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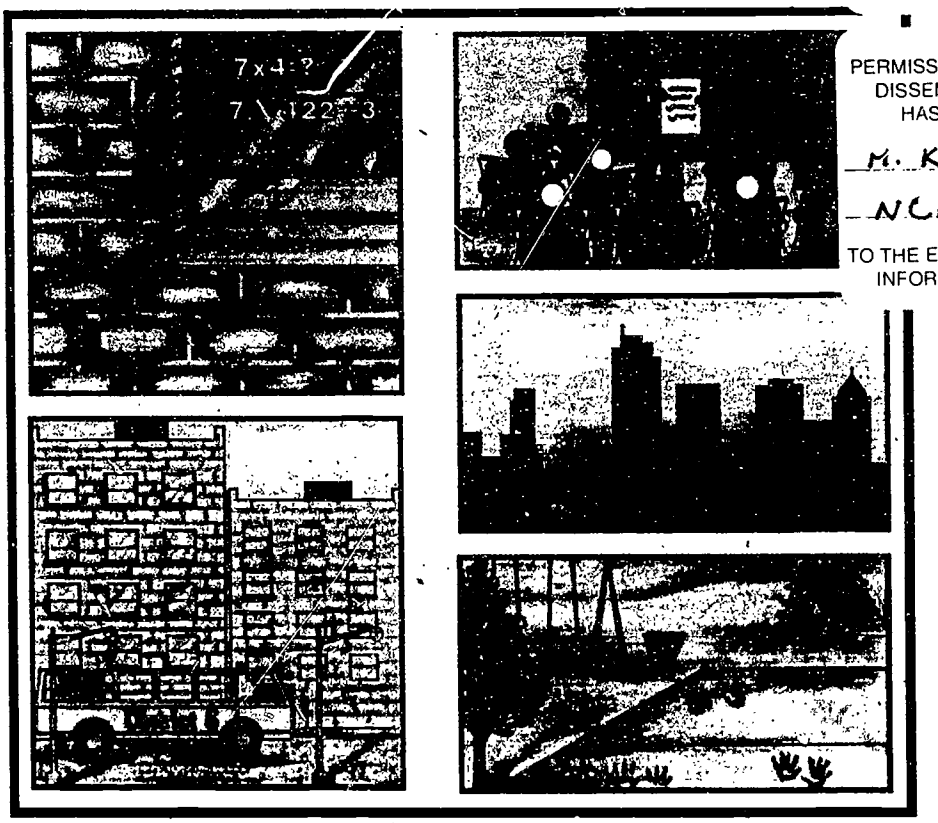
ABSTRACT

This monograph explores strategies and programs that use both traditional and emerging resources for educating at-risk students. In general, schools have responded to student diversity with various systems of sorting and selecting students into more homogeneous learning groups. Ability grouping and tracking exemplify this approach. Retention, or holding students back, and tracking have been typical responses to the challenge of educating low-achieving students. Special education and Chapter 1 pull-out programs have also been used to address student diversity. Current and emerging strategies begin with changes to the Chapter 1 program that allow more flexibility in the use of its federal funds. Early intervention programs and multicultural education are contemporary approaches that are finding favor. Changes in curriculum and instruction are proving beneficial for disadvantaged students, as are approaches such as providing mentors, role models, peer support, tutoring, and access to educational technology. Changes in assessment are aimed at student motivation, and a number of organizational strategies are being used to improve educational equality. Parent, community, and school partnerships provide hope for continued improvement in educating at-risk students. (Contains 70 references.) (SLD)

Urban Monograph Series

Rising to the Challenge: *Emerging Strategies for Educating Youth At Risk*

URBAN EDUCATION PROGRAM



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Sincerely,

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Director, Urban Education

Rising to the Challenge: Emerging Strategies for Educating Youth At Risk

By Nettie Legters and Edward L. McDill

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What can be done to effectively engage and educate students who are at risk of low achievement, failure, and eventually dropping out of school? What can be done for students who perform reasonably well but whose educational programs provide them with substandard or limited educational opportunities and experiences, leaving them at a disadvantage as they move on to college or work? These questions have been a central concern of many educators over the past three decades and have given rise to a vast number of compensatory programs designed to provide extra help to chronic underachievers and equalize distribution of educational resources and opportunities.

In this chapter, we examine a sample of strategies and programs that outline the terrain of both traditional and emerging resources to the challenge of educating at-risk students (see also Natriello, McDill, & Pallas, 1990; Slavin, Karweit, & Madden, 1989). We begin with a brief look at the ways schools traditionally have addressed academic and socioeconomic student diversity. We then turn to an overview of current and emerging strategies and programs that appear to hold particular promise for educating youths who are at risk. Finally, we raise some issues central to the success of any serious reform strategy.

Traditional Responses: Sorting and Selecting

One of the most enduring characteristics of public education in the United States is the socioeconomic and ethnic heterogeneity of its student body. In general, schools have responded to student diversity with various systems of sorting and selecting students into more homogeneous learning groups.

Grouping/Tracking

One of the most pervasive and controversial forms of instructional grouping is the placement of students in homogeneous learning groups within a grade, or even within a classroom, according to evaluations of their academic performance This long-standing and widespread practice is often called "ability grouping" at the elementary level and "tracking" at the high school level, where students can be separated into distinct academic,

general, and vocational streams—a structure that can have consequences not only in terms of the quality of education they receive but for peer group formation, likelihood of graduation, and future educational and employment opportunities.

Tracking, retention, special education, and Chapter 1 pull-out programs are primary ways in which schools have attempted over the years to respond to diversity and the needs of underachieving students. In practice, however, the research evidence available suggests that these strategies add few extra benefits and often may do more to limit than to increase learning opportunities.

There is a growing body of both qualitative and quantitative evidence, however, that suggests ability grouping and tracking, as currently practiced, are poor methods for dealing fairly and effectively with student diversity. Students from low-income and minority backgrounds are disproportionately represented in lower groups or tracks. Moreover, the less selective programs and lower-level classes are often stigmatized and likely to provide poor climates for learning, with lower expectations for student achievement (see, for example, Braddock, 1990; Oakes, 1992).

Retention

Like tracking, the practice of holding back students who fail to demonstrate required levels of achievement has also been a typical response to the challenge of educating low-achieving students. However, like tracking, the bulk of the research evidence shows that retention, as it is currently practiced in most schools, has few positive effects on student learning (see Shepard & Smith, 1989, for a collected review).

Special Education

One of the most important trends in recent years has been the substantial increase in the numbers of students with mild academic handicaps who are receiving special education services. Slavin (1989) points out the striking fact that, while the percentages of students categorized as physically disabled and mentally retarded have stayed at about the same levels from 1976 to 1989, the numbers of students categorized as learning disabled have increased by more than 250 percent. Reporting that almost 90 percent of this increase represents the entry into the special education system of low achievers who would not have been served in special education in the 1970s, he concludes that "special education has assumed a substantial burden in trying to meet the needs of students at risk of school failure," even though "research comparing students with mild academic handicaps in special education to similar students left in regular classrooms finds few benefits for this very expensive service" (pp. 15-16).

Chapter 1 Pull-Out Programs

The largest federal education program that provides extra help to students at risk of failure is the national Chapter 1 program. Chapter 1 began in 1965 as Title I of the Elementary and Secondary Education Act of 1965 (Public Law 89-10) and continues today as the primary source of funding for a wide range of academic and social programs serving over five million at-risk students nationwide. The most widespread delivery strategy of Chapter 1 services is the "pull-out" model, in which students who

are having difficulty in a particular subject typically are removed from their regular classrooms for 20 to 40 minutes a day to participate in subject-specific, small group remedial instruction (Slavin, 1989). However, Stein, Leinhardt, and Bickel (1989) cite several disadvantages to the pullout approach, and several evaluations of the program in the mid-1980s concluded that Chapter 1 programs displayed only modest positive effects on reading and math skills. In addition, these gains did little to close the gap between low-achieving students and their more advantaged peers, and students' progress was rarely sustained beyond two years after participation in the program (studies summarized in Natriello and co-authors, 1990, pp. 72-78).

Tracking, retention, special education, and Chapter 1 pull-out programs are primary ways in which schools have attempted over the years to respond to diversity and the needs of under-achieving students. In practice, however, the research evidence available suggests that these strategies add few extra benefits and often may do more to limit than to increase learning opportunities.

Current and Emerging Strategies

Changes in Chapter 1

The size and scope of Chapter 1 make the program an important bellwether for change in educational programs for youth at risk. One of the potentially most significant changes brought about by the 1988 Hawkins-Stafford amendments (Public Law 100-297) was the provision for greater flexibility in the coordination of program resources with the regular school program, by enabling schools with 75 percent or more students eligible for free lunch to use Chapter 1 funds for school-wide programs (LeTendre, 1991). There is both potential and challenge inherent in the school-wide project (SWP) approach, however. For example, teachers and principals report that the flexibility of the SWP enables them to create more effective learning environments for all students. At the same time, Winfield (1991) cautions that the success of the SWP option depends on adequate support for change at the central office or district level and on the availability of adequate resources for on-site assistance.

Few argue with the intent of the Hawkins-Stafford reauthorization to provide for greater flexibility in the use of Chapter 1 funds and encourage a focus on student outcomes. Few also would take issue with the way in which many schools are taking advantage of this flexibility. The program improvement mandates accompanying the bill, however, have been the subject of some criticism. Under the new program improvement requirements, schools that are not making sufficient progress toward bringing students up to grade-level performance must recast their programs so that they will produce measurable gains in student progress. On the face of it, this is a reasonable, even laudable goal. However, several researchers argue that the requirements may have a variety of negative effects, including potential for error in identifying schools "needing improvement," a feeling of being stigmatized among staff of those programs so identified, an evaluation model that encourages the use of standardized tests and gains measured in Normal Curve Equivalents (NCEs), possible greater incidence of retention in order to boost test scores, and an increased tendency by schools to focus on narrow instructional objectives that are easily measured (see, for example, Clayton, 1991).

Early Intervention

Early intervention programs, targeting very young children, are often regarded as the most cost-effective education interventions. These programs are designed to ensure that students enter and progress through school "ready to learn." Although the advantages of early intervention without follow-up programs in later grades may be overemphasized, early childhood programs can help provide a firmer foundation for later school success (Slavin, Karweit, & Wasik, 1992).

Preschool

Preschool and kindergarten environments that are developmentally appropriate and provide learning experiences that develop the child's language and symbolic competencies, can help all children enter school at higher levels of readiness. Head Start, created in 1965, was the first national program for preschoolers and remains one of the most well-known and popular federal initiatives. Since 1965, Head Start has served a total of 12.5 million children; in 1991 it received nearly $2 billion to operate approximately 1,350 projects serving over half a million children nationwide (U.S. Department of Health and Human Services, 1992).

The scientific basis of Head Start's effectiveness is somewhat arguable, however. In 1985, CSR, Inc. conducted a review/meta-analysis that synthesized results from more than 200 separate evaluations conducted over a 20-year period. They concluded that Head Start does show some statistically significant effects on students' cognitive and socioemotional development. However, the study reported a frequent "fade-out" effect whereby students' cognitive and affective gains disappeared by the end of the first year of regular school (McKey et al., 1985). At the time of this writing, the national Head Start office reports that another comprehensive evaluation of the Head Start program will be conducted in the near future.

Kindergarten

Nearly all children (98%) attend kindergarten. Researchers have studied both the organizational and curricular features of kindergarten programs to determine their effects on cognitive and affective outcomes in young children. Karweit's syntheses of the research literature in this area show modest evidence that full-day programs are more effective than half-day programs for students at risk, but show little evidence that extra year kindergarten programs provide extra benefits to children, at risk or otherwise (e.g., Karweit, 1992). She argues that more lasting effects on children do not come from adding time to the child's kindergarten experience, but rather are brought about by participation in learning environments that are both individually and developmentally appropriate and that develop the child's language competencies and understanding of the functions of written and print materials.

Karweit (1989) examined 21 validated kindergarten programs, seven of which are still active (KITE, TALK, CLIMB, STAMM, Early Prevention of School Failure, KINDERMATH, and the Kenosha Model). Karweit (1992) further describes five programs—KITE, Early Prevention of School Failure, Books and Beyond, Writing to Read, and Star. Of these, KITE (Kindergarten Integrated Thematic Experiences) is shown to produce the largest effects on students' reading and math. The program incorporates two well-evaluated programs, Astra's Magic Math and Alphaphonics, to provide students with a kindergarten day integrated around a theme that emphasizes language and cognitive, physical, and socioemotional development.

Success for All

Approaches in the elementary grades that deliver extra, intensive academic help to students when they most need it have been found to have substantial positive effects on students' mastery of reading skills and comprehension abilities (e.g., Madden, Slavin, Karweit, Dolan, & Wasik, 1991). Success for All, for example, is an elementary school restructuring program that takes advantage of the new option to use Chapter 1 funds for school-wide projects. The goal of the project is to do everything necessary to ensure that all students will perform at grade level in reading, writing, and mathematics by the end of third grade. Strategies used in the program include one-on-one tutoring, regrouping for reading, a family-support team, frequent assessments of learning with immediate help on problems, and individual academic plans for each student. At the time of this writing, the program has been implemented in 36 urban elementary schools that have high minority and low-income student populations. In a first year evaluation of Success for All, participating children outscored a matched control group on multiple measures of reading readiness and reading comprehension tests (Slavin et al., 1989). As is the case with all early childhood programs, however, follow-up studies that show how participating children fare in later school experiences are needed to determine whether such programs provide the "booster" shot needed to protect students against future school failure.

Multicultural Education

Multiculturalism has been the subject of enormous debate in recent years, with the idea of "multicultural education" most often associated with specific changes in curriculum. Proponents decry the Anglo-centric bias of traditional learning materials and argue for the integration of more diverse, positive images, historical role models, and, in general, a more balanced view of history that represents the experiences and perspectives of marginalized groups. Critics of multiculturalism view the kind of curricula being proposed as potentially divisive and even "anti-American" because they encourage students to seek their primary identity in a particular ethnic group rather than in a united American culture (e.g., Schlesinger, 1991). A slightly different version of such criticism is found in Ravitch (1991-92), who distinguishes between "pluralistic" and "particularistic" multiculturalism and argues for the former, which should result in a curriculum that reflects both multiculturalism and the common culture—"the pluribus and the unum" (p. 11).

Preschool and kindergarten environments that are developmentally appropriate and provide learning experiences that develop the child's language and symbolic competencies, can help all children enter school at higher levels of readiness.

While the public attention to multiculturalism has focused on balancing curriculum content, Gottfredson, Nettles, and McHugh (1992), in their first report of their evaluation of Pittsburgh's Prospect Middle School's Multicultural Education Center, outline four additional elements of multicultural education: (1) personal development and interpersonal relations of students; (2) fair and effective approaches to individual differences in learning styles that are believed to be linked to cultural influences; (3) multicultural representation in the entire school environment, including staffing; and (4) equal opportunity to learn for all groups. Prospect has adopted a multicultural approach to restructuring that incorporates not

only a multicultural curriculum, but cooperative learning and conflict resolution techniques, staff development, parent and community involvement, and, notably, the elimination of tracking. Although a full program evaluation is not yet available, Prospect shows promise in meeting the substantial challenges facing its multicultural restructuring effort.

Another aspect of multicultural education is the issue of bilingual education, which also has been embroiled in controversy and debate since the passage of the federal Bilingual Education Act in 1968 (Public Law 90-247). The conflict can be seen in the general debate over whether bilingual education should be offered in schools as a tool to help minority students assimilate into the American mainstream or as a second-language acquisition that adds to the linguistic resources an individual already possesses (Hakuta & Pease-Alvarez, 1992). Specific examples of this conflict are found in the English-only movement versus the English-Plus coalition, and proposals for a bilingual immersion program in which "both language-majority and language-minority students learn each others' language while continuing to develop their own" (e.g., Cziko, 1992, p. 10).

Changes in Curriculum

The content, purpose, and organization of courses and activities shape every student's school experience. In addition to multicultural education efforts, other initiatives reject the special education model of offering more of the same content at a perhaps slower pace, by developing and offering a core curriculum that is high level, more engaging, and relevant. These efforts generally focus on developing content that relates to the student's current interests and life experiences or by combining vocational with academic tasks.

Real-World Learning

A number of curriculum projects that focus on real-world experiences for the learning content have been developed to engage students actively in the learning process. Examples range from the micro society school (Richmond, 1989) to experiential learning projects (e.g., Blumenfeld et al., 1991), from the Foxfire student publishing experience (Wigginton, 1989) to various community service programs (e.g., Nettles, 1991). At the same time, comprehensive plans are being pursued by major national groups to completely restructure the curriculum for active student learning of higher-order competencies through real-world applications in each major subject across the grades (Jackson, 1992). If all students are to benefit from these developments, resources must be available to implement ambitious curriculum changes in all schools, including those attended by poor and minority students and presently not adequately funded for instruction in the traditional curriculum.

Integration of Academic and Vocational Skills

Many middle and high school students are more motivated to work hard if they view classroom learning tasks as useful in the adult world of work. However, traditional vocational education has frequently been criticized as lacking sufficient academic content and failing to prepare students with well-defined marketable skills—problems that have a particularly strong impact on minority and lower-income students because they are disproportionately represented in vocational programs (Braddock, 1990).

Proposals for upgrading the quality of vocational education typically involve some variation of the thesis that programs must provide students with a combination of

essential academic skills, rigorous vocational training, and on-the-job experience Asserting that "learning to know and learning to do are linked," Bottoms and Presson (1989), for example, observe that "allowing students to use academic materials to perform 'real life' tasks or address 'real life' problems is appealing as a method for increasing students' motivation to learn higher level academic concepts in high school" (pp. 2-3). Considerable impetus for the integration of vocational and academic education has come from the reauthorization by Congress in 1990 of the Carl D. Perkins Vocational and Applied Technology Act (Public Law 101-476), which pressed states and local school districts to achieve such a merger. In an empirical survey, Grubb, Davis, and Lum (1991) studied more than 70 secondary schools around the United States and identified several different models for achieving this sort of integration. These models include merging of faculties and course content and creating academies or major programs within a school that focus on a general cluster of careers. Unfortunately, evaluation evidence of these programs is not generally available.

Changes in Instruction

Accompanying changes in curriculum, changes have occurred in the more traditional forms of instruction—that is, away from the passive teacher-lecture/student-listen mode of instruction to a more active arrangement of learning activities. Recent approaches suggest that effective "instruction" can take place within and outside of the classroom, and that a personal connection with a "teacher" can make a difference in whether a student succeeds or fails. Specific strategies include involving nontraditional teachers such as mentors and race/sex role models, adult and cross grade peer tutoring, and integrating technology as a tool for instruction.

Adults as Mentors or Advocates

A widely publicized approach to provide students with the support of a caring adult during the middle and high school grades is to use volunteers from the community as mentors or advocates. Although terminology differs in various programs, mentoring is commonly defined as a one-to-one relationship between an adult volunteer and a student who needs support for achieving academic or personal goals. Advocacy, on the other hand, is usually defined as a continuing set of relationships between an adult (volunteer or paid) and members of a group of students, in which the adult provides support and services by intervening on the students' behalf, monitoring participation in programs, or brokering additional services.

Research indicates that using outside adults as mentors or advocates can have modest positive effects on a limited range of student outcomes and that a well-designed program may help some students develop more positive attitudes toward school. The successful monitoring/advocacy relationship does require, however, continuing contacts (such as weekly face-to-face sessions), and these programs often have difficulty locating large enough numbers of adult volunteers who have the time and commitments to sustain relationships with students (McPartland & Nettles, 1991). Having school staff serve in mentor or advisor roles for middle and high school students overcomes the need to depend on outside volunteers and can increase the value of in-school relationships, but resource and scheduling issues are not always easily resolved. A frequent approach is to establish a homeroom-advisory period that meets several times each week to discuss a variety of school, character, and career topics in a group setting. However, recent analyses of data from a national survey of middle schools

found no clear evidence of positive effects on students' perceptions of teacher-student relations, suggesting that the typical homeroom-advisory period today may be similar to the traditional superficial homeroom period, which provided few new opportunities for contacts between individual students and a caring adult at the school (McPartland, 1992).

Race/Sex Role Models

The multiple and often serious challenges faced by young African American males, for example, in American society have prompted the development of various approaches to provide more positive role models for school-aged black male students (Ascher, 1991). These include African American male classroom teachers for elementary grade classrooms, mentoring programs using black male adults from the community, and peer tutoring approaches using older students to help young students of the same race and sex. These approaches have focused on various sex and ethnic groups and have been widely reported in the mass media (e.g., Butler, 1987; Hakuta & Pease-Alvarez, 1992; Tifft, 1990), but no careful research has assessed their impact on students.

Recent approaches suggest that effective "instruction" can take place within and outside of the classroom, and that a personal connection with a "teacher" can make a difference in whether a student succeeds or fails.

In spite of the lack of evaluation, there is reason to believe that adding positive race/sex role models may be important particularly to school-aged African American males (Fordham & Ogbu, 1986). Such programs have become the subject of controversy, however, because they often purposely segregate students by race and/or sex. Further, these programs are in some instances opposed by veteran civil rights organizations because they are believed to lead to tensions between black males and females and might provide support in the larger society for white supremacy advocates (e.g., NAACP Legal Defense and Education Fund, 1991).

Peer Support

A student's peer group will almost certainly be a powerful influence on attitudes and behaviors in school, since status and acceptance from others in the same age group become very important from early adolescence through young adulthood. But the peer influence can be either positive or negative with regard to the school's goals of hard work on classroom learning tasks, depending on the norms that develop within the various friendship groups to which a student may be attached. Several approaches have been encouraged to define positive roles in schools that most students will accept, and to structure classroom tasks and rewards that encourage peer support for academic efforts.

One strategy to assist students during the transition between elementary and middle school or between middle and high school is to pair each entering student with an older one at the school in a peer-mentor relationship that begins the first day of school for the newcomer and lasts throughout the year. In a recent experiment in a racially mixed Baltimore middle school, the older-student mentors were trained for their mentor responsibilities—with communication skills, conflict resolution, and community service concepts—and then were carefully matched with incoming students and scheduled to participate in weekly activities with their mentees, including checks on tardi-

...s and absence patterns, tutoring, and community service projects. Many other examples are available, but without evaluation data the impact of these approaches is unknown.

Cooperative learning is another strategy that utilizes the peer group to attain academic and prosocial goals. Cooperative learning usually involves students working in small teams to accomplish a group goal, such as earning points on classroom tests that count in a classroom competition with other teams. Classroom competition is structured between teams so that each student's individual efforts contribute to a shared group goal, rather than raising the stakes for good grades under the usual classroom competition among individual students. As a result, peer norms are shifted to encourage classroom efforts of individual students rather than discouraging them. An extensive set of careful evaluation experiments confirms the positive effects of these forms of group effort on individual student achievement and peer group acceptance of team members (Slavin, 1990).

Tutoring

One-on-one tutoring is a powerful strategy for providing extra help to youth at all levels. With the recruitment of adult volunteers and various peer-tutoring strategies, school systems are able to provide many underachieving students with the type of one-on-one instruction formerly available only to more privileged segments of society (Cohen, Kulik, & Kulik, 1982).

Reviews of peer-tutoring studies that examine same-age and cross-age strategies show that peer tutoring contributes to the achievement of both tutors and tutees. Cohen and co-authors (1982), for example, conducted a meta-analysis of 65 studies and concluded that peer tutoring has modest positive effects on both tutor and tutee attitudes toward the subjects being taught and their performance in those subject areas, especially when the programs are highly structured. The advantage of highly structured programs in which student tutors are given explicit instructions is also documented by Slavin (1986).

There has been some controversy over the relative effectiveness of tutoring compared with other types of interventions—reduced class size, computer-assisted instruction (CAI), and the extended school day. Levin, Glass, and Meister (1984, 1986) find that peer tutoring is the most cost-effective strategy for reading and math achievement, while Niemiec, Blackwell, and Walberg (1986) argue that CAI is the most cost-effective. Wasik and Slavin (1990) conducted a "Best Evidence Synthesis" of five programs using adult tutors to prevent reading failure in the early grades: Reading Recovery, Success for All, Prevention of Learning Disabilities, the Wallach Tutorial Program, and Programmed Tutorial Reading. These programs were shown to have more positive effects on student achievement than reduction of class size and student/adult ratio.

Technology

The potential of technology to transform, even revolutionize education has been a source of speculation since the advent of computers in the 1960s. Thirty years later, although many observe that the promise of technology has yet to be fulfilled, it continues to be viewed as a catalyst for change in schools (Bell & Elmquist, 1992). Numerous studies and reports examining how technology is being integrated into classrooms and schools, its impact on student learning, and its importance for educational restructuring identify technology as a key

component of the nation's education reform agenda (see, for example, Sheingold & Tucker, 1990).

Maintaining access to technology throughout the student's school career, integrating technology so that it is available for all kinds of learning, and deploying uses of technology that move away from traditional teaching and learning methods, are necessary components of a successful technology strategy for educating students at risk.

Many practitioners also assert that information-age technology holds particular promise for educating students at risk, yet few studies examine its actual effects on learning outcomes for students. For example, data from a national survey indicate that the most frequently reported effects of computer use on lower-achieving students are in behavioral and attitudinal areas such as motivation, self-confidence, and self-discipline (Becker, 1986). An analysis of these same data also shows that lower-achieving students are more likely to use computers for developing basic skills in math, reading, and language as opposed to higher-order skills or comprehension and problem solving. In addition, students in low-SES schools and rural schools are more likely to spend computer time on drill and tutorial programs than are students in high-SES metropolitan schools, where computers are used more frequently for more creative applications.

In an effort to move away from simple drill and practice programs for underachievers, the Vanderbilt Learning Technology Center and its Cognition and Technology Group have investigated the potential of interactive videodisk technology to improve learning for children at risk. This ongoing research is grounded in the knowledge base of cognition and child development and identifies active engagement and the need for a learning context accessible to the child as essential to successful learning (e.g., Johnson, 1992). Empirical findings of this research show improved comprehension and ability to make inferences when information is presented to the students through videodisk rather than traditional oral format. Similarly, the Higher Order Thinking Skills program (HOTS) also eschews drill and practice in favor of developing problem-solving and conceptual skills. HOTS combines software with special curriculum and instructional strategies to create a stimulating learning environment for students. For 35 minutes each day, students are challenged by trained teachers to think in more sophisticated ways and to develop hypotheses and strategies for solving problems (Pogrow, 1990). However, HOTS has not yet been evaluated experimentally.

One important barrier to the effective use of technology for students at risk is that students' exposure to technology-rich learning environments may be cut short when they advance or transfer to schools where technology is not effectively deployed. This problem was identified by researchers evaluating the lasting effects of the Apple Classrooms of Tomorrow (ACOT) program in Memphis, who found that once the ACOT students left the technology-rich, student-centered environment for a school where computer availability was limited, they were unable to transfer the skills they had learned (Ross, Smith, & Morrison, 1991).

In sum, there is evidence that technology can be used effectively to improve academic achievement for all students. However, it is clear that technology costs, and that schools with few resources will have difficulty providing their students with equal access to technology-rich learning environments. More-

over, effects will remain limited so long as programs are implemented only in a few classrooms at a school site and are not part of a larger school- or district-wide change effort (e.g., David, 1990). Maintaining access to technology throughout the student's school career, integrating technology so that it is available for all kinds of learning, and deploying uses of technology that move away from traditional teaching and learning methods, are necessary components of a successful technology strategy for educating students at risk.

Changes in Assessment

Critics of conventional testing and assessment methods argue that such methods do more harm than good by narrowing the scope of instructional efforts. For this reason, alternative forms of assessment aim (1) to have students demonstrate all that they have learned and (2) to motivate rather than discourage students who start out well below average.

Alternative forms of assessment include oral interviews, science experiments, portfolios of students' work over extended periods, public exhibitions where students answer questions on their senior project, and performances of skills in simulated situations (see, for example, Perrone, 1991; Wolf, Bixby, Glenn, & Gardner, 1991). Although interest is now very strong in federal and state agencies to extend these new assessment methods to most if not all schools (and several well-financed development projects are underway), it is still unclear how the interests of low-SES and minority students will fare in this area. While prospects of new uniform high achievement standards and sensitive performance-based assessment methods are to be welcomed as long as all students are provided opportunities to demonstrate skills in these ways, the question remains whether the resources will be provided to all schools (including seriously underfunded schools) to put alternative assessment programs into place.

In addition to restricting the ways in which students demonstrate what they have learned, traditional assessment methods can be insensitive to the actual achievement or progress of individual students. As MacIver (1991) asserts, "traditional evaluation systems often do not adequately recognize the progress that educationally disadvantaged students make because even dramatic progress may still leave them near the bottom of the class in comparative terms or far from the 'percent correct' standard needed for a good grade" (p. 4). Individualized incentive and reward structures that value students' incremental improvements can motivate students to try harder, foster an intrinsic interest in the subject matter, and improve performance.

The Incentives for Improvement program is implementing such an evaluation and incentive system in four Baltimore public schools. Through the program, teachers help students develop "specific, individualized, short-range goals that are challenging but doable" based on the students' past performance (MacIver, 1991, p. 5). Students receive certificates and other awards for improvement as well as for high levels of achievement. In studies using a nonrandomized, matched control group, with a pretest/post test design to evaluate the program's effectiveness on student performance and on students' motivation to learn, students participating in the program on average received higher grades and had a 10 percent higher probability of passing than did control students. A modest positive impact on students' perceptions of the intrinsic value of the subject matter as well as on overall student efforts also was found, although no effect on students' self-concept was shown as a result of the program.

Organizational Strategies

The way in which schools and classrooms are organized has an immediate impact on students' educational experiences. One of the most obvious aspects of school organization, ability grouping or tracking, was discussed earlier in this review. Other aspects such as school size, departmentalization, and organized connections to the world beyond school are also important to consider. Below we examine alternatives to aspects of school organization that have been found to have a negative impact on the learning of students.

Alternatives to Large Schools

Extensive research evidence indicates that a supportive climate for learning can be severely damaged by the very large secondary schools that are typical of the major urban and suburban districts where many minority and low-SES students are enrolled. Although there is no evidence that new smaller schools are now being constructed for the middle and high school grades, many smaller units are being created within large schools. Some community school districts in New York City, for example, have developed "schools-within-schools" in which a single building may contain up to five smaller separate schools—including elementary, junior high, special education, and special programs for troubled youth. The separate schools share the building's gym, labs, and studios, and older students from a unit may tutor younger students from another unit. Other examples include the "house" system in Columbus, Ohio, in which groups of 250 high school students remain together in largely autonomous units for their high school careers, and self-contained "academic units" within Philadelphia high schools that have a special vocational-academic focus (Took, 1991). The "charter" system being developed in urban comprehensive high schools (see Chapter 8, this volume) is another example of this strategy. While these programs are promising, Maeroff (1992), for one, notes that opportunities for sustained, close, positive contacts between students and teachers will only be achieved if schools-within-schools are more than administrative units and provide adult guidance and support for each individual student.

Evidence from national data on middle schools, as well as qualitative data, show that both semi-departmentalization and interdisciplinary teacher teams contribute to more positive school climates (Connors, 1992; McPartland, 1990).

Alternatives to Departmentalization

Most American middle and high schools, and many elementary schools as well, are departmentalized; that is, students receive daily instruction from several different teachers, each specializing in a single subject. The rationale for this approach is that the instructional content of each academic subject requires teachers who are experts in the area, and that instruction will be of higher quality when teachers can take special pride in their subject-matter discipline and can concentrate on preparing a limited number of outstanding lessons each day that are offered to multiple classrooms. Although research supports some of the instructional benefits of departmentalized staffing, the risks that many students will not encounter a climate of caring and support have been more strongly documented (e.g., Bryk, Lee, & Smith, 1990; McPartland, 1990).

Recent research indicates two approaches may help to offset the negative effects of departmentalized staffing. The first is a form of "semi-departmentalization," in which the number of different, specialized teachers assigned to each student is limited. A second way to offset the negative effects of departmentalized staffing is to implement interdisciplinary teacher teams that have specific team responsibilities for the success of each student. During regularly scheduled team planning periods, teachers identify students who need special attention and follow through by providing extra academic help and coordinating problem-solving approaches with students' families. Teams may be especially effective when combined with a teacher-advisory function in which each student has one specific adult in the school who serves as the main point of contact for advice and individual support. Evidence from national data on middle schools, as well as qualitative data, show that both semi-departmentalization and interdisciplinary teacher teams contribute to more positive school climates (Connors, 1992; McPartland, 1990).

Alternatives to Tracking

As pointed out earlier, another pervasive structural feature of American middle and secondary schools that often constitutes a major barrier to positive school climates for students is "tracking." Alternatives to tracking include various approaches to limit the use of separate classes for instruction, and various methods to make the heterogeneously mixed class work well when tracking is eliminated. The adverse effects of tracking can be limited in several ways, including the following: regrouping in only one or two courses (such as math and reading) while keeping all others randomly mixed; assigning students to track levels on the basis of course-specific data (so that a high-track assignment in one subject and a low-track assignment in another subject can occur for the same student); restricting the number of different track levels in the same course (such as a gifted section and a broad general section); and assigning extra resources and the most talented teachers to the classes with the most needy students (Braddock & McPartland, 1990).

Simply eliminating tracking to equalize educational opportunities will produce classes of students with a wide range of backgrounds and achievements in which special problems of student motivation, teacher effectiveness, and classroom climate must be addressed. Student motivation can suffer when earning high grades is too easy for those at the top of the academic distribution and too hard for those at the bottom. Teacher effectiveness can decline when classroom materials for a whole group lesson are poorly matched to the prior preparation of various students, such as reading matter that is geared to a single grade level when student reading skills range over several grade levels. The classroom climate can also be weakened in a heterogeneous class when discipline problems arise with students who cannot earn status through academic accomplishment.

Experiments to modify the structure of classroom competition indicate new directions for giving all students in heterogeneously grouped classes an opportunity to earn recognition and rewards for academic accomplishments. The basic idea is to establish individual benchmarks from which to calculate student improvement for the purpose of rewarding individual efforts at schoolwork. Several studies in the late 1970s (e.g., Beady & Slavin, 1980; Slavin, 1980) developed practical methods for calculating individual improvement points from regular teacher-constructed achievement tests in English and mathematics and demonstrated

the motivational potential of frequent rewards to middle grade students on this basis.

Modifications of classroom curriculum materials and learning activities may also help teachers deal successfully with heterogeneous classrooms. The Civic Achievement Award Program (1989), for example, for middle grade social studies is a curriculum for U.S. history, geography, economics, and civics that contains lessons and classroom activities written at two reading levels (5/6 and 7/8). Individual students in a heterogeneous class using this program can work on the same lessons but at whichever reading level is more appropriate. The Literature Project: Reading for Real, for middle grade reading and literature, contains carefully selected literature of high interest for early adolescents from different racial-ethnic and gender groups in specified reading-level categories from grades 4-9. Similarly, new directions in mathematics instruction—away from the scope-and-sequence approach requiring prerequisite knowledge and toward a concept-based curriculum framework—may permit more effective learning activities in heterogeneously grouped classes.

The most commonly used structure to deal with the diversity of students in heterogeneous classrooms—and even to turn that diversity into an advantage—is cooperative learning (described earlier). Cooperative learning methods include a number of approaches for heterogeneously grouped classrooms that create roles of high status and responsibility for each student in the class and establish a positive peer climate for learning. Numerous empirical evaluations have shown positive effects for both below- and above-average students on academic achievement and on student acceptance and respect across race, sex, and social-class boundaries (e.g., Slavin, 1983). Other versions of cooperative learning assign roles to students that emphasize their special strengths, so as to build status in the group and commitment to group learning goals (see Cohen, 1986).

Closer Connections with Work or College

Schools can institutionalize direct connections between success in school and the student's future educational and employment opportunities. In this vein, schools can (1) provide better information about student behaviors in school to employment agents and college admissions officers; (2) offer specific employment opportunities or college financial aid to students who meet particular school performance standards; and (3) include actual college and work experiences as part of middle and high school learning activities.

Employers who hire recent high school graduates typically have little information from schools on which to base their decisions, even though many aspects of school behavior are useful indicators that a job candidate is dependable, can work well as a team leader or member, or has other special job-related talents. Most students know that their high school record of attendance, grades, test scores, and extracurricular activities has little meaning in the employment process, so there is little incentive from the labor market to do well on these criteria. New ways have been proposed for assembling records of academic and non-academic accomplishments and for providing the information in a timely and convenient form in the job recruitment and selection process. Career Passport and Work Link are two examples of such initiatives (see Charner, 1988; Carlson, 1990).

Many middle and high school students also see little connection between their school behavior and later opportunities for college. In this case

the problem is more likely to be an absence of knowledge by students of college admissions processes than a need for better information by colleges about their student applicants. A review of the evaluations of the Upward Bound program in Natriello and co-authors (1990), including the multi-phase longitudinal study conducted by the Research Triangle Institute (Burkheimer, Riccobono, & Wisenbaker, 1979), concludes that Upward Bound is successful in getting students to graduate from high school and enter college.

The integrated services model clearly is an advance over earlier compensatory education models that often ignored the complex of demographic, economic, and social changes that interfered with schools' ability to educate students.

Other strategies and programs also create links between school and employment and college aid. Agreements between local businesses and school systems, for example, can guarantee students job interviews, actual employment, or direct assistance in applying and paying for college, in return for maintaining good high school attendance rates and grade point averages. Similarly, learning activities in the middle and high school grades can be directly connected to the worlds of college or work through school-to-work apprenticeship programs, community college co-op programs, and high school programs to integrate academic and vocational offerings with experiential learning activities. In this way, the transition between different domains becomes a gradual experience, rather than school being merely a preparation for the college and career events that follow high school graduation.

Parent, Community, and School Partnerships

A final way in which schools can be better organized to serve the needs of young people is by strengthening school-family-community ties. In the past two decades, educational practitioners and researchers have begun to realize that schools need help to improve appreciably the academic performance and social behavior of the most disadvantaged segment of the at-risk school population. These are the students who manifest a variety of personal and family problems that persist over time from early in their school careers to well into adulthood and serve as impediments to adequate school performance and prosocial behavior.

To address the versatility and perseverance of these student problems and behaviors, school systems are attempting to implement multifaceted and coordinated approaches in collaboration with public and private community agencies and parents. Long-standing mandates for parental and community involvement exist in the most prominent federal compensatory education programs, but "the shared responsibilities of families, schools, and communities are not well understood nor well-developed in family practice, school practice, or community practice" (Center on Families, Schools, Communities, and Children's Learning, 1990, p. 1).

One way in which schools are addressing the personal problems that impede students' learning is by integrating and coordinating the social services many disadvantaged students need. The NCSI, established in 1991, with support from the U.S. Department of Health and Human Services, is one national effort to help education and human services professionals at both the state and local levels collaborate in aiding children and families at risk The most ambitious integrated services program at

the state level is the School Based Youth Services Program (SBYSP), funded at $6 million annually and launched in 1988 by the New Jersey Department of Human Services in collaboration with the departments of labor, education, and health (New Jersey Department of Human Resources, 1988). This New Jersey model has since been adapted by Kentucky as part of its Kentucky Integrated Delivery System (KIDS) program, a collaborative effort between the State Department of Education and the Cabinet for Human Resources to meet the personal, social, and educational needs of students. At the local level, San Diego's "New Beginnings" represents a prototypical effort to design and implement an interagency collaboration to improve the lives of disadvantaged families and their children through creation of a new system concentrating on integrated services and prevention efforts.

While it is essential to provide a strong foundation in the early grades, continuing extra resources will often be necessary to sustain the gains made by early interventions.

The integrated services model clearly is an advance over earlier compensatory education models that often ignored the complex of demographic, economic, and social changes that interfered with schools' ability to educate students. The success of this newer approach most likely depends on the ability and willingness of school and human services agencies to develop and implement comprehensive plans to link the school restructuring movement with health and social services programmatic initiatives (Dryfoos, 1991).

Emerging Issues

The discussion in the previous section provides a sample of the many and varied strategies and programs aimed at better educating youth in our schools. It is possible for schools and school systems to be more effective by adopting one or more of these programs and adapting them to meet the needs of their students. However, in our examination of strategies and programs we have consistently observed three troubling phenomena.

First, with few exceptions, there is an absence of well-designed evaluation evidence indicating whether a particular program has actual effects on important student outcomes, such as achievement scores, attendance and promotion rates, or reduction in dropout rates. No concerted effort of funding, support, and coordination is yet to be found that stimulates careful, well-designed evaluations to accompany the large number of interventions continually being developed and implemented by individual districts and schools throughout the nation. Until the scientific basis of educational interventions for youth at risk improves and becomes cumulative, service approaches will remain largely the product of creative and well-intentioned guesswork.

Second, we almost never find realistic cost information for special programs accompanying the program descriptions. Without this information, educators in other locations are unable to estimate the resources needed to implement a particular approach in their schools. Accurate cost information should include not only the direct costs of supplies, equipment, and added staff, but the necessary startup costs of local design and the continuing essential costs of staff development, monitoring, and support for the teachers who will be carrying out the program. It has often been stated that many educational innovations fail

not because the ideas were weak, but because poor involvement, support, and supervision of the local staff precluded successful implementation.

Third, no well-grounded strategy has been developed for allocating special resources at different grade levels to help students have successful school careers. If anything, there is a tendency to concentrate extra resources in the early years, with the belief that building a firm foundation of initial skills will be enough.

While it is essential to provide a strong foundation in the early grades, continuing extra resources will often be necessary to sustain the gains made by early interventions. Indeed, a recurrent finding of the existing high quality evaluation research is the "fade-out effect," where evidence of initial positive impact declines over time and disappears entirely a few years after an intervention early in the schooling process. Poor readers and other problem learners can and should be helped throughout the grades, and we must realize that interventions will be needed to match the developmental and emotional requirements of students of different ages.

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