process protections?

The crystal ball also indicates continuing and increasing use of curricular-based assessments (CBA). This approach to assessment has grown from the skills-training position and is consistent with Barsch's desire to identify as learning disabled any child who is not progressing. From a legal vantage point, it is vital to recognize that CBA is valuable for academic program planning, but not necessarily for eligibility determinations, unless or until the legal definition is changed.

Educational Interventions for Children with Learning Disabilities

Finding a learning disability is easy, according to Barsch (1968). The difficult part is overcoming it. The key, he said, is the daily curriculum, as recognized by every sophisticated teacher. The final product of the learning disability endeavor "must be a compact curriculum capsule, magnificent in simplicity and yet profound in complexity which can be comfortably manned by a teacher." Kameenui (1991) assessed our progress toward that essential final product:

Although we have made progress in recognizing the complexity of learning disabilities as a psychological, historical, and theoretical construct, very little progress has been made in recognizing the structure of curriculum as an empirical, not to mention, conceptual construct important to the development of a pedagogy (scientific or not) of learning disabilities. (p. 365)

What we have been doing by way of intervention, if not developing curriculum? A bit of background helps put this in perspective.

The phenomenal increase in numbers of children identified as having learning disabilities—currently more than 2 million—over the past two decades is well known. In the early 1960s a few children were identified and served by public schools as brain injured and a few as perceptually handicapped. Some children were tutored privately, and a few were seen in clinical settings, such as the Marianne Frostig School in Los Angeles and the Institute for Research in Exceptional Children at the University of Illinois, where Kirk did his pioneering work with the Illinois Test of Psycholinguistic Abilities. The disabilities of the children seen in those settings were far more pronounced and clear-cut than those of most of the 2 million children now identified as learning disabled. The central focus of much of the work in those early days was developing educational interventions designed from diagnostic tests and developmental theories. One of the early issues in teaching these children was whether teaching should focus on their strengths or weaknesses. The failure of researchers to find the answers in aptitude-treatment interaction investigations (Lloyd, 1984) was a leading factor in the widespread shift toward task analysis. If the answer to how to teach was not to be found in the students' patterns of aptitude or abilities, perhaps it was in the task itself. Skill training, based on the task analysis model, was largely a win out over ability and process training, based on the diagnostic-prescriptive model, much as was foreseen by Ysseldyke and Salvia (1974).

A consistent thread throughout the short history of learning disabilities has been the recognition of both the desirability and the difficulty of having a truly multidisciplinary team approach. Undoubtedly, a few exceptional and successful multidisciplinary teams exist. However, a common pattern in the public schools is that one or two "specialists," usually including a school psychologist, see the child briefly, hold a meeting at which the child's teacher says little, and produce a report recommending a high degree of structure in the classroom.

The variety of interventions promoted for children with learning disabilities makes the dream of a versatile, multidisciplinary team seem almost a necessity. Silver (1987) reviewed current treatments for learning disabilities, including special education, psychostimulant medications, and psychological therapies, as preferred and accepted treatments. The controversial approaches include neurophysiological retraining (patterning, optometric visual training), vestibular dysfunction therapy, applied kinesiology (cranial manipulation to synchronize the cloacal reflex and release ocular lock), and orthomolecular medicine (megavitamins, trace elements, hypoglycemic diet, elimination of food additives, preservatives, and refined sugar). Irlen lenses and more could well be added.

The real world of public school IEPs teachers, students, and their parents seems frankly untouched by the academic world of educational interventions. Parents are struggling to force districts to grant graduation credit for resource room English, to include decoding goals on the IEP even though the school uses whole language, to get individual language therapy instead of group speech therapy, to prevent the illegal expulsion being threatened, to get the IEP implemented once it is written, to get the regular teachers to accept the need for shorter spelling lists, shorter oral reports and shorter tests, to get keyboarding instruction instead of computer time written on the IEP, and so forth.

Teachers want to know how to cut down on paperwork, if it is legally correct to bring a completed IEP to the meeting, what happens if they tell the parent the child really does need a tutor, how to get the regular teacher to come to the IEP meeting, and if a caseload of 70 resource room students is legal.

The IEPs reflect ongoing instructional programs and packages, not the individual student. They reflect available services, not needed services. They are not individualized and they are often not taken seriously. Many are only partially implemented, some are never looked at, and most are not distributed to all the teachers who work with a student.

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seriously. Many are only partially implemented, some are never looked at, and most are not distributed to all the teachers who work with a student. All of the forementioned can be quite remedied by correct implementation of the law as written, rather than piecemeal forcing of old practice into new molds. It is even possible to develop legally correct and educationally useful IEPs by three simple changes from current practice: (1) Begin every IEP with a listing of the child's unique characteristics and needs that her or his education program must take into

It is obvious that there is a serious mismatch between the commercial curricular materials so central to schools and the characteristics and needs of children who have learning disabilities.

account (required implicitly by IDEA in the definition of special education, but not required explicitly as a component of the IEP); (2) list what the district will do in response to each (this becomes the mandated listing of special education and related services, including modifications to program); and (3) write the required goal and objectives for each service by asking "what the child will be able to do by when" if the service being provided is effective. Thus, the IEP monitors the efficacy of the special education program. This notion of specifying what the child needs, the service or accommodation to be provided to meet the need, and a way of knowing if the need is being met is a far cry from what is commonly done. Typically, the IEP team begins and ends with the goal. For example, from a recent, actual, and typical IEP, "Tim will improve his behavior 75% of the time." Apart from the other problems inherent in this slaughtering of behavioral language and concepts, we see the "empty IEP"—nothing is said about what the district will do to teach Tim to change his behavior for the better. All the responsibility is on Tim.

But all this, even if it were remedied, doesn't yet get to the essence of the education process—how and what the teacher presents to Sean and Jessica Monday morning. The reality is that the great majority of students with learning disabilities spend much, most, or all of their time in regular classes. Simmons, Fuchs, and Fuchs (1991) observed that it may well be a practical impossibility for classroom teachers to make all the curricular and presentation adaptations that are prerequisite to successful teaching of low achieving children in mainstream settings. It is obvious that

there is a serious mismatch between the commercial curricular materials so central to schools and the characteristics and needs of children who have learn-

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ing disabilities. If teachers simply cannot do all the essential fixing of curriculum, it must fall to publishers to do it. But that will happen only when schools specify performance standards to be met by the children and adopt only the curricular materials that have demonstrated ability to get the job done. In the meantime, as long as we are content for children to engage in certain activities or processes, without regard to outcome, we will continue to have huge numbers of children failing.

Barsch noted in 1968 that "academic failure, learning inefficiency, anxiety barriers, dismissals, expulsions, dropouts, reading retardation and a host of other problems are rampant on the educational scene." Today we must add drug problems, budget crunches, and a host of other problems—and we cannot subtract even one problem from Barsch's list. Kerlinger (1977) argued that the complexity of the human being underlies the fact that we have not yet learned to eliminate reading and writing problems. He also proposed that there is little direct connection between research and educational practice, and that the belief that research should pay off and be relevant to contemporary problems is in fact an obstacle to research influencing practice. This should be reassuring to those of us who cannot help but note how little direct connection there appears to be between the worlds of research and practice in the field of learning disabilities. Discussion of the role of theory and basic research in learning disabilities was well launched by Kavale and Forness (1985) and continues in the competent voices of Swanson (1988), Stanovich (1988), Cullinan (1988), Carnine and Woodward (1988), and others. One can only wonder what the impact of theory and research will be on practice over the next 25 years.

Placement/Service Delivery Models

Suppose every public education agency were required to have a complete, flexible range of service delivery models available for the educational placements of children with learning disabilities. And

further suppose that in every placement decision a professional team (a) considered the quality of the services in each delivery model, (b) reviewed the needs of the child, (c) made a child-centered individualized decision that was not based on administrative concerns, and (d) provided complete procedural protection for parents. This, of course, is exactly what IDEA presently requires.

Next, suppose someone said those requirements and procedures should be dropped in favor of all children with learning disabilities returning to placements in regular classes, with no provision for parents to disagree. Suppose that when the proponents of this total return to regular education were asked for their rationale, they said that learning disabilities are no more relevant to the school experience than are race and gender. Just suppose.

Barsch hoped that "children with learning disabilities may some day be served by teachers who have been competently trained and prepared for this specific task." He recognized that for a number of years to come, children with learning disabilities would be served by those who were willing but not trained. Little did he imagine that the 1990s would see us at a point where many professionals advocate that these children be taught primarily by those neither willing nor trained. Many educators today believe that almost all children who have learning disabilities can be appropriately served in regular classrooms with minor modifications and/or with consultation between the regular class teacher and a special education teacher. Another popular belief and model is that an hour or so a day in a resource room will appropriately address the problems of the student who has learning disabilities. The regular class model and the resource model can serve some children well. However, it just may be that those who are served well in those models do not have "true" or severe learning disabilities. They may be the victims of what the International Institute of Advocacy for School Children (1991) calls *academic child abuse*—that is, the use of educational practices that cause unnecessary failure in foundation skills and knowledge.

Barsch argued for learning disabilities as a third category of education, parallel to special education and regular education. He saw the learning disability philosophy of "fix and return" as distinguishing learning disability from the rest of special education, which primarily (then) employed a self-contained model. He recognized the territorial imperative issue and urged clarification:

The issue which will inevitably come into focus within the next few years is the simple question, "Is the child with a

learning disability the responsibility of regular education or is he the responsibility of the special educator?" The quickly voiced platitude which talks of a shared responsibility and mutual concern and action is indeed a highly desirable philosophy, easily verbalized but exceptionally difficult to implement in the prosaic realities of every day educational practice. (p. 19)

With the wisdom of hindsight and data from thousands more studies than Barsch had available, we now see that the "fix and return" philosophy, based on "a fundamental belief that he is a temporary casualty of the academic struggle," led us down the primrose path. It is interesting to recall that in the early days of implementing remediation based on the ITPA, some of us had the vision that if only we could successfully remediate all the deficient processes we would then have a normally functioning child. It was an article of faith shared by the field, just as Barsch tells us. Now it is difficult to reconstruct why we assumed that learning disabilities were temporary and fixable. Perhaps we derived this from the notion that structure could be made to follow function. By causing the child to practice the deficit skill (or "process"), her or his underlying ability would be permanently increased. And there was the belief that attention deficits and hyperactivity, often related to learning disabilities, were outgrown by adolescence. Experience has now shown that learning disabilities persist throughout school and that accommodations and excellent instruction will be required throughout.

The persistence of learning disabilities, combined with the prominence of mainstream service delivery models, means that regular education teachers must be the ones to make continuous accommodations. Most children with learning disabilities will sometimes or most times need modifications in management strategies, texts, materials, assignments, teaching methods, tests, grades, homework, and more. In spite of clear federal mandates that regular educators must provide these accommodations, many are still refusing to do so. Some districts erroneously believe that an IEP team may only make suggestions or recommendations to regular class teachers. Some, equally erroneous, think if a collective bargaining agreement grants teachers authority over classroom methodology, then a teacher cannot be required to make modifications.

Barsch also said that when the battles are over, when all is said and done, the field of learning disabilities must come to grips with its essential, central focus—curriculum.

Some Final Thoughts

A quarter of a century has elapsed since Barsch (1968) predicted the "disciplinary conflict, semantic skirmishes, theoretical disputes and conceptual combats" that would plague the learning disabilities area. He can hardly be faulted for not also foreseeing the courtroom clashes that would come close to dominating the field of battle.

Barsch also said that when the battles are over, when all is said and done, the field of learning disabilities must come to grips with its essential, central focus—curriculum. We may, just now, be beginning to do this. In 1991, the *Journal of Learning Disabilities* devoted parts of two issues to curriculum. Kameenui (1991) noted in that series of articles that the eventual development of the scientific pedagogy of learning disabilities urged by Kirk and Bateman (1962) 30 years ago will require, at a minimum, a recognition of the importance of curriculum. Perhaps the field is ready now to respond. After all, human learning, its hows and whats, is at the core of learning disabilities. In Barsch's (1968) words, "In [the] final analysis, the issue is educational." Regardless of all other developments, Monday morning finds child and teacher face to face. Whether the desired learning happens is largely dependent on the curriculum and the presentation and reinforcement skills of the teacher.

Whether the desired learning happens is largely dependent on the curriculum and the presentation and reinforcement skills of the teacher.

The challenges for the next generation of educators who would deal with learning disabilities include accommodating even greater numbers of children. It would appear that ever-increasing pollution of the earth, the widespread, continuing abuse of drugs and alcohol, the lack of prenatal care in this country, increasing numbers of children raised in poverty, and the appalling decline in the quality of American education—to mention only a few factors—will insure a rising number of children with learning disabilities in the foreseeable future.

Parallel to the necessity of providing appropriately for increasing numbers of children is the urgent need for better training for more teachers. And, above all else, if we are ever to teach children as well as possible, the field must now "examine the intricacies of designing curricula with the same kind of commitment and passion it has demonstrated in the last 30 years for investigating the etiology and organic basis of learning disabilities" (Kameenui, 1991, p. 370).

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When Ability Grouping Makes Good Sense

James J. Gallagher

The recent educational literature has been filled with discussions of the effects of ability grouping, tracking, etc., and new virtues have been found in the concept of heterogeneous grouping of students. The goal of heterogeneous grouping appears to be a social one, not an academic one. The desirability of that goal needs to be argued on its own merits, which I believe to be considerable. The argument is clouded, however, by the insistence of the proponents that nothing is lost in academic performance by such grouping. This position is clearly false, in my judgement, as it applies to bright students. Apart from the meta-analyses which indicate substantial gains for gifted students grouped for ability, there is a small matter of common sense.

Do we improve the skills of our Olympic swimmers by asking that they take time to teach nonswimmers how to swim? Is our plan for preparing the next John McEnroe or Jimmy Connors to ask them to play tennis with novices? Are our graduate classes more stimulating if we combine the most sophisticated

Is our plan for preparing the next John McEnroe or Jimmy Connors to ask them to play tennis with novices?

students with beginners, or will we put the sophisticated student to sleep while we try to bring the new students up to speed? How many teachers, given a choice, would take a class with a range of five grade levels of performance in it compared with one that would have two grade levels?

The attempts to draw from the ability-grouping literature a favorable reading on heterogeneous bright students are disingenuous, to say the very least. They fall short on the following counts:

- *Different curriculum.* If the students are learning about the Fall of Rome in their special class, how do you compare their performance with gifted students in the heterogeneous classroom? This has often been handled by measuring the two groups on the knowledge that they have both been taught. If the groups achieve equally on that measure, then the gifted group is clearly ahead since they know as much as those in the heterogeneous class, and in addition, have their special knowledge of the Fall of Rome.

- *Measuring instruments.* Standard achievement

tests have often been the measure by which ability grouping is tested. But gifted students clearly bump their heads against the low ceilings of these tests and, therefore, you cannot easily determine how much they really know. The recent move to authentic assessment may help this problem considerably.

- *Failure to use personal perceptions.* One of the strongest and clearest judgements against heterogeneous grouping is easily available, if seldom used. You merely have to ask the bright students what they think of the two different settings. The statements of gifted students of crashing boredom, of idleness, of lack of challenge are the most eloquent evidence in favor of some form of ability or performance grouping.

- *International comparisons.* The failure of our best students to keep pace with top students in other countries, documented by the work of Harold Stevenson and others, should surely give people pause before they design an educational setting that seems to insure a less-than-optimum performance from our most capable students.

All of these factors are easily perceived. Can it be that the advocates of heterogeneous grouping want to believe so strongly in their position that they prefer to ignore what is obvious to a first-year graduate student or any knowledgeable parent? Those

The proper solution to these disproportions is not to eliminate programs for the gifted, but to enhance the learning opportunities for children who are at risk for less favorable developmental progress, so that more capable students from all economic and cultural backgrounds will qualify for advanced work, as they surely would.

suggesting, or even wishing to mandate heterogeneous grouping are following an unfortunate recent American belief that "We can have what we want most, at no cost or sacrifice." We would almost have to send our political and educational leaders to the dictionary to find the definition of "sacrifice," since it is so little used in present dialogue.

The honest argument should be over whether the social goals, which are presumably attained through heterogeneous grouping are so important that they are worth the cost of lower academic performance from our brightest students. That is the true question and it can be argued on the basis of values and desired outcomes. To believe that there are no costs to what we wish to accomplish is to engage ourselves in unproductive, wishful thinking.

Let us come to the issue of the disproportion of minority students in the programs for students with special needs, gifted or retarded. The only reason why people would assume that the demographic proportions in special classes for gifted or retarded youths should come out even to their proportions in

the society is to believe that intelligence is a factor fixed at conception—an obvious untruth. The proper solution to these disproportions is not to eliminate programs for the gifted, but to enhance the learning opportunities for children who are at risk for less favorable developmental progress, so that more capable students from all economic and cultural backgrounds will qualify for advanced work, as they surely would.

Our sense of justice and equity requires no less, and the future of our society may well depend upon it.

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What Do We Get for Our School Dollars?

Janet Novack

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Abstract: Ms. Novack argues that schools should focus on teaching academic subjects and skills and should teach them well. School time is too short to offer instruction in values and other "politically correct" options.

At the Harold Schnell Elementary School in West Carrollton, Ohio, there's no district money for new textbooks this year. But there was enough money from outside to finance a \$750 grant for fifth-grade teachers to buy reading books relating to some currently trendy topics—drug abuse, self esteem, dysfunctional families.

At West Carrollton Senior High, the band room has just gotten a facelift and student thespians perform in a \$2.3 million state-of-the-art theater/auditorium. But the computer lab has just 36 PCs (19 of them antiquated Commodores) and no funds to buy more. The entire school district's only substantial computer purchase in the past few years was \$55,000 for a new state-mandated management information system for administrators.

In all the current furor about education in the U.S., too much attention gets paid to the size of school budgets and too little to how those budgets are spent.

FORBES chose West Carrollton and other suburban school districts south of Dayton, in Montgomery County, Ohio, because the area is so ordinary American, archetypal Middle America. We weren't looking for another egregious case of administrative bloat, as in New York City schools (FORBES, June 25, 1990). We were looking for a fairly typical, reasonably well-run school system.

The 4,100-student West Carrollton district does a pretty good job. It has been spending at least 15% less than the national average (estimated this school year at \$6,300 per public school student in average daily attendance), and getting slightly above-average results from its middle-class student population.

But here, as elsewhere in the American school system, we found school districts wrestling with the cost of state laws and rising employee benefits. We heard educators' predictable pleas for more money, mixed with acknowledgments that higher spending hasn't been shown to produce better results and that the 1990s will be a leaner time for education.

What we did find here was much waste. But maybe we did find a clue as to why the increase in spending on education in this country has not been followed by rising education results. (This year's three-point uptick in national average SAT scores

was the first in seven years and still leaves scores 38 points below 1972's levels.) Our examples are from Ohio, and the specifics apply there, but they undoubtedly find echoes across the U.S.

One clear problem, here and elsewhere, seems to be centered on the conflict over time. The school day is short and the school year remains limited (178 on the average in the U.S.). Increasingly, these schools are struggling to squeeze more and more into this limited span. They must accommodate new politically correct fads, such as teaching self-esteem, alongside old extracurricular favorites such as band and orchestra and choir. Inevitably, accommodating the new fads squeezes the time available for teaching reading, writing and arithmetic. There are simply not enough hours in the day, and it's the basics that seem to be suffering.

Says West Carrollton Superintendent Vance Ramage: "We've trimmed around the edges, but we haven't made hard-nosed decisions yet, where you cut out a program, or where you cut back on music or arts and put the time or money into computers. It's tough to set policies that upset special interests—the band boosters, the football boosters, the recreation groups who want to use school facilities." What he didn't say, but might have, is that they must do this while at the same time also satisfying professional educators or do-gooders who want their touchy-feely subject taught.

That's interesting: School teaches dress-for-success, but the kids are supposed to get spelling from their parents.

In nearby Kettering City School District and in West Carrollton, despite some recent cutbacks, the high schools still offer such courses as Dress for Success, Interior Design, and Creative Cookery. Home economics teachers have been happily classified as vocational educators. Why? Because the state pays 60% or more of the cost for vocational teachers, and local districts are therefore less likely to cut them.

For all the talk in the 1980s about "back to basics," the lack of focus shows up right from the first grade, both in spending and the pupils' day. Says Schnell second-grade teacher Linda Langley: "A lot of the state requirements are really good individually. But sometimes you feel that the curriculum is spread too thin."

Thinner and thinner. On a typical day, after lunch, recess, snack, and art, music or gym, the second-grade teachers have at most four hours to teach their charges. The day is so crowded that this year they dropped a separate daily 20-minute spelling period. Langley says that the teachers still cram some spelling into the daily language arts segment, but are relying on parents to take up more of the spelling slack.

That's interesting: School teaches dress-for-success, but the kids are supposed to get spelling from their parents.

Don't blame the teachers. What the teachers teach is increasingly mandated from above on political grounds and influenced by what grant money is available. Because federal grant money was available, Schnell students now spend at least one 45-minute period a week on "Quest," an anti-drug program that at the second-grade level focuses on self-esteem—teaching kids to feel that they are worthwhile human beings—and on work habits, such as how to work in a group and how to play fair. That much less time for the basics.

The conflict over teaching time can only get worse. Through the 1980s Ohio legislators passed a series of education reforms (i.e., mandates on local districts), topped by a massive reform package in 1989, which mandated new curricula that are now being phased in. The State Board has also recommended that high school graduation requirements be expanded to include fine arts and community service. It's all wonderful, mind-broadening, but it's not the statistics or algebra or basic English that many will need to be able to cope with a job in the increasingly demanding U.S.A.

"Since we got this 'A Nation at Risk' report [blasting the quality of public education] in 1983, politicians have been falling all over themselves finding a better way to teach. But they don't teach," says Larry

It's all wonderful, mind-broadening, but it's not the statistics or algebra or basic English that many will need to be able to cope with a job in the increasingly demanding U.S.A.

Campbell, an assistant principal at West Carrollton Junior High School.

Complains Schnell fifth-grade teacher Michael Dingledine: "There is more and more being put on teachers that should be done in the home—sex education, drugs, self-esteem." Yet Dayton's own congressman, Democrat Tony Hall, has been pushing a bill to create a national commission to recommend how schools should teach character values. Wonderful again, but is that what schools are supposed to do?

Schnell's fifth-grade teachers would naturally cover the upcoming elections in social studies. But this year the district is requiring that they participate in a "Kids Voting" project designed to get offspring to pressure their parents to vote. (Part of the course had to be taught by the Oct. 5 deadline for voter registration.)

Whole language? It goes something like this: Teechers shuld get kids to rite erly witout wrying abowt speling or gramer and stuf like that and reeding shud be fun.

Complains Oakwood City Superintendent Timothy Ilg: "There are legitimate social needs. But under the guise of helping kids, a lot of special interest groups have gotten things written into law."

It's not just the politically correct things that get in the way. Fifth-grade student musicians at Schnell are yanked out of academic classes (usually social studies, but appallingly, sometimes math and science) for two 45-minute periods a week for band and orchestra practice. That's 7% of total academic teaching time. "The kids are in so many activities in and outside school it harms some of them," says teacher Pamela Hallinan.

Oakwood is a tiny district perched on the hill overlooking Dayton, and is the highest-spending, wealthiest (average 1989 family income of \$62,300) and, not surprisingly, highest-scoring suburban district in Montgomery County. Yet Ilg, its 48-year-old superintendent, doesn't rush to spend money on all of the gadgets and gimmicks that poorer school districts claim to require. Other superintendents complain they don't have money to buy the latest "whole language" reading books. Ilg, who was himself educated in parochial schools, is wary of this fad.

Whole language? It goes something like this: Teechers shuld get kids to rite erly witout wrying

about spelling or grammar and stuff like that and reading should be fun.

The state is pushing a whole language curriculum. "I've seen a wholesale junking of the classics as part of whole language and the push to make all literature relevant," Ilg says. Oakwood tenth-graders still read from 24-year-old anthologies. Does that make them deprived?

Ilg is also wary that computers, with their fancy graphics, are being used as glorified math workbooks for second-graders. "It's dangerous. It fits into this thinking that the kids won't get it unless we make it fancy and clever." Of his district, he says: "We're moving slowly in the technology areas."

Other districts complain their schools aren't air-conditioned. Ilg says his well-heeled voters would never spring for that. Oakwood's newer (circa 1928) elementary school is so antiquated that some of its 472 students have to eat their lunch in the hallway, but that doesn't seem to prevent them from scoring above the 90th percentile on standardized national tests.

• NOTICES •

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Human Capital Around the World

Adrian Woolridge

Reprinted with permission from *The Economist's Education Survey*, November 21, 1992, pp. 3-18.

FOCUS: HETEROGENEOUS GROUPING

Abstract: The Economist, an English business publication, reviews educational systems around the world and the nature of their current reform efforts. The Economist concludes that businesses with an eye to human capital should look past the Anglo-Saxon world to Germanic Europe or Asia. America has no serious vocational program for producing skilled workers. It is unlikely to develop one because of its dwelling focus on equality and anti-tracking idealism. England has made some very positive changes recently, but they are too late. The English educational system, designed by "anti-industrial snobs" and redesigned by "anti-industrial egalitarians," will take too long to change. On the other hand, Germany efficiently produces highly skilled workers in a highly respected vocational program where schools and businesses share the responsibility for training. And the Asian tigers are prepared to mix more imagination into their already high-scoring educational program, improving their competitive edge in the human capital market.

Trying harder

Nation-states used to compete for control over natural resources. Today they are competing to produce the best educated labor force.

Education reform is a booming business. In the past decade desperate governments, left-wing as well as right, liberal as well as authoritarian, have taken to reconstructing their schools and revamping their universities. In 1980 Singapore unveiled plans to turn itself into a model meritocracy. Four years later the Japanese Ministry of Education set up a National Council on Education Reform. In 1988 Britain imported the reform craze to the West by introducing a national curriculum and reorganizing school financing on an almost-market basis. George Bush and Bill Clinton both championed radical changes in school funding. Educational reform is in the air everywhere, from France to South Korea, from Australia to Germany.

This survey will try to put this activity in perspective: are governments right to invest so much time and money in the business of learning? In the process it will try to cast light on two perennial issues: What makes a school successful? And what can be done to reduce educational failure? The survey will conclude by ranking the three powerhouses of the world economy—Europe, America, and the Asian tigers—in terms of their ability to educate their workforces and to attract and create high-value-adding jobs.

The reforming frenzy reflects a shift in the political fortunes of education. Half a century ago, you knew you were on the road to nowhere if you were made minister of education. Today education ministers are usually on their way up. Margaret Thatcher used the education portfolio as a stepping-stone to the premiership. Bill Clinton first captured national headlines with his reforms of Arkansas schools. George Bush tried to salvage his do-nothing reputation at home by dubbing himself "the education president."

Such politicians have a shrewd sense of what will go

down in the bar rooms and boardrooms. Chief executives of multinational firms hold earnest conferences on skills shortages and training strategies. Serious newspapers and heavyweight magazines devote pages to education and national competitiveness. Throughout the rich world, voters put education near the top of their list of worries.

This concern for change has its origins in the 1960s, when the aim was to turn elite education into mass education. But the terms of the educational debate have shifted. Governments now treat education not as a consumer good but as a productive asset. They are increasingly unwilling to use public money to support a gentlemanly style of education, with its emphasis on humanities and learning for its own sake. They have also lost their enthusiasm for promoting equality.

They are particularly worried about cost and quality. The West and the East converged on the issue of quality from opposite directions. In Britain and America conservative governments turned against child-centered teaching and called for a return to basics. They wanted more rote learning and less creative writing. In East Asia governments now feel that they have solved the quantity problem. They aim instead to increase the quality of education, particularly the quality of the education of the brightest. Hence a current Asian fashion for such things as creative writing.

Governments throughout the world are bullying educationalists into providing value-for-money, shifting expenditure from high-cost universities to low-cost polytechnics, encouraging institutions to raise money from private-sector sources, introducing a variety of quasi-market reforms, such as per-capita funding and a split between purchasers and providers, and emphasizing the accountability of educational institutions. There is a burgeoning industry in designing league tables of school results and producing performance indicators sophisticated enough to deal with the myriad activities of the modern university.

Governments have also moved their emphasis from

education to training. If education reform in the 1960s took aim at the university, it is now the training college which is in the sights of the reformers. A mixture of technological innovations and demographic trends is persuading governments to improve the vocational qualifications of their workforces. The rise of information technology (IT) means that many of the lowliest shop-floor workers need to be able to operate a computer. The ageing of Europe and the marked slowdown in the rate of population growth in America mean that firms will have to improve the skills of their existing workers instead of relying on recruiting new ones.

At the same time, the durability of skills is getting progressively shorter. This means that governments can no longer allow education to end at the university, let alone the high school. Further and higher educational colleges will have to learn how to teach adults, particularly those who dropped out of education years ago. Compa-

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nies will have to invest heavily in retraining. And universities will have to provide their graduates with regular refresher courses.

Same ends, different means

Despite these common pressures, there is no consensus on how to improve education. Many prominent reformers are pushing in opposite directions. The most comprehensive reform program has been the one implemented by the British government since 1988. This is a mixture of centralization (imposing a national curriculum and reducing the role of local education authorities) and competition (giving schools an incentive to compete for pupils and encouraging pupils to compete for results). This has attracted many imitators and would-be imitators. Sweden is reorganizing its school system into an internal market. Denmark has introduced per-capita funding for technical colleges. Singapore is going for league tables to stimulate competition between schools. American reformers would like to introduce educational vouchers and national tests.

Other reformers are doing just the opposite. In South Korea and Japan the education ministries want to delegate power to local government. The Japanese

authorities strongly disapprove of league tables of schools. Still, even if governments disagree about how exactly to proceed, they agree on the need for reform. Are they right to invest so much time and effort in doing it? Does education pay, or have the politicians merely been seduced by the professors?

Human Capital

The educated are different: they earn more money.

The answer is yes, education does pay. If virtue gets its reward in heaven, education gets its payoff on earth. On almost every measure, education is a highly remunerative investment.

Take employment. The longer you spend in being educated, the less likely you are to end up on the dole. In America in 1989, 9.1% of people who went no further than lower high school were unemployed, compared with 2.2% of people who completed university. In Japan the equivalent figures were 7% versus 2.3%. The troubles of people who fail at school are getting worse by the decade. Over the past 30 years, each economic downturn has pushed a larger proportion of the uneducated into unemployment; and each upturn has rescued a smaller and smaller proportion of them for the labor market.

Or consider real incomes. It is hardly surprising that the well-educated have always been richer than the poorly educated. But the gap is getting steadily bigger. In 1980 a college-educated American ten years into his career earned 31% more than a contemporary who had finished only high school. By 1988 the earnings gap had yawned to 86%. Over the 1980s male college graduates saw their real incomes rise by 10%; high-school graduates saw their incomes fall by 9% and high-school drop-outs by 12%. College graduates will fulfil the American dream of earning more than their parents. The average high-school drop-out will not.

Or take future prospects. Educational success in youth seems to pay mounting dividends in maturity. People who leave school early rapidly run out of rungs on the earnings ladder; university graduates not only find plenty of rungs, they also discover that each step upwards is increasingly remunerative. One reason for this is that the well-educated land jobs that provide them with more training, while the uneducated are locked out of opportunities to improve their skills.

Throughout the advanced world, employers complain that a shortage of skilled workers is holding up economic growth. Schools and universities seem to be incapable of producing an adequate supply of properly trained and technically qualified workers. The shortages come in two distinct flavors: quantitative and qualitative. The general workforce is insufficiently educated to do the jobs available. There is also a

mismatch between the skills offered by people and the skills needed by industry. the universities continue to churn out humanities-trained generalists at a time of soaring demand for scientists and engineers.

The skills deficits show no signs of abating, even during today's economic downturn. All advanced countries predict a significant fall in demand for unskilled laborers and a significant increase in demand for skilled workers and high-grade administrators and scientists.

Mind the gap

Why has education become such an economic asset in rich countries? Why are skills shortages mounting at a time of rapidly rising unemployment? The questions can be answered in just two words: globalization and automation. Globalization means that many low-value-adding jobs are exported to poorer and cheaper countries. Automation means that jobs that stay in rich countries are increasingly done by machines rather than men. Having made its first impact in manufacturing, automation is now affecting the service industries, with some excellent results (cash points, for example) and some execrable ones (such as automated junk faxes).

There is nothing new in the triumph of brain over brawn. The richer countries have long found that ever larger proportions of their populations are employed in jobs that require mental power rather than muscle power. For more than a century, relentless technical innovation and sustained economic expansions have been creating new and cleverer jobs and thus increasing the demand for better educated workers. At the same time, the rise in real incomes and the spreading of wealth has increased the demand for more sophisticated products and services. Prosperous people employ more people to look after their money and pander to their whims.

The shift towards smarter jobs seems to have accelerated in the past decade, mainly because of a kick from information technology. A decade ago some people worried that IT might, in effect make the workforce stupid: the machines would do the thinking, the workers would simply watch and wonder. In fact, the opposite has happened. Information technology has

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not only increased the demand for scientists and engineers, who invent and upgrade the machines, and for managers and supervisors, who put them to work. It has also put a premium on competence for everybody. You need intelligent workers to get the most out of intelligent machines.

Putting the man into manufacturing

New ways to organize production are also putting a premium on education. For the past 90 years, most factories have employed a system of mass production—dubbed Taylorism, after the man who invented it, or Fordism, after the man who perfected it. This is

You need intelligent workers to get the most out of intelligent machines.

based on two simple principles: the division of labor (separate complex tasks into their simplest components) and managerial omnipotence (allow the managers to make strategic decisions and expect the workers to do as they are told). This system has little use for popular education, since it reduces workers to little more than cogs in a great industrial machine.

Successful firms nowadays stand Ford on his head, aiming at flexible rather than mass production. Rich countries cannot hope to keep their competitive edge through mass production: developing-country firms can run the same machinery at a fraction of the labor cost. Their only chance lies in going upmarket, providing affluent consumers with quality, variety and timeliness. This means reorganizing production.

The problem with Fordist firms is that they are too dumb to exploit sophisticated technologies, too uniform to generate variety and too inflexible to respond to rapidly changing demands. Successful firms demand a new type of organization and the rediscovery of the skilled worker. This points to a different set of goals to the ones earlier educational reformers set their sights on.

All Too Human

Needed: a cooler assessment of what schools can achieve.

It is hard to listen to today's education gurus without feeling that it has all been said before. People spent much of the 1960s listening to extravagant promises made on behalf of education, and much of the 1970s wondering how they could have been taken in by them. Is educational history about to repeat itself as tragedy rather than farce?

The trouble with the 1960s optimists is that they promised too much. They were bewitched by the basically sound theory of human capital, which has it

that education is the secret ingredient in economic growth. They were beguiled by politicians, who wanted an excuse to pour money into the welfare state. As a result, they made ever more extravagant claims on behalf of education: perpetual growth (more investment in education creates higher growth and high growth pays for more investment in education); an end to poverty (better pre-school education gives poor children a head start); and a more equal society (the abolition of selective schools and the introduction of affirmative-action programs break down class barriers).

Such promises led to sobering disappointments. The only self-sustaining growth produced by the burst of spending on education was in jobs for educators. Unluckily perhaps, the education boom coincided with a clattering slowdown in growth in most western countries. Educational investment failed to abolish poverty or deliver a more equal society. The middle class continues to get more out of educational opportunities than the poor. And, for whatever reason, the plight of the poor—particularly in America—has got worse since the 1960s. The result is that the claims of the 1960s produced a backlash in the 1970s.

To prevent this from happening again, educationalists will have to be more modest. They need to concentrate on basic issues, such as how to make schools work, and to leave social engineering to the politicians. It is

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hard enough to produce a literate and numerate labor force without offering to eliminate poverty and conjure up equality into the bargain. Anybody tempted to be too ambitious about education should ponder the following points:

- Nobody knows what makes a successful educational system. This is not because of lack of fundamental ideas; every generation produces its education gurus. Nor is it because chauvinist governments are unwilling to learn from others. On the contrary: there is an international trade in educational ideas. American children go to German-inspired kindergartens. English children attend comprehensives modelled on the American high school.

- There is no clear relationship between inputs and outputs in education. More money does not necessarily produce better results. In his study of the impact of the "Great Society" program in American schools in

1966, James Coleman, the doyen of American sociologists, demonstrated that differences in expenditure between schools are almost wholly unrelated to differences in academic performance. Achievement depends on the student's family background rather than on the investment in the school.

A glance at OECD figures confirms just how complicated is the relationship between money and results. Canada devotes a higher proportion (7.2%) of its GDP to education than any other country, without being conspicuously successful; Japan devotes a lower proportion (4.9%), and is not conspicuously unsuccessful. The German government spends a lower proportion of

Educationalists need to make schools work, and to leave social engineering to the politicians.

its budget on education (9.1%) than any other OECD government, but boasts an education system which is the envy of the world. South Korea has twice as many students per class as Britain, but regularly trounces Britain in academic olympiads.

- The most potent educational institution is not in the hands of the government. The family accounts for educational success and failure far more than the school, let alone the college. The best way to ensure that a child climbs the qualifications ladder is to provide him with two parents who tolerate each other and value education. The disintegration of the family in much of the West is likely to frustrate government attempts to boost educational results by tinkering with schools.

- Educational expansion can be counter-productive. Double the number of graduates without doubling the number of graduate-level jobs and you promote graduate unemployment and debase academic qualifications (people who used to get jobs with BAs now have to get MAs). Students behave like football supporters who stand on their toes to get a better view of the match. Nobody gets a better view—and everyone ends up with aching toes.

The next few years could see another backlash against educational reform. This is partly because governments expect their latest moves to produce too much too quickly. The biggest reason, however, is the slowdown in the international economy. The most pressing economic problem is not lack of qualified workers but lack of demand. Graduate unemployment is rising. Businessmen have stopped complaining about skills shortages and started sacking skilled workers. But any country that reacts to recessionary times by neglecting its education system will lose out to its international competitors when growth returns. Now take a look at some of those competitors.

The Drop-Out Society?

Americans have diverted themselves from the struggle for economic efficiency.

This year's candidates for the American presidency were a peculiarly ill-assorted trio. But all three did at least agree on one subject: the need for a radical reform of education. George Bush took the unprecedented step of summoning all the state governors to a conference on education. (The result was a set of impressive but implausible targets to make America the best-educated nation in the world by 2000.) Bill Clinton first captured national attention as an educational reformer. Ross Perot acquired his taste for domestic policies when he took on the Neanderthal Texan educational establishment.

The lack of a core curriculum encourages a shopping-mall approach to education: pile up the soft options and leave the hard stuff on the shelves. The result is all too predictable. American children perform poorly in international academic tests.

This is hardly surprising. America has been in a panic about education for at least a decade—and is right to be worried. Talk to businessmen and they will complain that they have a choice between providing new recruits with remedial education or moving their back-room offices abroad. America's high-school drop-out rate is at least 14% compared with 9% in Germany and 6% in Japan. The school-year is 180 days—60 days fewer than in some other countries. Japanese children do five times as much homework per week as their American counterparts. Even when they are working, American children are seldom stretched. The lack of a core curriculum encourages a shopping-mall approach to education: pile up the soft options and leave the hard stuff on the shelves. The result is all too predictable. American children perform poorly in international academic tests.

The most dramatic problem is the collapse of inner-city education. Ghetto schools are churning out children whose lack of mental skills and surfeit of emotional problems would render them unemployable in the third world, let alone the first. Schools based in crime-ridden and drug-driven neighborhoods inevitably have some problems with discipline. Some have to install metal detectors to keep guns and knives out of the classroom. Drop-out rates of 50% are not uncommon.

Homage to catatonia

It would be perverse to blame education for this social pathology. Children do not start toting guns because they flunk Shakespeare. But a reorganization of American schools might do something to encourage the less academic children. The most glaring structural problem with American education is that it does not know what to do with pupils who are not bound for college; it has no vocational stream. In importing the German university system, in the late 19th and early 20th centuries, America made the disastrous mistake of forgetting to import the apprenticeship system as well. For apprenticeships smacked of class-stratification, and America was hypnotized by upward mobility.

The result is that 16–18-year-olds face a stark choice between cramming for college and getting a job. (The two-year community colleges too often act as cut-rate universities rather than vocational schools.) This arrangement might have made sense when school-leavers could expect a secure and high-paid job in the local factory. Today firms demand higher basic qualifications and more specific skills.

This malaise has begun to touch even the one bit of education in which America still leads the world: higher education. The universities face their harshest decade since the 1930s. Institutions which enjoyed a half a century of abundance are starting to learn the language of scarcity. The federal government has been cutting back on expenditure for a decade. Cash-strapped state governments are demanding value for money out of their investment in colleges. The budget crisis that compelled California to contemplate closing community colleges saw California paying its lecturers in IOUs; that could yet be repeated in other states. The private universities have raised their fees by so much that they risk turning themselves into finishing schools for the super-rich.

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The result is a spate of cuts, and not just in California. The University of Chicago has imposed a hiring freeze; Yale University is merging departments. Everywhere the talk is of contraction. Some academic seers have started to argue that the admired monoliths of the post-war era—universities that combine teaching with research and try to excel in everything from chemistry to classics—are too cumbersome to survive.

The cult of political correctness hardly helps. Its extremist wing wants to stand traditional universities on their heads. Students are to be selected on the basis of group identity rather than individual merits. Courses are to concentrate on black women because they are black women rather than on white men because they wrote good books. The university is to serve as an instrument of minority liberation rather than an engine of economic growth.

This agenda is starting to have a practical impact, as the student radicals of the 1960s become the tenured professors of the 1990s. Some leading universities admit black and Hispanic students when they have lower test scores than white and Asian students. (The predictable result is that many beneficiaries of affirmative action either drop out or take soft options.) Universities merrily discriminate in favor of minorities in awarding academic tenure. Several non-conformist academics have been hounded out of their jobs for thought crimes on the subjects of race and sex.

The good news about American education is that so many people have produced root-and-branch plans for reforming it. The Bush administration tried to introduce a national curriculum (through a school-leaving exam) and to encourage competition (through vouchers.) It also promoted the reinvention of the high school by setting up a national competition for new types of schools. Many states produced impressive schemes for

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raising standards. Texas led the way in improving teacher testing; Minnesota introduced a voucher system that allows parents to send their children across school boundaries. Boston experimented with closer relations between schools and local business. McEgging them on

Business has also produced hundreds of schemes for raising standards. These schemes—some inspired, some cranky—rely on four basic ideas. First, improving incentives. Well-known firms offer free hamburgers and pizzas in return for improved grades. Brand-name philanthropists offer college scholarships as a prize for graduating. Second, helping inner-city children escape from lousy public-sector schools. The Hudson Institute pays for some poor children to go to private schools. (Mr. Bush tried to turn this into national policy.) Third, adopting schools. Some companies donate equipment and personnel, others offer children jobs on condition that they graduate with reasonable grades.

All this is small beer compared with the fourth idea, something that could happen over the next few years. Christopher Whittle, an educational entrepreneur in Knoxville, Tennessee, wants to turn himself into the Ronald McDonald of education. He plans to open a national chain of profit-making schools. The schools will charge pupils no more than the cost to the state of a public-sector education—about \$6,000 a year—and will bring education into the age of fancy computers and mass marketing. Other entrepreneurs plan to take over the management of public-school systems.

These educational entrepreneurs have no shortage of critics. The recapture of the White House by Democrats will not make life any easier for them. But Mr. Whittle has attracted a formidable group of advisers. Many Democrats concede that it is more egalitarian to finance education through vouchers than through local property taxes. Most Americans concede that something dramatic needs to be done about education. So the 1990s could prove to be decidedly useful for American education.

Meanwhile in Europe

Even the most successful European countries need to beware of Eurosclerosis and Eurosmugness.

Americans in search of ideas will have no difficulty getting advice from the Germans. When it comes to schooling, there is only one thing that the Germans like talking about more than the shortcomings of American education, and that is the successes of German education. Bump into them for breakfast and they brief you on their school-leaving exam. Take them to lunch and they boast about their tripartite high schools. Meet them for dinner and they enthuse about their apprenticeship system. Join them for a late-night drinking session and—with a brief break for Maastrich and unification—they will enthuse still more about vocational training.

They have much to be proud of. German education commands admiration abroad and enthusiasm at home. German parents like it because it provides flexibility and choice. Students like it because it is intellectually demanding without being soul-destroying. Employers like it because it churns out skilled workers as well as state-of-the-art scientists. The government did not have to think twice before imposing western arrangements on the new *Länder* in the east.

What makes the system so successful? The first thing is the cheerful division of schools into three kinds: grammar schools, technical schools and vocational schools. (Socialist-inspired attempts to introduce comprehensive schools in the 1960s provoked much hostility.) This division lets schools tailor their teaching to the abilities and aspirations of their pupils. Grammar

schools can challenge academic children without discouraging their less able contemporaries. Technical schools can motivate their pupils by introducing them to general principles through practical examples. The most striking achievement of this system—more striking even than its success in grooming the elite—is its to engage the enthusiasm and test the ability of tomorrow's skilled workers.

The second wholesome ingredient is the breadth of elite education. German sixth-formers study half a dozen core subjects (including mathematics and German) and another half a dozen minor subjects. The Germans do not enjoy the dubious British privilege of making an irrevocable choice between the two cultures before their 18th birthday. Even university students study a range of minor subjects as well as a major subject.

The third successful element is the parity of esteem between science and the arts. The Germans do not share the British contempt for stinks and bangs. Technical universities enjoy equal status with the likes of Heidelberg. Engineers proclaim their status on their business cards and door plates. Leading scientists are loaded down with national honors and company directorships.

Above all, the glory of German education is the so-called dual system. Any 15-year-old who does not want to go to university opts for a three-or-more-year apprenticeship instead. It combines on-the-job training in a local factory and theoretical education in school (this used to mean two days a week, but increasingly means three). Successful apprentices are guaranteed a job in a local factory. Their less successful contemporaries are more than likely to be able to put their training to good use.

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tional schools.

Adolescents who were bored by school find their enthusiasm reignited, partly because they are treated more like adults and partly because they start to see the links between learning facts and earning a living. The cost of training is divided between the *Länder*, which provides the vocational schools, the employers, who pump 2% of their payroll costs into training, and the apprentices themselves, who work for only a nominal salary. The transition between school and work, so traumatic elsewhere, is rendered almost painless. Above all the system reinforces a culture in which training is

cherished and skilled workers revered. For many Germans, an apprenticeship is simply the first step on a learning escalator which can turn them into trainers (*Meister*) in their own right.

Germany certainly has its problems. The school-leaving examination is rather lacking in Teutonic rigor. Passes are awarded on the basis of teacher assessment—an arrangement which allows teachers to sit in judgement on their own performance—and oral examinations. This not only institutionalizes grade inflation (Germany could do with an educational Bundesbank); it also tempts over-praised children to prefer university to the dual system. Between 1984 and 1990 the number of West German youth seeking apprenticeships dropped from 765,000 to 600,000.

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Choosing to go to university is often a mistake. The non-scientific universities are perhaps the least successful parts of the system; they are monuments to 1960s-style Utopianism rather than engines of the *Wirtschaftswunder*. The lack of proper degree structure means that undergraduates can dawdle for a decade over a degree. Chancellor Helmut Kohl complains that Germany has the oldest graduates—the average age at graduation is about 28—and the youngest retirees in the world. German professors enjoy the rewards of senior civil servants but frequently cultivate the habits of Bohemians.

The authorities are desperate to prune this Arcadia. They want to introduce shorter degree courses and promote technical universities (which boast well-organized courses and carefully cultivated links with industry) at the expense of traditional universities. So far they have enjoyed little success: German politicians do not have much experience in taking on middle-class interest groups.

Even vocational training is under strain. Unification has reinforced fears that the dual system is too costly and too rigid—perfect for old worthies like the car industry, but too cumbersome for entrepreneurs with bright ideas and a bank loan.

Many small firms cannot afford the \$19,000 a year it costs to train a recruit. And even those who can afford it cannot necessarily find trainers. Germany is so short of trainers—the Cologne area alone needs another 4,000—that it is scouring Europe for recruits. The

emphasis is on consensual decision-making and legal form (training codes have to be embodied in law) means that training often lags behind technical innovation. Periodic pruning by the authorities has not been enough to emasculate special interests or modernize the laws governing training. There are still 375 officially defined occupations in Germany.

The training system is not only adding hugely to the cost of absorbing the eastern states. It may also be hindering the transition to a service economy driven by high technology. Germany has the smallest service sector of any EC country save Portugal—a statistic which will not surprise anyone who has tried to get a check cashed on a Saturday.

Going one better

To see the German system with most of these problems removed and some interesting improvements added, you need to travel north, to Denmark.

The Danish labor market has rectified the problem of academic drift. The sight of so many geriatric graduate students working as taxi drivers by day and completing their dissertations by night has persuaded school leavers of the value of vocational training. Competition for places on training schemes is now fierce. The Danish government has also tackled the problem of over-indulgent universities. In the past couple of years the universities have introduced a BA qualification (to speed up graduation) and imposed detailed timetables (to cut out time-wasting). It seems to have gone down well with students.

The Danes delight in explaining why they have an edge on the Germans. They argue that Danish technical education puts more emphasis on theory (which could last a lifetime) than on practical knowledge (which is quickly outdated). Technical students are based in technical colleges but win assignments to local firms. The Danes also introduced big improvements in vocational education in 1991, cutting the number of apprenticeships from 300 to 80 and changing the financing of technical colleges so that they compete for pupils.

This is tame stuff compared with the long-established deregulation of secondary education. The Danish government is unique in allowing something like a free market in schools. Parents who are dissatisfied with state education can group together to set up their own schools and—provided they comply with certain minimal requirements—expect the state to pick up 90% of the bill. This approach appeals to all segments of the political spectrum. Some independent schools are based on Freudian or Maoist principles. Others are dedicated to excellence in language or science. All enjoy much more control over decision-making than is the case in the state sector.

Catching up

Two big European countries have made heroic efforts to bring their education regimes up to German and Danish standards: France and Britain.

The French have an enormous advantage over the British in implementing reforms: the legacy of Bonapartism. Scientific and technical schools have enjoyed a high status in France for two centuries. French schoolchildren have long been accustomed to spending much of their adolescence working for the *Baccalaureat*, an examination that is at once broader than English A levels and more rigorous than the German *Abitur*.

This left the government free to concentrate on the weakest link in its educational chain: vocational training. Thirty years ago, French vocational training was lamentable. The academia-obsessed school establishment despised it. Business was too short-sighted to invest in it. Apprenticeships hardly existed outside the artisan industries. So the government decided to act. It compelled firms to spend 1% of their sales on training, and encouraged vocational schools to expand; it created a clear set of vocational qualifications; and it set

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out ambitious targets for improving the technical qualifications of the working population. Today most all school-leavers who do not go to university enroll in full-time vocational courses that lead to nationally recognized qualifications.

The British have been even more radical than the French. The past five years have seen a frenzy of educational innovations. No sooner has the public digested one far-reaching reform act—invariably described as the biggest since 1944—than another one is prepared for consumption.

Tory policy is composed of four main elements. First, introduce a national curriculum backed up by regular examinations. Second, free parents to send their children to the best available school—open enrollment—and finance schools on the basis of the number of children they attract—per-capita funding. (Incidentally, the government is also using per-capita funding to bribe universities to increase their intake of students from one in five to one in three school-leavers.) To help parents make an informed decision between competing schools, the government is making schools publish their exam results and obliging local authorities to classify the schools in convenient league tables.

Third, bypass local education authorities and hand budgets to individual governing boards. Fourth, encourage schools to develop distinct identities. The government pioneered this idea in 1986 by co-operat-

ing with industry to set up a new type of school—the city technology colleges (CTCs). It is now encouraging thousands of established schools to opt out of local authority control and establish their own characters.

If this is all as splendid as it sounds, why is British education still in such a mess? Partly because there was so much to fix. It would be hard to imagine an educational system more likely to hold up economic growth than one which was designed by anti-industrial snobs in the mid-19th century and then redesigned by anti-industrial egalitarians a century later. And partly because the government started reforming education much too late—in 1988 rather than 1980. It also devoted too little energy to improving the weakest bit of the system: like France, vocational training. A handful of CTCs and a host of TECs (Training and Enterprise Councils: employer-dominated bodies responsible for organizing training in their local areas) will not be enough to hold the Asian tigers at bay.

Tigers Behind Desks

Japan and the Asian tigers have outperformed the West at mass-producing educated workers. Their next task is to mix in more imagination.

Nobody can travel in Japan and the newly industrialized countries of the Pacific rim without being startled by the cult of education. In Japan neatly uniformed children stride to school at eight o'clock on Sunday morning. In South Korea every other side street has a cramming school. In Hong Kong a newspaper contains a letter from a pediatrician blaming an epidemic of spinal curvature on the fact that children carry such huge piles of books home with them. In Singapore air-conditioned buildings are crammed with swatting children.

All this effort has paid off in spades (not to mention grades). Glance at any league table of education performance and you will find several Asian countries bunched near the top. The achievements of the region are a puzzle to people who think that educational success is all a matter of public expenditure. Even in Japan most of the schools are shabby and ill-equipped by comparison with their

To help parents make an informed decision between competing schools, the government is making schools publish their exam results and obliging local authorities to classify the schools in convenient league tables.

western equivalents. In many schools in the region the average class size is more than 40. In South Korea schools

invite parents with particular skills to come and give a few lessons a week. In Japan schools cut down on overheads—and impart moral lessons into the bargain—by getting the pupils to do menial tasks such as serving meals and cleaning the school. In some countries—Hong Kong and Singapore are the most noted examples—there are more schools than school-buildings. One school uses the building in the morning, another in the afternoon.

The parsimonious approach is successful because pupils and teachers firmly believe that merit will be rewarded. Japan and the Asian tigers are the most meritocratic society in the world. The universities occupy a clearly understood position in the social pecking-order, and act as powerful job brokers. People who win places in the most prestigious departments in the most illustrious universities—Tokyo law school is the most obvious example—go on to the best jobs. And so on down to the janitors.

The result of this meritocracy is relentless academic competition. Senior high-school students prepare for their final examinations with a methodical intensity that unnerves western observers. The students respond to failure not by giving up, but by trying again. In Japan so many students resit exams that they have a special name: the *ronin*, or leaderless samurai. This competition for university places shapes the rest of the educational system. Some high schools are better than others at winning places in the best universities. So students compete like mad to get into those high schools. Some junior schools are better than others at winning places in the best high schools. So students compete like mad to get into them. There are even exams for places in some nursery schools.

The achievements of the region are a puzzle to people who think that educational success is all a matter of public expenditure.

The children are driven on by intense family pressure. Parents badger their children to succeed, but they also make big financial and personal sacrifices to help them do so. Mothers help their children with their homework and protect scholarship candidates from domestic chores. Fathers promise fancy toys in return for examination success. Families make every effort to give their children somewhere quiet to work.

All this competition has created a huge cramming industry. Most children in Japan and the tigers attend a cramming school or employ private tutors. This is particularly common before crucial examinations and among adolescents who have to retake exams. Cramming schools (*juku*) are the norm in Japan and Taiwan. The best Japanese *juku* are so hard to get into that there is a booming secondary industry of cramming people to get into

cramming schools.) Singaporeans prefer private tutors. In South Korea and Hong Kong parents prefer a mixture of tutors and crammers.

The result is that the region has not one but two education systems: one public and one private. This adds enormously to the amount society invests in education. Families can easily sink all their spare money in schooling. In Japan the average annual fee at a *juku* is \$650 for part-time attendance and \$3,800 for full-time university preparation. Cramming offers a lucrative career. In Japan the *juku* boast well-paid staff and millionaire proprietors. The leading *juku* have several campuses and thousands of students. In South Korea successful tutors—many of them university students who have recently proved their prowess in the examination hall—buzz around in fancy sports cars.

Time as well as money is poured into learning. Children devote their spare time to cramming for exams. No sooner have they finished their day schools when they rush off to their *juku*, or home to private tutors. Weekends and holidays are an excuse to spend yet more time in the *juku* or with the tutor. People who fail university-entrance exams become full-time students in crammers.

The private sector is also an engine of innovation: it adds to the variety of teaching methods available. The *juku* use a mixture of lectures, some attended by as many as 500 students, and seminars. The *juku* have perfected diagnostic examinations (which can pinpoint weaknesses) and

Japan and the Asian tigers are the most meritocratic society in the world...The result of this meritocracy is relentless academic competition.

predictive examinations (which tell them which universities are in their grasp). Private tutors can proceed at the same pace as the students, and solve whatever problems are befuddling them. The latest fashion in Singapore is for computer clubs for toddlers.

Throughout the region people take it for granted that education should be driven by a mixture of commerce and competition. The commercial principle has been developed to perfection in the Japanese *juku*. The more successful the school, the higher its charges; the more successful the teacher, the bigger his salary. The best teachers earn six times as much as the worst.

Fee-paying is common in the public sector as well. In Japan upper-secondary schools (attended by 15–18-year-olds) charge about \$1,600 a year. The best schools also expect parents to make hefty donations. Universities charge fees ranging from \$2,000 per pupil in national universities to double that in private universities. This means that schools and universities have to compete for

pupils just as much as students have to compete for schools. Failure to attract enough customers eventually results in bankruptcy. Schools often distribute brochures advertising their wares. In several countries the newspapers are full of league tables ranking schools by results.

All this competition has created a huge cramming industry.

This meritocratic model has significant local variations. South Korea and Taiwan model their universities on American ones and send their brightest students to America to get PhDs. The American influence is omnipresent in Japan—its school system was reorganized on the American model after the war, and every decent high school boasts a baseball team—but the Japanese have reinterpreted American democratic ideas in more meritocratic terms.

The dominant influence in Hong Kong and Singapore is Britain. The best schools have the atmosphere of grammar schools in the England of the 1950s or the Ulster of today. The walls are hung with sepia photographs of old school heroes and plaques gilded with the names of scholarship winners. School children take O levels (now abandoned in England as too elitist) and A levels. (Teachers complain that A-level standards are now so debased they are embarrassed by the number of students scoring top grades.) In Singapore the star students get scholarships to Oxford or Cambridge. In Hong Kong English education is less popular than it was—visa-hungry students prefer North America and Australia, and a growing number of students prefer vernacular education—but the University of Hong Kong still has a very British feel to it. **Examination nerves**

Government policy may also increase national differences. The politicians of the region are divided over the question of whether competition has gone too far. The Japanese Ministry of Education claims that it wants to cool down the competition. The annual toll of teenage suicides and nervous breakdowns is now something of an embarrassment. And the ministry wants to encourage schools to put less emphasis on rote-learning and more on innovation. Officials do what they can to discourage cramming schools and league tables (they were amused to learn that the new policy in Britain is to encourage league tables). But these reforms amount to tinkering rather than fundamental change.

The Japanese are certainly not likely to go as far as the South Koreans. In the 1960s the South Korean government, desperate to exploit popular resentment of elite schools, decreed that secondary-school places should be allocated by lottery. This anti-competitive policy is slowly being eased—the government has set up a handful of

super-selective scientific schools for geniuses—but competition is still concentrated on the university-entrance exam.

In Singapore the government is turning up the heat in education, with a series of reforms that have been introduced in stages since 1980. It started off stimulating competition between pupils by dividing them up according to ability, selecting potential geniuses at the age of 9 and streaming other children by the age of 11. It's now boosting competition between schools, publishing league tables of academic results and allowing top schools to raise their fees and become semi-independent. (One leading school even plans to build a residential wing and require all pupils to spend some time as boarders.) Over the past decade the Ministry of Education has also made the

The Japanese Ministry of Education claims that it wants to cool down the competition.

syllabus more burdensome. All Singaporeans have to pass exams in the official language of their ethnic group as well as in English; and university-bound Singaporeans have to do a general paper as well as three or more specialist A levels.

This policy is not universally popular. The semi-privitization of the top schools cost the government seats in the 1991 election. People complained that it smacked of class-stratification rather than meritocracy. The language policy means that a Chinese student who speaks Hokkien at home will have to learn Mandarin as well as English. These contrasting policies of heating up and cooling down education are motivated by a common fear: the fear that China will steal all the mass-production jobs while the West keeps most of the high-value-added ones. Policy-makers throughout the region are worried that their schools will continue to turn out the well-drilled and disciplined operatives of mass production when what industry needs is workers with flexibility and imagination.

Japan and Singapore are leading the pack at producing skilled workers. The best Japanese firms put huge emphasis on training their workers. They pay them according to the complexity of the tasks they can perform, and move them from job to job in order to give them a broad perspective as well as particular skills. Singapore is determined to have the best-trained workforce in the region. The government has imposed a punitive tax on foreign firms with a high proportion of low-skilled workers. It has also persuaded companies from countries with good training records to set up training institutions in Singapore. Other countries have much shakier systems. South Korea has enviable labor mobility, but has allowed its vocational schools to contract. Hong Kong has plenty

of labor mobility combined with a British distaste for vocational training.

The issue of innovation is likely to be much trickier. The tradition of rote learning—and how else do you learn thousands of Chinese characters?—combines with a culture of deference to discourage students from questioning orthodoxies. The universities have failed to develop a powerful research tradition. In Japan the professors are more like feudal lords (and rather smug ones at that) than like intellectual explorers. And the students treat the universities as a resting station between their horrific childhoods as examinees and their horrific futures as salarymen. The South Korean universities churn out the sort of articles that give academia a bad name. Singapore and Taiwan have yet to establish a research tradition in the humanities.

Policy-makers are desperately trying to put the innovation back into the Orient. Japan's education ministry is trying to make the universities more free-standing. In South Korea the government is investing more in research. Hong Kong's government, helped by a substantial donation from the Jockey Club, is setting up a new scientific university. In Singapore the special education program for the gifted emphasizes learning-through-discovery.

There is something a little unconvincing about this new cult of iconoclasm and innovation. Japanese graduate students visiting Britain or America regard the sport of puncturing received wisdom as ill-mannered, perhaps even immoral. In Singapore, the *Straits Times*, the semi-official newspaper, frequently prints editorials entitled "Be more innovative, Singaporeans—here's how". Budding Singaporean geniuses are taught to think "laterally" by a disciple of Edward De Bono; a desperate last resort. Cambridge and Harvard can rest on their laurels for a while yet.

Making it Work

How to improve schools and shrink the underclass

Why do some schools succeed and others fail? Thirty years ago the answer seemed all too simple: resources. The best schools were the ones with the most lavish equipment and the most generous teacher-pupil ratios. The implication of this observation was equally simple: to raise educational standards, all you need to do is invest more money in schools.

The problem with this analysis is that it has been tested in practice and found wanting. From the mid-1960s onwards, American and European governments tried to spend poor schools out of existence. The governments hemorrhaged cash but the poor schools remained. Meanwhile, many Asian countries were doing fine with shabby schools churning out well-educated children. The explanation for educational success clearly needs to be sought

elsewhere: in the realm of psychological rather than material resources.

What marks out a good school is its ethos. To be successful, a school needs to establish an identity and

The universities have failed to develop a powerful research tradition. In Japan the professors are more like feudal lords (and rather smug ones at that) than like intellectual explorers.

impose it on its pupils. Schools that enjoy a strong sense of identity pursue clear ends, and can alter their methods and adjust their incentives if those ends prove elusive.

In Germany three sorts of high schools pursue highly distinctive goals. In Japan children are so desperate for educational success that they happily take on the corporate identity of their schools. In Denmark children have a choice between a wide variety of schools. The opposite seems to be true for educationally unsuccessful countries. The traditional American high school recruits all the children in the neighborhood without regard to their abilities and educates them without regard to their occupational destinations. This attempt to be all things to all men robs the high school of a distinctive identity. It is simply the local school: no more and no less.

The best American schools are now trying to become rather more than this. For the past decade or so schools across the country have been trying to turn themselves into something more distinctive, in a bid to motivate children and reverse educational decline. Magnet schools—that is, schools that specialize in particular subjects and draw their pupils from more than one neighborhood—have been the pioneers of this movement. Elite academic schools such as the Bronx High School of Science and Boston Latin grew famous through specialization and open enrollment. The aim of the magnet-school movement is to let more schools adopt similar principles.

How can policy-makers encourage the creation of such successful schools? Two ideas have won mounting support among education theorists: local management and per-capita funding. Local management means that day-to-day decisions about running schools are taken by headteachers rather than local bureaucrats. This increases the power of heads to establish a personality for their institutions. Per-capita funding means that schools are financed according to the number of pupils they attract.

The market revolution is destined to have only a marginal impact in America. Most middle-class people do well out of a system in which schools are financed out of local property taxes. The Democratic

party is too committed to the idea of the universal high school—and too tied to the interests of the teaching profession. But these ideas are becoming widely influential elsewhere. They formed the basis of the 1988 Education Reform Act in Britain. Singapore is giving its most successful schools more power to run their own affairs and charge higher fees. Even Sweden is introducing per-capita funding. For underclass, read under-educated

It is worth applying market mechanisms to pupils as well as to schools. One way to turn potential drop-outs into reasonably educated workers is to improve their incentives. The non-academic offspring of middle-class parents endure the pain of education (boring teachers and intrusive homework) because they know it will pay dividends in later life. Those who show signs of forgetting the link between pedagogy and prosperity are given a sharp reminder in the form of a lecture or a bribe.

American high schools have started applying the same methods. Some use simple incentives—a free pizza if you learn a bit of Shakespeare, a free hamburger if you master some geometry. Others have turned bribery into a more sophisticated art. The Renaissance Education Foundation, a philanthropic organization that supports reward-for-performance programs in 1,500 schools, encourage children to improve their grades with a hierarchy of rewards. These start off with simple gifts, and grow in value to include university scholarships.

The logical conclusion of this approach is paying children to learn. This is effectively what happens in the German dual system: school leavers earn a modest wage for a mixture of academic instruction and on-the-job training. It is beginning to spread elsewhere. In San

The traditional American high school recruits all the children in the neighbourhood without regard to their abilities and educates them without regard to their occupational destinations.

Antonio, Texas, the Rotary Club pays \$50 a month to children who are at risk of dropping out of high school for financial reasons.

Another way to reduce failure is to improve vocational education. School leavers are easily tempted into taking high-paying but deadend jobs. Apprenticeships discourage such disastrous decisions and also have a number of positive advantages. They smooth the transition between school and work: apprentices earn a wage but continue to learn. They encourage school leavers to realize that training is a source of

status and prosperity. The better they do on their training course, the higher up the social ladder they will climb.

Eliminating failure cannot be left to loose-fisted charities and far-sighted businessmen. Governments need to do the odd thing themselves sometimes. But if government intervention is to be more successful in the 1990s than it was in the 1960s, policy-makers need to think again about what they are going to spend their money on. Governments spend too much on people who are predestined for educational success and too little on people who are prone to educational failure.

Local decision-making increases the power of heads to establish a personality for their institutions.

Governments could start by reducing public support for university students. Most western countries spend much more for each one of them than for each primary-school student. But university students are usually middle class by origin and overwhelmingly middle class by destination. The money saved should be spent on re-vamping compensatory programs for deprived pre-school and infant-school children. These programs may have pursued Utopian aims and adopted naive methods in the past. But their basic insight is correct: if you want big returns on educational expenditure, invest in the youngest.

Brains in the Balance

Global firms will increasingly take their custom to countries with the best-educated workers.

Investing in education is to the 1990s what nationalization was to the 1940s and privatization to the 1980s—the universal panacea of the day. Right-wingers value education partly because it promises to make labor markets more efficient, left-wingers partly because it gives a respectable role for state activism. Economists on both sides of the political divide insist that human capital is now the most precious form of capital there is.

They are right. In a global economy, the competitive advantage of nations depends increasingly not

on their stock of physical resources but on the quality of their labor forces. Many large firms have been operating in this borderless world for decades. They move menial jobs to countries where labor is cheap, and mentally demanding ones to countries where workers are educated. Even medium-sized firms are starting to get in on the act. The fashion among American banks, for example, is to move some back-offices to Ireland or India.

This increase in the mobility of firms is particularly threatening to the rich world. Once upon a time rich countries could expect to stay rich because they enjoyed better technology or easier access to profitable markets. Now that wages are in effect being set by the global market rather than by local ones, the only way for rich countries to stay rich in the long term is to have more productive—which often means better educated—workers.

Rich countries everywhere—in the newly industrialized world as much as the old one—look over their shoulders and see people willing to do the same work for a fraction of the pay. The reaction is first panic and then reform. Nowhere is this more apparent than in Britain and America. In both countries reforming politicians have concluded that they are falling badly behind Germany and Japan. In both countries reformers have used various market mechanisms in an attempt to improve schools and close the gap between education and industry. And in both countries they have been frustrated.

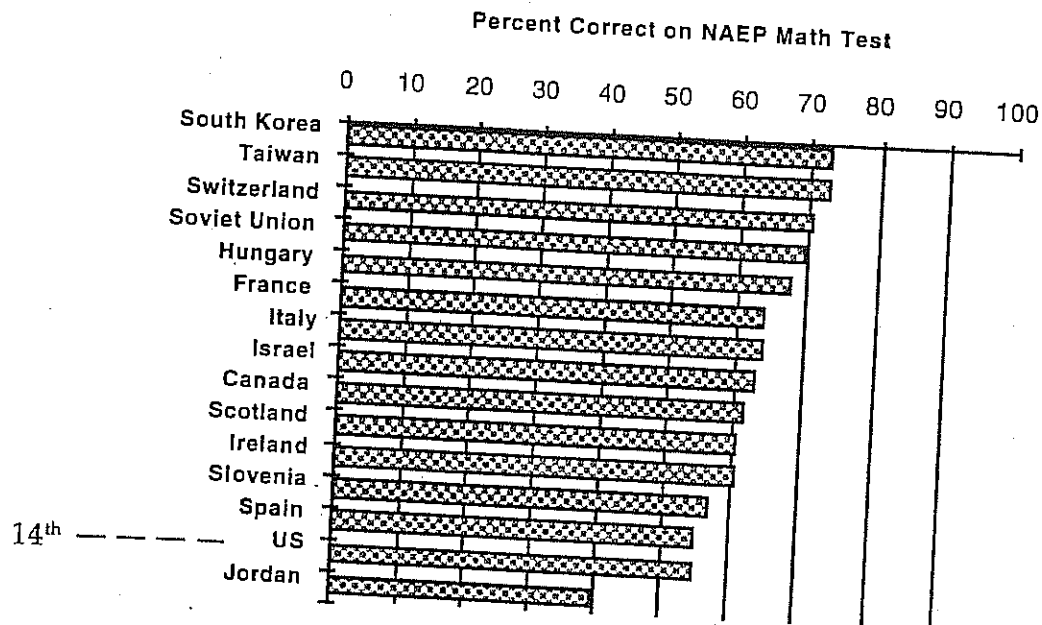
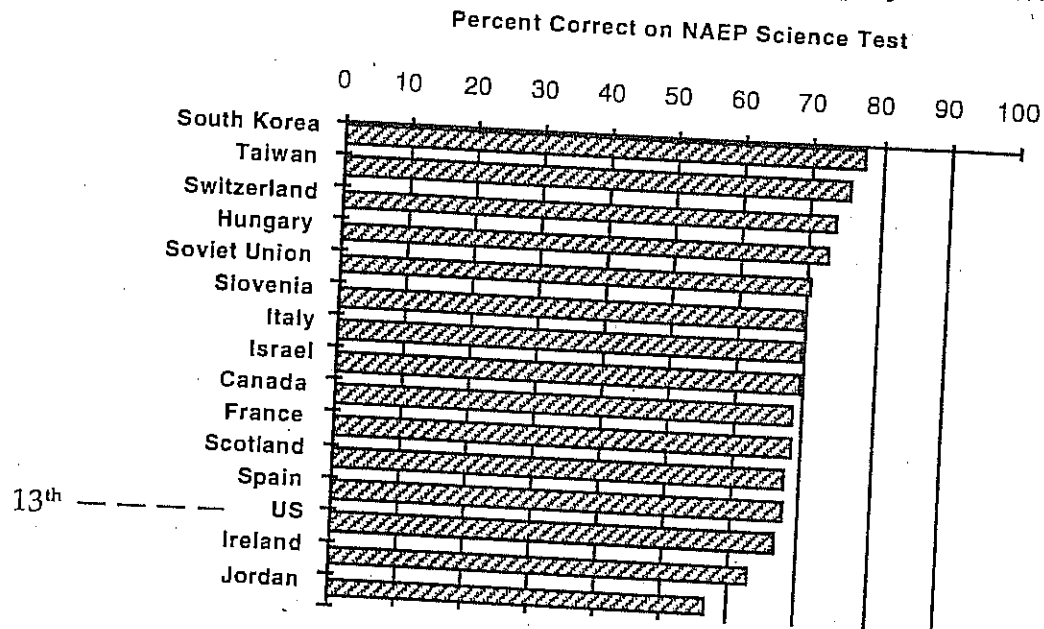
The real choice for an investor with an eye to human capital is between the Pacific rim and Germanic Europe.

The Anglo-Saxon world has done too little in the 1980s to catch up with the world leaders in education. The real choice for an investor with an eye to human capital is between the Pacific rim and Germanic Europe. At the moment Germanic Europe still comes out ahead, partly because it has innovative universities, but primarily because it has an unrivalled ability to churn out skilled workers. Those workers will give the Germanic countries a vital advantage in the age of human capital, enabling firms to exploit information technology and flexible production. The medieval mastercraftsmen certainly built to last.

Governments spend too much on people who are predestined for educational success and too little on people who are prone to educational failure.

How the United States Ranks on International Tests of Math and Science

One of the most recent comprehensive international surveys of educational standards took place two years ago, when 13-year-old students in 15 countries participated in the second International Assessment of Educational Progress (NAEP). A random sample of 3,000 students in each country answered more than 100 questions in science and mathematics. The United States placed near the bottom of the competition. The average grades are displayed below:



Heterogeneous Grouping as a Discriminatory Practice

by The Study Group—International Institute for Advocacy for School Children
Nicholas Maddalena, Chair

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FOCUS: HETEROGENEOUS GROUPING

In the current context of achieving "world-class" standards, mastery is essential. Unless students master content at a rate that exceeds the current rate of mastery, it is impossible to achieve "world-class" standards.

The practice of heterogeneous grouping of students within this context is counterproductive and systematically discriminatory. Heterogeneous grouping places low performers (often minority students and those who are already behind) into a situation that will punish them (with ongoing demonstrations that they are not competent learners) and retard their learning compared to what is possible with sensible **homogeneous grouping**. The practice also retards the learning of others.

Facts:

1. The same "lesson" is presented to all students regardless of ability level.
2. A lesson has the potential of being mastered if it does not require excessive learning.
3. The less students know about the content of the lesson, the more mistakes they make.
4. If mastery is to be achieved, the mistakes are to be corrected.
5. The pacing of the lesson depends on the extent to which all mistakes are corrected.
6. The lower-performing and minority children learn new content at about 5/8 the rate of "grade-level" progression (performing around the 20th percentile on standardized tests of achievement compared to the 50th percentile that represents grade-level achievement).

What these facts mean is that by the time children are in the third grade, the lower performers are at least one full year behind the grade-appropriate level (or the level that would be required for world-class standards) while some children perform at or above grade level.

If these children are grouped heterogeneously for any new learning, the teacher presents a lesson that will teach content that is new for all the students. The teacher presents tasks and items that test the children's ability to use and apply the facts, information, rules, and procedures that are being taught.

Although the lesson is the same for all children, the amount of new learning required is not the

same for all children. If the amount of learning is appropriate for students who are performing at a grade-appropriate level (fact 2), the amount of new learning required by the lower performers is excessive. In many cases, the amount of learning required of the lower performers is so great that it would be impossible to bring the lower performers to mastery on more than half the lesson within the assigned time period. (Consider how unsuitable a fourth-grade math lesson is for students who don't even understand basic number relationships, who have difficulty reading 2-digit numerals and, who have virtually no understanding of fractions.)

Consider the inappropriateness of the lesson. Lower performers are considerably behind higher performers. Therefore, they are required to learn more than higher performers must learn to master the lesson. The lower performers, however, are not merely expected to learn more, but to learn more in the same period of time. Students who have historically learned at about 5/8 the rate of grade-appropriate students are now expected to learn at possibly 2 or 3 times the rate of grade-appropriate students.

According to fact 3, the less students know about the content, the more mistakes they make. The lower performers know less; therefore, they make more mistakes. According to fact 4, if mastery is to be achieved, the mistakes must be corrected. If the teacher corrects mistakes, which are made overwhelmingly by lower performers, these children now receive what amounts to continual demonstrations that they are not competent learners.

The lower performers are not the only ones who suffer from the format of heterogeneous grouping. The grade-appropriate students are also prevented from achieving grade-appropriate progression. For them to progress on schedule, they should master so much content during so many school days. If the lessons are roughly appropriate for them in terms of the amount of new information required for them to learn, they could achieve this goal if they were in a homogeneous group. If they are in a heterogeneous classroom in which the teacher corrects mistakes of lower performers, the pace of the lesson is reduced substantially. It now proceeds at about 5/8 the pace that would be possible with a homogeneous group-

ing. The grade-appropriate students, therefore, will learn at the rate of lower performers, even though they are placed in a program that is appropriate for them and even though this rate is imposed solely by the presence of students who are not appropriately prepared for the lessons.

The teacher, of course, could pace the lessons in a way that is appropriate for grade-appropriate students. This scenario, however, compounds the discrimination against the lower performers. Without corrections, there is virtually no possibility that they will master the content. Which raises the question of why they are present in the classroom. Neither the content, the amount of learning required for mastery, nor the pacing is appropriate for them.

Different strategies are used to disguise the discriminatory nature of the heterogeneous grouping. One is for the teacher to present different lessons to different-ability groups in the class. This format is discriminatory to everybody because the teacher must now teach three different lessons to three different groups, but do it in a single period, by allotting no more than 1/2 the available time to any group. The teacher is now teaching all students at a rate that is substantially less than the rate that would be possible if the students were homogeneously grouped and had full periods (not 1/3 periods) to work on each lesson.

Formats that involve projects without any clear articulation of what students are to master are rejected on the grounds that they are clearly discriminatory. Given all the skills and knowledge that we know students must master to maintain "world-class" pace, activities that do not relate to these goals or that can be assessed accordingly have no place in the curriculum.

The justification of heterogeneous grouping is supposed to relate to "democracy," "equity," and "access." The basic argument that supports the premise seems to confuse the classroom with a bus. If students have equal access to a bus, there is "equity." Unfortunately, a seat in the classroom does not guarantee equal access to the lesson that is presented to all students. Exposure may be provided to all students. But if the lesson is the same for all students, access to mastery of the lesson is not the same. Mastery is much farther from the reach of the low performers. It is so unreasonably far that placing them in this classroom all but assures that they will not master the content.

Equal access to the content is possible only if the potential for mastering the content is reasonably great, which means equal preparedness. For minority children and low performers to gain access to the curriculum, they should be placed in lessons that

permit them to achieve mastery and build skills and knowledge as rapidly as possible.

Teachers who use heterogeneous grouping are placed in a no-win situation. They quickly discover that they can't teach the lower performers. Their choices are therefore a) to teach to the grade-appropriate students, b) to lower the standard so that "everybody" passes (a practice that is responsible for some of the current academic failure), or c) to do the best that's possible in trying to give the lower performers individual help, but recognizing that the task is largely hopeless. In any case, the practice wastes time, teaches less, and discriminates against lower performers.

Kulik's¹ (1985) analysis of 102 ability-grouping studies confirms the advantages of homogeneous grouping. He concludes, "These findings suggest that homogeneous grouping is often beneficial for talented students, may improve achievement and self-esteem of slow learners, and has little effect on the achievement and self-esteem of average students."

Approaches that produced the greatest gains with at-risk students in the largest educational experiment ever conducted (Follow Through) grouped children homogeneously for instruction. The most effective approach taught the lowest performers (children under IQ 80) at nearly the same rate as children in the IQ range of 100. This result, according to the sponsor of the approach, would not have been possible without strict ability grouping of students.

Paradoxically, higher performers suffer most from heterogeneous grouping. These are the students who are most capable of achieving world-class standards.

In summary, any practice that guarantees failure of students is senseless. If this practice systematically fails one group or segment of the population, the practice is discriminatory. Heterogeneous grouping, by its very nature, guarantees failure of low performers, many of whom are minority children. The practice also impedes the progress of other students. The practice, therefore, is discriminatory and perfectly opposed to I'ASC's goals of developing the potential of all students. The specific abuses are:

- Requiring minority children to learn unreasonable amounts of material.
- Requiring them to learn the material at a rate that is unreasonably fast.
- Requiring them to be in a setting with students who master the material with far less learning.

¹Kulik, C. (1985) *Effects of inter-class ability grouping on achievement and self-esteem*. Paper presented at the Annual Convention of the American Psychological Association. Los Angeles.

The Contributions of a Scientific/Business Perspective to Improving American Education

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FOCUS: HETEROGENEOUS GROUPING

The educational reform movement in America suffers from a lack of accountability. Glickman (1992) wrote in *Educational Leadership*:

... Most schools move from innovation to innovation ("We are doing whole language, or cooperative learning, or curriculum integration") and define success as the implementation of the latest innovation. To be blunt, this is nonsense. What difference does any innovation make if a school cannot determine effects on kids? (p. 26).

Some of our national educational organizations promote innovation over effectiveness. The National Council of Teachers of Mathematics, for example, set forth an innovative set of teaching practices as a national goal, rather than a set of learning outcomes. Furthermore, these prescribed innovative practices had never been implemented and validated as effective in achieving the goals they promise to achieve before they became the aspiration of American mathematics instruction. The potential for national disappointment is very real.

A similar example is the set of "innovative" teaching practices prescribed by the National Association for the Education of Young Children as "developmentally appropriate practices" (DAP). In instructional research, these practices have usually been found less effective than other readily available practices (see next issue of *Effective School Practices*).

Even if the above-cited practices did represent the state-of-the-art in effective schooling, making them a state or national policy would crystallize educational practice, making further improvement impossible.

Mandating practices rather than learning outcomes is unbusinesslike and unscientific. The basis for reform should be expressed in terms of results, not practices. Administrators should be provided with

achievement goals based on reasonable assessment tools and samples of students' actual behavior. Administrators should receive the mandate to use whatever verified practices and procedures are necessary to meet these goals. Information about the latest effectiveness studies should be made readily available to guide local decision-makers.

A scientific/business perspective can help educators make better decisions about contemporary "solutions" and develop more trustworthy solutions. From this perspective, the focus is not on implementing the latest faddish solution but on how to develop and make decisions about solutions. Such a perspective can be operationalized with six educational accountability criteria that should be applied to existing as well as proposed educational tools and practices:

1. Clear definition of an educational goal and its benefits for students, with indications of how achievement of the goal will be determined.
2. Effectiveness data on a proposed solution. The data can include authentic assessment, learner verification, comparative research, and so forth. This information must not only be generated, but also made available in a usable form.
3. Manageability—a solution should have reasonable requirements for implementation. Staff development and organizational support should be provided to ensure a successful implementation of the solution.
4. Cost effectiveness—educational outcomes from a solution should be achieved in the most economical fashion. An example of the need for this criterion is found in many large districts where less than 50% of the education budget is spent on teachers and materials in the classroom. Is the expenditure of the other 50% cost effective?

5. Equity—solutions need to benefit diverse learners and not discriminate against any identifiable group. Educational solutions tend to be mandated or endorsed for all students, yet children of poverty often do not benefit from these solutions.

6. Coherence—various solutions should be complementary, not contradictory. For example, state and district mandates of practices which are ill-defined, not proven to be effective, or discriminatory, contradict the intention of site-based decision making, where school staffs are to have responsibility for running the school and be accountable for the results. Mandated practices greatly restrict their freedom, yet leaves them accountable, in effect undermining the intent and potency of site-based decision making.

The implementation of these educational leadership criteria would not be simple or quick. The criteria are complex and their interactions are even more complex. However, the criteria do signal an intent to change the way in which decisions are made, about expectations and about practices. Such a change, over time, will greatly benefit teachers and students.

Implementation Activities

A scientific/business perspective can be applied at the federal, state, and local level. The National Center to Improve the Tools of Educators is prepared to help interested parties carry out such activities.

Federal Level

- **National curriculum standards (policy initiative).** National curriculum standards committees should specify learning outcomes related to specific content to be taught and should not specify how that content is to be taught.

- **Educational research (legislative).** A knowledge infrastructure should be developed, possibly following the lead of medicine. The institutions responsible for the knowledge infrastructure of medicine and education are compared in Figure 1.

At the federal level, the U.S. Department of Education funds ten regional educational labs, which have great latitude in deciding how they spend their funds, and a national Program Effectiveness Panel, which evaluates proposals seeking validation as being effective. While these educational institutions could serve functions analogous to those of the National Institutes of Health and the Food and Drug Administration, they

<u>Function</u>	<u>Medicine</u>	<u>Education</u>
Identifies problems	Center for Disease Control	National Center for Educational Statistics
Fund the evaluation of possible solutions	National Institutes of Health	Regional Educational Laboratories and Centers
	All potential solutions must eventually be evaluated.	Only solutions of interest to researchers are subjected to extensive research.
Carry out research on possible solutions	Research universities and companies	Research universities and companies
Evaluates solutions to determine effectiveness	Food and Drug Administration	Federal DOE Program Effectiveness Panel
	Evaluates all proposed solutions before they are endorsed and disseminated.	Submission of solutions is optional. Dissemination is possible without either an evaluation or an endorsement.

Figure 1. Analogous functions of organizations in medicine and education.

do not. The federal research apparatus is not doing an adequate job of promoting the development of educational tools and practices that meet the accountability criteria. Moreover, the meager information that exists on effectiveness is usually not made available to educators, let alone used in the selection of educational tools. Minimal changes in legislation for the ten regional educational laboratories would enable them to take on a role analogous to the National Institutes of Health.

State Level

- **Education legislation (legislative).** The educational accountability criteria can be incorporated in legislation. For example, new educational initiatives would have to include disclosure for all six criteria. The disclosures would be considered by legislatures before enacting a particular initiative and by departments of education in preparing regulations.

- **Education agencies (policy initiative).** In the absence of legislation, departments of education, state textbook commissions, and state boards of education could be lobbied to apply the educational accountability criteria in the evaluation of educational policy issues that are directed toward student learning.

- **Organizations interested in education, such as state educational administration groups, interested business groups, etc. (policy initiative).** Coalitions could be formed to support the implementation of the accountability criteria in legislation and policies of education agencies. One form of support might be a scientific advisory panel to assist in interpreting and synthesizing relevant research.

Local Level

- **District administrative and board policy (policy initiative).** School boards can be encouraged to operate according to the educational accountability criteria in a functional and effective manner.

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Beginning Reading for At-Risk Students: An International Perspective¹

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American educators often forget the context in which innovations for at-risk students are considered. For beginning reading, the context is particularly important—broadened by the research base, yet narrowed by the fact that beginning reading is an issue in many other languages, including those with different alphabets.

The extensive and long-running research program on beginning reading with the English language is usually taken for granted, and sometimes ignored. For example, the recommendations and mandates for using a whole language approach to beginning reading for at-risk students (e.g., California State Department of Education, 1988) seem at odds with most reviews of the research, e.g., Stahl and Miller's (1989):

It appears clear from the reviews of Adams (1990), Anderson et al. (1985), Chall (1983), and others, that children need to go through intermediate stages of mastering word recognition abilities to better develop the reading abilities necessary to read good quality literature with enjoyment and understanding. These intermediate states appear to be better served with direct and systematic phonics instruction (p. 109).

Regardless of one's position on how to organize and conduct beginning reading instruction (Adams, 1991; Altwerger, Edelsky, & Flores, 1987; Goodman, 1986; Mather, 1992; and Perfetti, 1991), English language educators here and in other countries (Byrne, Freebody, & Gates, 1992; Goswami & Mead, 1992) have at their disposal a substantial body of research to refer to and to debate about. For example, one line of research points to the importance of developing proficiency in reading as early as first grade (Juel, Griffith, & Gough, 1986; Juel, 1988) as well as by

fourth grade (Stanovich, 1986). In fact, Juel (1988) reported that a poor reader in first grade has a likelihood of almost 90% of being a poor reader at the end of fourth grade.

The purpose of this article is to briefly sample the status of reading research and the findings for at-risk students in non-English speaking countries. The selection of countries was neither systematic nor extensive. Of the two countries selected, Israel has a modest program of research, while India is just beginning to organize and implement research on beginning reading for at-risk students. These overviews contrast the research bases that are available to educators grappling with beginning reading for at-risk students. The contrasts point out the constraints of limited research findings in making decisions about innovations to enhance beginning reading. The overviews are also suggestive in how research on beginning reading in other languages aligns with findings based on the English language.

Beginning Reading Instruction and At-Risk Children in Israel

*To the memory of our esteemed colleague, the late
Professor Dina Fietelson*

In Israel, formal reading instruction begins at age six when children are introduced to the vowelized form of Hebrew writing.² Hebrew, which is read from right to left, exists in both vowelized and unvowelized forms. With the exception of sacred texts and poetry, almost all books, magazines, and newspapers are printed in unvowelized Hebrew, which consists of a (primarily) consonantal alphabet of 22 letters. In vowelized script, the vowels are represented by diacritical marks (dots and dashes) inserted under, above, or between letters. Vowelized Hebrew has almost perfect one-to-one letter-sound correspondence (Navon & Shimron, 1984), and probably for this reason, most children master

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decoding well within the first year of schooling (Feitelson, 1989). This tends to confirm research undertaken overseas (e.g., Venezky, 1973; Thorstad, 1991) indicating that more "transparent" or regular scripts are acquired more rapidly. Only later, around grade 3, are children gradually exposed to unvowelized texts.

According to Feitelson (1973), the establishment of the modern state of Israel in 1948 saw the abandonment of the traditional "alphabetic" method of learning to read (reciting letter names before reading words aloud) employed for centuries in orthodox Jewish communities in favor of a naturalistic, "center-of-interest" approach based on the visual recognition of whole words and phrases focused on a child's own interests. This method, which borrowed heavily from prevailing North American views about reading instruction, actively discouraged the teaching of word-attack skills. According to Feitelson (1973), most children learned to read without undue difficulty. However, with the massive influx of Jews with little formal education from Arab countries in the early 1950s, reading failure grew to crisis proportions and led to a government-sponsored inquiry. This investigation found major differences between classrooms in immigrant areas in the proportion of children failing and furthermore attributed these differences mainly to teaching methods. "Successful" classes had diverged from accepted "center-of-interest" practices and were engaging in explicit teaching of symbol-sound relationships. In addition, many children from well-educated homes were being supplied at home with the symbol-sound knowledge absent at school. As a result of these findings, a new generation of structured, sequential, code-emphasis programs rapidly became the norm. Follow-up standardized testing indicated that the change in method had largely eliminated mass reading failure (Feitelson, 1973).

Although explicit, code-emphasis instruction remains the dominant approach today, there exists a wide variety of programs of initial reading instruction. According to a recent national survey (Spector et al., 1990), approximately 40 different instructional methods are presently being used in Hebrew-language schools in Israel. Six of these methods have earned a prominent place in the educational scene and are used by at least 80% of the first-grade teachers. The most widely used program is a basal called "*No Secrets*" employed by approximately 48% of elementary schools in the Jewish sector. *No Secrets* is primarily phonic with whole-word and meaning-emphasis instruction playing secondary but significant roles. An additional 37% of children are taught by means of five major programs ranging from heavily

phonic to whole-language approaches. The remaining 15% share approximately thirty additional reading programs. Subjective teacher ratings of the effectiveness of the most popular beginning reading methods indicated that pupils exposed to systematic phonics instruction acquired reading faster than students learning in a whole-language environment (Spector, Katz, & Yaacov, 1990). Unfortunately, no objective measures of reading were available to validate these findings. Neither were data reported regarding the level of achievement of disadvantaged children enrolled in the various programs. However, there are several unpublished research dissertations that have explicitly addressed the efficacy of different instructional methods for disadvantaged children.

One such study undertaken at Ben-Gurion University by Tov-Li (1990) compared two instructional approaches, whole language and explicit phonics, in a sample of 523 pupils who had been selected as either advantaged or disadvantaged. At the end of second grade, the disadvantaged children who had been taught via the phonics method showed better reading comprehension than disadvantaged children taught via the whole-language approach. Conversely, the advantaged children in the whole language classes obtained superior reading comprehension compared to advantaged children taught via phonics. (For similar aptitude-treatment interactions in English, see, for example, Freebody and Tirre, 1985.) By fourth grade, however, disadvantaged children taught via the whole-language method were superior to their phonics-trained peers on several qualitative measures related to love of reading and quality of written expression, although there were no significant differences on a standardized measure of reading comprehension.

Another graduate dissertation recently completed at the University of Haifa compared whole-language versus explicit phonics methods in a sample of 150 disadvantaged children. By the end of grade one, children taught via the phonics method outscored their whole-language peers by a factor of three on both word recognition and text comprehension. In fact, many children in the whole language group were quite unable to read unfamiliar text even at the end of the school year. Differences in reading comprehension remained highly significant when children were retested a year later at the end of second grade.

These dissertations, taken together with the earlier work of Feitelson and the survey by Spector et al., paint a fairly coherent picture—low-aptitude/disadvantaged children tend to be penalized, at least in the early grades, by unstructured, meaning-emphasis programs that avoid explicit teaching of the alphabetic code.

This general conclusion is also consistent with research in the English language (Adams, 1990; Chall, 1983). Nonetheless, in view of the notorious difficulties associated with conducting rigorous research in classroom settings and the small number of Israeli studies, conclusions must be considered tentative at best. In contrast to the United States, there has been no systematic, nationwide attempt to evaluate differences between programs of initial reading instruction, such as the USOE Cooperative Research Program in First Grade Reading Instruction. With new reading programs being introduced into schools, this means that children routinely embark on learning "adventures" with materials and methods which have not been systematically evaluated.

Allied to the work on instructional method comparisons is some important research conducted recently on the early prevention of reading failure. There are now a growing number of studies showing that pre-school phonemic awareness is a significant predictor of later reading ability in Hebrew (e.g., Kozminsky & Kozminsky, 1990). A landmark study by Bentin and Leshem (in press) has demonstrated a causal link between pre-school phonemic awareness and later decoding skill. Preschoolers with poor phonemic awareness were randomly allocated to a control group and two experimental groups (phonemic awareness, only, and phonemic awareness plus letter-sound knowledge). Children were trained over a series of sessions in the final months of kindergarten. Follow-up testing at the end of grade one revealed dramatic and highly significant gains for both experimental groups. If replicated, this work suggests that phonemic awareness has an important role to play in learning to read both regular scripts (such as vowelized Hebrew) and irregular scripts (such as English). To our knowledge, there has been no systematic attempt to incorporate phonemic awareness training into either pre-school or first-grade reading curricula.

Despite abundant research evidence both in Israel and abroad, several dubious practices still exist in many Israeli schools. Classroom libraries are still not universal (Feitelson, 1989). Unacceptably large first grade classes (typically 35 to 40 children) are directed by unassisted teachers with individualized one-to-one assistance available only to a fortunate few. A nation-wide program of early identification and individualized remediation for struggling first graders (such as New Zealand's Reading Recovery, Clay, 1985) remains a teacher's dream.

Beginning Reading Instruction and At-Risk Children in India

Poor attainment of literacy skills is a widely recognized problem associated with schooling in India. The

national rates for drop out and stagnation are phenomenally high. Studies on children who do continue to remain in schools have consistently shown that a large percentage of them do not learn to read and write by the end of grade four or even five (Mistry & Mohite, 1982; Kaur, Limdi, Rozario, & Maheshwari, 1992). Such is the case irrespective of the geographic location of the sample, when the children under study attend the government aided/run public schools. The story is somewhat different and positive for a small proportion of children attending expensive private schools. But for a large majority of children in the public school system, school is not associated with success.

Reading is construed very narrowly in most Indian schools. Teachers are not trained in the teaching of reading. Children are generally taught the alphabet, that is, individual letters, their sounds, and words that can be formed with these letters in the initial position. Over-learning of basic units is emphasized—both in terms of the recognition of symbols and the formation of letters. The debate between the top-down and bottom-up approaches which raged in the West in the 1960s-70s has never been an issue in India. To our knowledge, there is no research investigating the advantages of using one approach to reading instruction over the other.

Since the mid-1980s, the first grade textbooks have been modified. The letters are now grouped together in terms of their visual similarity and taught in clusters, instead of being organized traditionally, which was based largely on the similarity of sounds between the letters.

Children are expected to learn three languages by the time they complete eight years of schooling, which creates confusion for many children. Concern about the grades at which different languages should be introduced in school has been raised and debated frequently by education policymakers.

Concern for poor achievement in general has been raised consistently since the political independence of India in 1947, and one can hear frequent pleas from educationalist and administrators for improving the quality of education. However, concern for better teaching of reading in particular is of relatively recent origin. One of the first organized attempts to address the issue of improving reading instruction was the Reading Project launched by the National Council of Educational Research and Training (NCERT), New Delhi, in the early 1960s (Oommen, 1973). NCERT is an apex advisory body which plays a leadership role in research and personnel preparation in the area of school education in India. The Reading Project resulted in the preparation of a number of instructional materials, a reading readiness test battery in Hindi (the national language of India), and a book of readings (NCERT, 1966).

Another major project which included assessment of reading skills was the Developmental Norms project of NCERT, initiated in the late 1960s (1969-78). A total of 7,000 children from first, second, and fifth grades were tested on a variety of tasks in their multicentric study conducted in several rural, urban, and industrial areas. The results revealed a dismal picture vis-a-vis reading skills of elementary school children, although this was not the focus of the study and has not been discussed by the authors of the core study (Malani, Muralidharan, & Bevli, n.d.). Despite geographic and other variations, it is evident that children were not learning to read and write at the expected levels for any of the grades.

Barring the two projects cited above, there has been very little activity on the reading research scene. Chinna Oommen reported in 1973 that the research in reading was meager. The statement holds true even today. There may be several reasons for this state of affairs:

- Although educationalists and policymakers realize the importance of reading skills for success in school and in later life (at least in urban areas), reading is not studied intensely by any group of researchers—be it educationalists, special educationalists, educational psychologists, or child development specialists. There is no independent discipline of reading.
- Teachers are not trained in the theory or practice of teaching reading. Teacher education is organized in terms of the school curriculum (content) areas. Thus, teachers are trained to be teachers of English or Hindi or any other language, math, science, or social studies, etc., but nobody is trained to teach the skills of reading and writing.
- As is widely known, India is a land of a multitude of languages (see Oommen, 1973, for details). The available research may generally pertain to only one language. Concurrent or parallel reading research studies in several languages, taking into account the specific features of different scripts, have been non-existent until very recently. The language barrier thus interferes with the generalization of findings and the dissemination of the available information.

The above points notwithstanding, reading has not totally escaped the attention of researchers. The focus of research, though, has not been on the teaching and learning of reading. For example, linguists have concentrated their efforts on the structure/grammar of various Indian languages. Several studies contrasting the features of different languages

have been conducted, which have an indirect relevance for reading. Educational psychologists have used reading as a "status" variable—a sample descriptor—resulting in a number of studies which compare the characteristics of "good" and "poor" readers, such as intelligence, creativity, personality characteristics, socio-economic or caste affiliation, and so on. Developmental psychologists and child development specialists have exerted considerable effort in studying the reading interests of school-age children, and recently the relationship between reading and television viewing. However, research explicitly investigating the process of reading or reading acquisition methods of instruction and the relationship between the distinctive features of various Indian languages and reading has been virtually absent until the mid-1980s.

Recent Research and Policy Initiatives

The issue of improving the quality of schooling gained fresh momentum in the mid-1980s when the new National Policy of Education was adopted by the Government of India in 1986. For the first time, the policy document was followed by the framing of an elaborate Program of Action (Government of India, 1986), and the enunciation of the Minimal Levels of Learning (MLL) at each grade for each content area, including reading (NCERT, 1988). In addition, the plan also emphasized the need for providing special education to children in seven categories of handicapping conditions, including learning disabilities.

However, the teacher-training, school curricula, and the school organization have not undergone any substantial changes so far to keep pace with the policy provisions. In order to provide appropriate instruction in reading and writing, the acquisitions of these skills in the context of the demands of teaching-learning situations, methods of instruction, and the features of the concerned language must be studied.

In the 1980s, a group of psychologists initiated an investigation into the relationship between metalinguistic awareness and reading in Oriya, the official language of the state of Orissa in eastern India (Prakash & Mohanty, 1987). Prakash, Rekha, Nigam and Karanth (in press) have reported a series of recent studies on metalinguistic awareness and reading in Kannada and Hindi. Their results consistently indicate that literacy in non-alphabetic Indian scripts is not related to phonemic awareness, a finding contrary to that reported for English. The authors attribute the difference to the unique semi-syllabic nature of the Indian scripts. Earlier, similar

findings were reported with reference to another Indian language, Oriya (Parakash & Mohanty, 1989).

In the southern state of Karnataka, researchers have been investigating the distinctive features of Kannada, the official language of Karnataka, and dyslexia and the reading performance of average children and adults, (Karanth, 1981, 1985).

Karanth and her colleagues are at present investigating the relationship between phonemic awareness and reading acquisition in a longitudinal study of kindergarten and first grade children learning to read Kannada (Karanth, July 13, 1992, personal communication).

In 1990, a multilingual project was initiated to address the questions of how children acquire the skills of reading and writing in Indian languages. The project is partly funded by the International Development Research Council of Canada, under a Human Development and Family Studies Research Network at the M.S. University of Baroda, Baroda, India. Using the technique of error pattern analysis, acquisition of reading is being investigated in a series of studies in five Indian languages—Hindi, Gujarati, Marathi, Asamese, and Punjabi. First to fourth grade children with a wide range of language proficiency were administered a battery of tests consisting of component skills like visual matching, visual memory, auditory-visual correspondence, and reading of connected language as well as copying, dictation, and spontaneous writing. Data were collected towards the end of the school year. All the languages under study are Indo-Aryan languages (Oommen, 1973), with Asamese being least similar to the remaining four. All Indian languages have evolved from "Brahmi," an ancient Indian writing system, and follow the same basic principles of writing. Indian scripts can neither be classified as syllabaries nor as alphabetic. (For detailed information on the Indian writing system, see Karanth, 1985; Patel & Soper, 1987). The reading tests were specifically developed, based on the characteristics of each language and the prescribed school curricula. Work in different languages is at varied stages of progress. Some preliminary findings relevant to reading are summarized below.

- Visual discrimination of the written symbols did not pose difficulties. Most of the children were able to visually discriminate all the consonants and vowels by the end of first grade.
- Barring a few exceptions, such as [~t] and its voiced counterpart [d] and [s] and [ʃ] in Gujarati, or [d] and [ɹ] in Hindi, letter-sound correspondence was mastered by a majority of the second graders.
- Consonants having visual as well as auditory similarity posed most difficulties for the beginning readers.

In Marathi, Hindi, and Gujarati, a distinctive feature which is marked "within the general contour" of a grapheme, increasing the intra-graphemic complexity, was hard for children to distinguish, e.g., in Gujarati, a diagonal stroke through the body of the symbol of [d] S makes [k] S. Children even until third grade confused these two symbols frequently. On the other hand, a stroke at the bottom of [k] S distinguishes it from [ph] S. Children had no difficulty in telling these two symbols apart. It is possible that the difference in the overall configuration in the latter pair [d] / [k] may have facilitated their recognition. Such a cue is not available for the former pair S / S.

The analysis of the data is under progress. It is hoped that more research into the reading process and skills will be undertaken in the near future. Such research can inform the teaching-learning practice by delineating those aspects of the script which present difficulties for beginning learners and thus need modified strategies of teaching. The findings of the research in Gujarati language are at present being used in working with children facing learning difficulties in coping with regular classrooms, at Baroda. A teacher's manual informing them of the nature of problems in Gujarati and Hindi is under preparation. Hopefully, the increased interest in ensuring education for all will lead to more research in reading and the teaching of reading in India.

Conclusion

This limited international sample of research on beginning reading with at-risk students allows no definitive conclusions. However, the findings for beginning reading in Israel with Hebrew are roughly in accord with those in the U.S. with English, both in terms of previous research on the importance of systematic phonics instruction and more recent research on phonemic awareness. Moreover, the research in Israel as well as the emerging research in India points to the regularity of sound symbol correspondences as a determinant of difficulty of learning to read for many at-risk students. The continuum of depth and breadth in research on beginning reading, ranging from the U.S. to Israel to India, should sensitize reading educators to the value of research in helping to understand the causes of reading failure and to evaluate alternative approaches to preventing and remedying such failure.

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² Israel has two official languages, Hebrew and Arabic, with the Ministry of Education maintaining kindergartens and schools in both languages. Like its Semitic cousin, Arabic is first taught in vowelized form. The most common method of teaching reading, even today, is the alphabetic method. Although we are not aware of any research on reading instruction in Israel's Arab sector, an important study by Iraqi (1991) found that a major problem in initial reading is the profound difference between literary Arabic (FusHa) and spoken Arabic (Aamiyya). According to Iraqi, this problem is general and unrelated to socio-economic factors. An intervention study by Feitelson, Goldstein, Iraqi and Share (in press) reports an effective preschool program for introducing children to literary Arabic.

Conference and Workshop Calendar

Behavior Institute 1993 (Randy Sprick, Hill Walker, George Sugai, Geoff Colvin) ***June 17-18***
Eugene, Oregon
To receive a brochure or further information call 1-800-241-2888

Atlantic Coast ADI Conference ***July 19-22***
Rehoboth Beach, Delaware
To receive a brochure or further information contact: Ellen Packman at (302) 645-2345

Eugene ADI Conference "WORKING WITH WHAT WORKS" ***July 26-30***
Eugene, Oregon
To receive a brochure or further information call 1-800-995-2464

19th Annual Carmel DI Conference ***October 28-29***
Carmel, California

Wisconsin Summer Conference on Direct Instruction ***August 11-13***
Madison, Wisconsin

19th Annual Carmel DI Conference

When: October 28 & 29

Where: Carmel, California

For further information contact:

Wes Robb

SRA

6527 N. Colonial Avenue

Fresno, CA 93704

or Call 1-800-457-8390 (CA or NV)

Wisconsin Summer Conference on Direct Instruction

When: August 11-13

Where: Memorial Union on the campus of the University of Wisconsin, Madison

Keynote Address: Ed Kameenui,

Associate Dean, Division of Learning and Instructional Leadership

University of Oregon

For further information contact:

Sara Tarver

University of Wisconsin

432 N. Murray Street

Madison, Wisconsin

Phone: (608)-263-5701 or 5860

Eugene ADI Conference Highlights

Educators in public schools today face enormous pressures to include all students in the regular classroom, regardless of disabilities and functioning levels. At the same time teachers are expected to raise academic achievement levels. Incidents of serious problem behavior are spiraling, and funding for schools is shrinking. In addition, teachers are required to introduce more curricula and experiment with new models. Is the task of educating our students insurmountable? Maybe not.

The Association for Direct Instruction believes that we *can* effectively teach all students, and this year's conference is designed to give educators specifics on how to accomplish this important goal. We offer a wide variety of workshops sessions on effective academic curricula, teaching strategies, and related content areas that have been thoroughly researched and extensively implemented in schools and classrooms. We proudly present a conference for educators with the theme:

"WORKING WITH WHAT WORKS"

KEYNOTES...

Monday, July 26 (Opening)

What's Worse: An Evil Conspiracy or a Very Bad Accident?

Bob Dixon – Research Scientist, Washington Research Institute & University of Oregon

Tuesday, July 27

Sacrosanctity vs. Science

Bernadette Kelly – Research Associate, University of Oregon

Wednesday, July 28

Direct Instruction, Higher Order Thinking Skills and a lot more

Zig Engelmann – Professor, University of Oregon

Thursday, July 29

How Do You Know?

John Lloyd – Associate Professor, University of Virginia

Friday, July 30 (Closing)

Success—Kids Aren't the Only Winners

Zig Engelmann

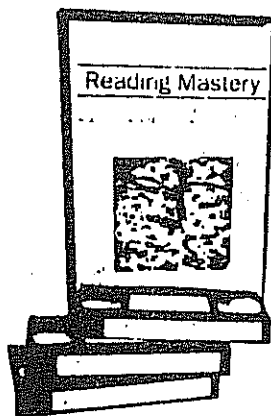
This year's conference is organized around specific interest tracks. The tracks are designed to provide information and training in areas directly related to conference participants' job responsibilities and interests. For example, the Behavior track is designed around the needs of behavior specialists; the Upper Level track provides information and training for teachers of students in grades 6-12, and the Remedial/Chapter 1 track focuses on teaching student in special education and remedial settings. Participants should identify the track that best describes their position and choose from the sessions within the corresponding track. Tracks are designed to assist you in selecting appropriate sessions; however, please feel free to choose any session of interest.

Status	Conference Fee
Non-Member	\$195.00
ADI Members	\$156.00
Student Members	\$117.00
Group rate	will vary (call) 1-800-995-2464

Interest Areas

Sessions	Elementary	Upper Level	Remedial/ Chapter 1	Administrators	Supervisors	Behavior Specialists	New to D.I.	Parents
Corrective Reading			✓					
Solutions to Classroom Discipline Problems			✓	✓		✓	✓	
Reading Mastery I, II & Fast-Cycle	✓							
Adapting Content Area Curriculum for Low Performers	✓	✓		✓			✓	
Supervision				✓	✓			
Reasoning and Writing C-E and Expressive Writing	✓	✓	✓				✓	
Teach Your Child to Read in 100 Easy Lessons								✓
Reading Mastery III-VI	✓	✓						
Steps to Managing Serious Acting-Out Behavior			✓	✓		✓		
Seminar for Administrators: Building Effective Schools				✓				
Evaluation of Curriculum Materials for Use with Mainstreamed/At-Risk Learners	✓			✓	✓			
Introduction to D. I. Techniques							✓	
Advanced Teaching Techniques	✓	✓	✓	✓	✓			
Advanced and Corrective Math	✓	✓						
Conducting Training on D.I. Programs				✓	✓			
Connecting Math Concepts A & B	✓						✓	
Effective Spelling Instruction	✓	✓	✓					
Reasoning and Writing A & B	✓		✓				✓	
Consultation				✓	✓			
Integrated Middle School Model		✓		✓				
Connecting Math Concepts C-E	✓						✓	
Teaching Self-Management			✓			✓		
The Practices and Politics of Beginning Reading	✓			✓				✓
Supplemental and Transitional Activities	✓		✓					
Curriculum-Based Measurement & D. I.	✓	✓	✓	✓				
Systems for At-Risk and Special Needs Students			✓			✓		
Addressing Unique Needs			✓	✓	✓			
D. I. and Higher-Order Thinking Skills	✓	✓	✓	✓	✓	✓	✓	✓
Skills for School Success		✓	✓					
Overview of Reasoning & Writing	✓	✓		✓	✓		✓	
Achieving School Reform	✓	✓	✓	✓	✓	✓	✓	✓
Instructional Approach for Managing Problem Behavior			✓	✓		✓		
Overview of Connecting Math Concepts	✓	✓		✓	✓		✓	

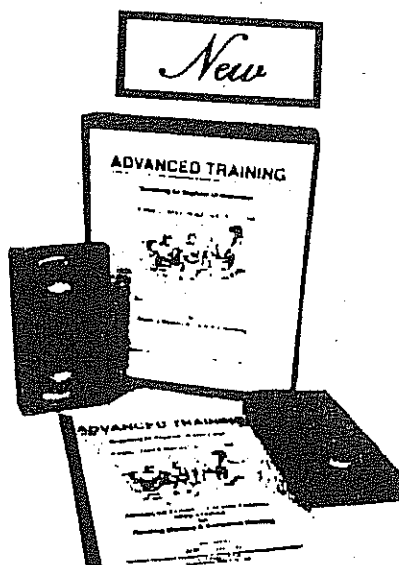
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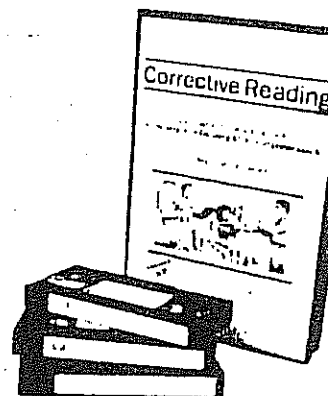
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The program's objectives match and exceed data skills objectives for grades 4 through 7 currently addressed in: (1) current mathematics textbooks, (2) standardized tests, and (3) the National Teachers of Mathematics (NCTM) Standards.

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The program makes extensive use of real-world data in an interdisciplinary context. Students in the program work independently and in small groups to interpret, gather, describe, and display data. The program contains 15 lessons, comparable to the number of lessons in most textbook series. Each lesson requires approximately 30 to 40 minutes a day.

Research Base:

The Problem-Solving program was designed according to research-based principles of instruction, with careful attention to the details of instructional design. Extensive field-testing validated the effectiveness of the instructional design.

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Presents...

The Oregon Behavior Institute 1993—Addressing Problem Behavior in Public Schools

When: June 17 & 18, 1993
Where: Eugene Hilton Hotel & Conference Center
Featuring: Randy Sprick, Hill Walker, George Sugai, and Geoff Colvin

What the Oregon Behavior Institute Offers:

The Oregon Behavior Institute is designed to provide comprehensive training for a school building team to effect change on a school-wide basis. The teams can expect information and training on:

- Positive, proactive approaches for managing behavior;
- A staff development system that results in substantial and durable changes in staff behavior;
- A school-wide behavior management plan that integrates assessment, prevention and remediation of problem behavior, and targets school-wide settings, classrooms, and individual students;
- A building team model that functions as an ongoing staff catalyst to implement, maintain and revise their school behavior management plan.

For an Institute brochure or further information contact
Charlene Tolles at 1-800-241-2888 or write to:
Behavior Associates, P. O. Box 5633, Eugene, OR 97405

ADI MATERIALS PRICE LIST

Theory of Instruction (1991)

by Siegfried Engelmann & Douglas Carnine

Membership Price: \$32.00

List Price: \$40.00

Direct Instruction Reading (Revised, 1990)

by Douglas Carnine, Jerry Silbert, & Ed Kameenui

Membership Price: \$32.00

List Price: \$40.00

Direct Instruction Mathematics (Revised, 1990)

by Jerry Silbert, Douglas Carnine, & Marcy Stein

Membership Price: \$32.00

List Price: \$40.00

Teach Your Child to Read in 100 Easy Lessons (1983)

by Siegfried Engelmann, Phyllis Haddox, & Elaine Bruner

Membership Price: \$15.00

List Price: \$19.00

Structuring Classrooms for Academic Success (1983)

by Stan Paine, J. Radicchi, L. Rosellini, L. Deutchman, & C. Darch

Membership Price: \$11.00

List Price: \$14.00

War Against the Schools' Academic Child Abuse (1992)

by Siegfried Engelmann

Membership Price: \$14.95

List Price: \$17.95

Becoming a Nation of Readers (1985)

The Report of the Commission on Reading

Membership Price: \$4.00

List Price: \$5.00

Beginning to Read: Thinking and Learning About Print (1990)

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Total

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Join the Association for Direct Instruction

The Association for Direct Instruction is a non-profit organization dedicated to dissemination of information on effective, research-proven practices for schools. ADI publishes a quarterly magazine *Effective School Practices* featuring research from the field, implementation descriptions from schools around the world, and expert, easy-to-understand answers to questions about the problems school personnel face in teaching, supervising or administering every day. ADI also sponsors workshops, publishes books, and markets other products that are available to members at a discount.

Please consider becoming a sustaining member. ADI is increasing its efforts to promote the use of proven practices in schools and your contributions will help.

- ☐ \$20 Regular member (includes one year of *Effective School Practices* and a 20% discount on ADI sponsored events and publications sold by ADI).
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