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ABSTRACT

Comprehensive school reform (CSR) has the potential to help overcome inequities in education, to provide a vehicle for a combination of state and local control, and to allow reform to permeate the classroom. It is instructive and timely to survey the research on CSR models to determine how well the programs are performing. This monograph does not attempt to synthesize the results of evaluations of individual CSR designs. Instead, it focuses on principles learned from evaluations of CSR, especially large-scale implementation of efforts of CSR designs. A section about CSR implementation reviews what is known about: (1) variations in implementation; (2) design choice; (3) principal leadership; (4) politics; (5) support from design teams; (6) resources; and (7) context. The third section considers preliminary findings from research about the effects of comprehensive school reform on student outcomes. Recommendations for implementation of CSR are synthesized, and recommendations are presented for future research. Most of the conclusions that can be drawn about CSR at present focus on implementation. They stress the importance of teacher participation, principal leadership, adequate resources, and contextual factors. An appendix describes CSR models. (Contains 173 references.) (SLD)

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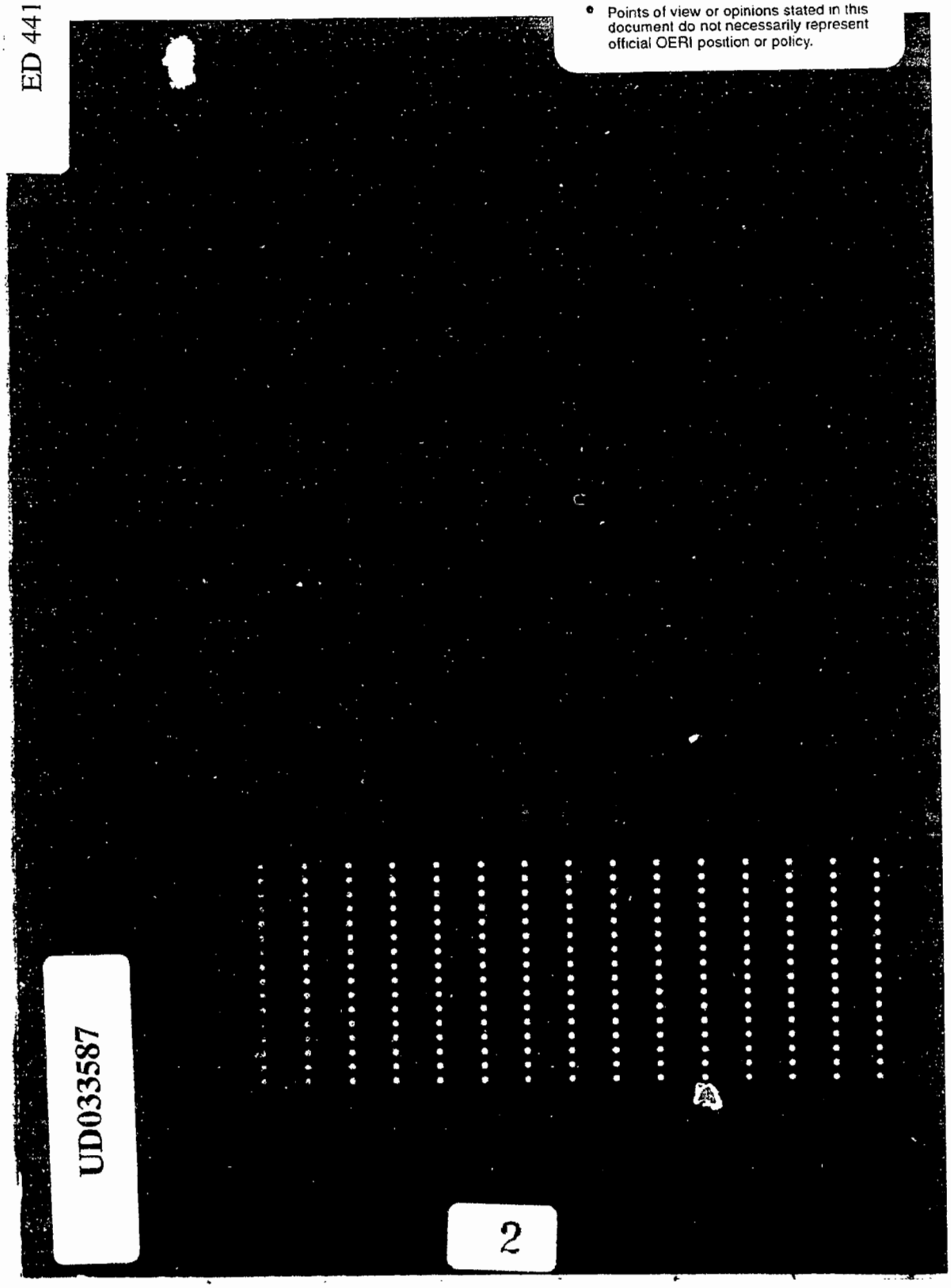

MAKING COMPREHENSIVE SCHOOL REFORM WORK

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INTRODUCTION

Policymakers and educators have been trying to reform public schools for decades. Most reforms address schooling practices that were adopted in the early Twentieth Century to be responsive to the large increase in the number and types of students who began attending public schools. Many of the school characteristics that reformers are trying to change—large, complex secondary schools; differentiated curriculum; minimal grading standards; and loosely enforced retention practices—were designed to keep students from dropping out (Powell, Farrar, & Cohen, 1985). Society's goals for students are now more complex. We do not just want to keep students in school; we also want them to achieve to a certain standard (e.g., National Commission on Teaching and America's Future, 1996). Changes in business and industry have made it necessary to have a certain level of education in order to reach a certain standard of living (Schlecty, 1990); in order to be competitive in the present U.S. economy, high school graduates must have many more skills than graduates several decades ago.

Efforts to reform schools have been complicated by a lack of consensus on the role and function of schools in our society. For example, Cuban (1990) pointed out that reform is hampered by the nation's conflicting values of excellence and equity, and that the lack of consensus on how to prioritize these values and incorporate them into school policy has resulted in compromises in curricular policymaking. Similarly, while we want schools to be accessible to everyone, we "...have profoundly different notions of what a proper...education should be" (Powell et al., 1985, p. 65). These differences are reflected in the school reform efforts of the past two decades.

SCHOOL REFORM IN THE 1980S

A number of attempts to reform schools have been made in the past two decades. Although the reforms have been and continue to be integrative and overlapping, they have been characterized as separate "waves" of reform. Change efforts made in response to the 1983 report, *A Nation at Risk* (National Commission on Excellence in Education, 1983), and other similar reports which criticized American education and indicated that the U.S. education system

was in a crisis, have been termed the "first wave" of reform. This first wave was an intensification of the system that was in place; first-wave reforms called largely for systemic changes, such as increasing standards and regulations, and resulted in increased teachers' salaries, increased core requirements, and an increased school day and year (Boyer, 1990; Hawley, 1988; Kirst, 1990).

These first-wave reforms were criticized for not adding any capacity to the system (Hawley, 1988); and several scholars, such as John Goodlad (1984), Ernest Boyer (1983), Mortimer Adler (1982), Seymour Sarason (1982), and Theodore Sizer (1984), called into question the basic structure of schools. Further, first-wave reforms were criticized for relying primarily on top-down approaches to reform; research has demonstrated that relying exclusively on either a bottom-up or top-down approach to change is ineffective, and that successful reform demands a combination of these approaches (Darling-Hammond, 1997; Fullan, 1994b; Goodlad, 1975; Porter, Archbald, & Tyree, 1990; Purkey & Smith, 1983, 1985).

As a result of these critiques on the structure of schools, a second wave of reforms was initiated. It focused primarily on broadening and deepening the relationship between schools and families, addressing the needs of special groups of students, and attracting and retaining effective teachers (Hawley, 1988). Included in the second-wave reforms were measures to improve working conditions for teachers, such as upgrading teacher education and restructuring teachers' roles to make them more professional (Carnegie Corporation, 1986; Metz, 1988). But despite these two recent waves of reform, school organization did not change much (Cuban, 1984), and neither did the way teachers teach (Tyack & Tobin, 1994).

The Move Toward Comprehensive Schoolwide Reform

In response to the failure of these earlier reforms, and to a renewed focus on the importance of restructuring schools to foster changes in teaching and learning, the nation has embarked on what might be considered the third wave of reform: comprehensive schoolwide reform (CSR). Comprehensive schoolwide reform is intended to foster schoolwide change that affects all aspects of schooling together, rather than taking a piecemeal approach. It focuses on improvement for the entire school, instead of only on

particular populations of students within schools, and does not limit itself to particular subjects, programs, or instructional methods, as have other reforms in the past. Comprehensive school reform programs change the conventional school's management and organization, and often include revised curricula and instructional practices (Wang, Haertel, & Walberg, 1997).

Support for the comprehensive school idea was expressed by Powell et al. (1985) who said that "students of all kinds usually thrive by participation in institutions with distinctive purposes and common expectations...the existence of a common purpose has an educational force of its own, quite independent of the skills of individual teachers" (p. 316). Further, the school effectiveness research and studies of school restructuring designs support the concept of comprehensive school reform. These studies have identified specific characteristics associated with effective schools, such as shared goals, strong leadership, an emphasis on instruction, and positive school climate (Edmonds, 1979, 1981; Fullan, 1991; Purkey & Smith, 1983).

Comprehensive schoolwide reform is intended to address these areas identified as key ingredients for effective schools. In the 1980s, a number of researchers and practitioners developed whole-school models or designs for school reform, such as the Accelerated Schools, the Coalition of Essential Schools, the School Development Program, and Success for All (see Herman et al., 1999). Critical components of these CSR models include assessments, content and performance standards, curriculum and instruction, professional development, restructuring of school organization and governance, and parent and community involvement.

Many of the comprehensive schoolwide designs focus specifically on trying to change the one area of schooling that has proven the most resistant to change: teaching practice. Much of the criticism of past education reforms is that they change institutional structures, policies, or organizations, but do not activate the proper mechanisms to affect what teachers are doing in the classroom or how students learn (Cohen, 1995; Cohen & Ball, 1990; Cuban, 1990; Elmore, 1996; Elmore & McLaughlin, 1988; Sarason, 1990; Tyack & Cuban, 1995; Tyack & Tobin, 1994). In fact, there is some consensus about the importance of teacher change in the reform process (Louis, Kruse, & Raywid, 1996; Peterson, McCarthey, & Elmore, 1996). Shulman (1987) emphasized that the key to reform is an

increased understanding of teaching, the sources of teacher knowledge, and the complexities of the pedagogical process. Consistent with this idea, Wang, Haertel, and Walberg (1994), in a review of education research over the past 50 years, concluded that "[u]nless reorganization and restructuring strongly affect the direct determinants of learning, they offer little hope of substantial improvement" (p. 79).

To respond to this third wave of reform calling for a focus on teaching and learning, educators must fundamentally change not only the structure and organization of schools, but the curriculum and the delivery of instruction. Charter schools, magnet schools, new small schools, redesigned traditional schools, and comprehensive schoolwide reform models are all attempts to respond to this level of reform, as well as to overcome the problems inherent in the traditional bureaucratic structure and to create smaller organizations with a coherent vision (Orfield, 1999). Although first- and second-wave reforms are still very much a part of the reform landscape, comprehensive schoolwide reform designs, in particular, have recently become a focus of the school reform community, at the local, state, and national level. Many see comprehensive schoolwide designs as a mechanism to address the weaknesses of the present system of schooling, and to create an environment and school structure that fosters improvements in teaching and learning.

Legislative Support for Comprehensive School Reform

The Federal government has shown support for the schoolwide reform movement in several ways. The 1988 and 1994 changes in Title I legislation (part of the Elementary and Secondary Education Act, ESEA) broadened Title I by supporting schoolwide projects, which reflect the thinking that the most successful, effective reforms involve whole schools, not individuals or classrooms. Beginning in the 1996-97 school year, the 1994 Title I legislation decreased the poverty-level requirement of eligible schools from 75 percent of children living in poverty to 50 percent. This change made it easier for high-poverty schools to become schoolwide Title I projects, and thus use Title I funds for schoolwide change and not just for programs that serve individual students having difficulties. As a result of this series of changes in the legislation, the number of Title I schoolwide programs grew from fewer than 1,200 in 1991 to

more than 9,000 during the 1997-98 school year, an increase from about 10 percent to 50 percent of the eligible schools (Wang, Wong, & Kim, 1999).

In addition to the changes in Title I, the Federal government has invested a large amount of resources in the Comprehensive School Reform Demonstration (CSRD) program, enacted by Congress in 1997. CSRD gives added financial support to schools adopting schoolwide reforms. The CSRD program gave state education agencies $145 million in FY 1998 to award to schools through a competitive grant process; of this amount, $120 million was earmarked especially for Title I schools. Schools could apply to their states for grants, which are at least $50,000 per year for up to three years. Most schools did not start to implement programs with CSRD funds until September 1999, but some schools used CSRD funds during the 1998-99 school year (Slavin, 1999). Approximately 2,500 schools received CSRD grants in 1998-99.

The legislation outlined criteria that the CSRD program should meet, but states have a great deal of latitude in choosing which models to fund. Both externally- and locally-developed models can be funded. According to the law, schools must "integrate...in a coherent manner" the following initiatives:

(1) Use research-based innovative strategies and methods.
(2) Have a schoolwide reform plan that enables students to meet state standards based on a school needs assessments.
(3) Provide ongoing, high-quality professional development for staff.
(4) Have measurable student goals and benchmarks for meeting those goals.
(5) Maintain faculty, administrative, and staff support.
(6) Nurture meaningful parent and community involvement.
(7) Use high quality external technical support.
(8) Include a plan for evaluating implementation and student achievement.
(9) Identify other resources available and how they will be used to coordinate services to support and sustain the reform.

The mechanisms for ensuring that these criteria are met, however, are unclear. The CSRD can be thought of as an extension of Goals 2000 and the 1994 reauthorization of ESEA, which increased funding and flexibility for schoolwide approaches to help all students achieve. However, the goals and principles that structure the CSRD program are unregulated, and leave schools and districts with much discretion in developing strategies to achieve the goals. The legislation provides a list of 17 CSR models, but schools are not limited to these models. They can create their own models of schoolwide reform by using a combination of approaches to curriculum, instruction, assessment, and organization reform. Yet the legislation does not specify evaluation mechanisms for the programs, and Federal policies for expectancies, standards, and procedures for conducting evaluations are not clear (Ross, Alberg, & Nunnery, 1999).

Along with the Federal government, private corporations are investing in comprehensive school reform models, as demonstrated by the New American Schools (NAS) corporation sponsorship of scale-up and national evaluation efforts for several CSR models. The NAS corporation in 1991 funded the development of seven comprehensive school models, and they are presently in the scale-up phase around the country (see Berends, 1999; Bodilly, 1996; Stringfield, Ross, & Smith, 1996).

Comprehensive school reform has the potential to help overcome education inequities, to provide a vehicle for a combination of local and state control, and to allow reform to permeate the classroom. Thus, given the government and private sector investment in CSR models at this point in time, it is instructive and timely to survey the research on CSR models to determine how well the programs are performing. This monograph does not attempt to synthesize results of evaluations of individual school reform designs; that has been done elsewhere. (American Institutes for Research has conducted a synthesis of evaluation studies for individual CSR designs; see Herman et al., 1999.) Rather, the monograph focuses on principles learned from evaluations of CSR, especially large-scale implementation efforts of CSR designs. The sections following review what is known about successful implementation, synthesizes implementation recommendations, discusses the limits of what is known about student outcomes, and suggests directions to strengthen future research in this area.

IMPLEMENTATION FACTORS

"[S]choolwide reform will be difficult to accomplish, it will be time and labor-intensive, and it will require rethinking and relearning on everyone's part" (Muncey & McQuillan, 1993, p. 487). Moreover, all the specific components of program design and implementation largely determine its outcomes.

VARIATIONS IN IMPLEMENTATION

One of the major findings of assessment of classroom implementation in seven of the Follow Through Planned Variation schoolwide projects in 36 school sites was that implementation of the program varied greatly from school to school (Stallings & Kaskowitz, 1974). Similarly, the large-scale, comprehensive RAND Change Agent study, which evaluated Federal programs supporting educational change by conducting interviews and field studies, found that variation within schools that adopted the same reform was often as great as the variation between schools that adopted different reforms (Berman & McLaughlin, 1975). More recent studies have also shown that the within-school variance on organizational and contextual factors is often as great as or greater than across-school variation on these dimensions (e.g., Gamoran, 1992; Lee & Bryk, 1989).

In addition to within-school variation on particular dimensions of reform, schools are often unable to address multiple aspects of a reform design—including pedagogy, curriculum and assessment, and school culture—which makes implementation more difficult (Wasley, Hampel, & Clark, 1997). School organizational changes unconnected to student learning are ineffective (Newmann & Wehlage, 1995); both MacMullen (1996), in her extensive review of research studies on one school reform model, and Haynes (1998), in his review of a decade of research on another schoolwide reform model, concluded that there is a critical need to connect school- and classroom-level change.

Given the potential for disjunction between the levels of change, and within-school variance in program implementation, it is necessary first to measure the degree of implementation before assessing outcomes and attempting to attribute them to a CSR pro-

gram. One important lesson learned from the Follow Through evaluations was that "[b]eing certain that a program model has actually been put into operation is an important, minimum condition for determining the effects of alternative models..." (Elmore, 1975, p. 39). Rivlin and Timpane (1975), also drawing from the Follow Through experiments and the Head Start Planned Variation studies, agreed that it is essential to first measure implementation in order to measure effectiveness.

Researchers of comprehensive school reform seem to have taken to heart this lesson learned from previous evaluations of large-scale education reforms, and focused initial studies of CSR on program adoption and implementation. These implementation studies have shown that there is great variation in the level and consistency of implementation of CSR models. For example, RAND studies of the initial implementation of NAS models found that schools implemented the program at different rates, and in different ways. Bodilly's (1998) review of four different jurisdictions implementing NAS designs in the Spring of 1996, found that only half of the schools were implementing the basic elements of the schoolwide programs after the first two years. And Berends (forthcoming), in a recent analysis of data from surveys of about 2,500 teachers in 130 schools across eight jurisdictions implementing NAS restructuring designs, found that between 75-90 percent of the variance in factors of support, implementation, teacher professional growth, and student achievement and engagement lay *within* schools, not *between* them.

Similarly, Muncey and McQuillan (1996), analyzing in-depth longitudinal ethnographic case studies of eight restructuring Coalition of Essential Schools sites from 1986-1991, found that often the scope of change did not spread beyond individual classrooms, and that there was a tension between deepening existing efforts and trying to broaden participation. And Marsh (1994), in a cross-site analysis of 13 restructuring Coalition of Essential Schools high schools in California, concluded that the level of implementation of reform in schools varied significantly within the same school. Newmann, Marks, and Gamoran (1996), in their one-year intensive study of 24 restructuring elementary, middle, and high schools in 22 districts in 16 states, found that the extent of restructuring affects achievement; Haynes (1998) similarly concluded that the level of implementation of a reform effort significantly influ-

ences outcomes. In addition, Prestine and Bowen (1993), in a case study of four Coalition of Essential Schools sites engaged in restructuring and adopting a schoolwide reform, concluded that an understanding of a reform model cannot be easily transferred from one school site to another, but rather is a process that each school must undergo.

These findings about program variations within and across schools suggest why schoolwide reform might be a slow, challenging process, and why it is necessary first to address implementation factors—which are influenced by school culture and context— before trying to link the reform designs to student outcomes. Therefore, the remainder of this section examines the factors that facilitate and contribute to successful implementation.

Design Choice

A primary application of the second wave reforms' emphasis on teacher professionalism and participation in decision making is the belief that teachers should have an active role in choosing which schoolwide reform design their school adopts. Virtually all studies of the early phases of implementation of CSR designs conclude that active participation by teachers in their school's design choice process has a positive influence on the success of implementation.

Stringfield et al. (1997) examined the implementation of ten school intervention programs over a three-year period, and concluded that schools were more effective and successful in implementing programs when school staff had a role in choosing the intervention program. In a study of 34 Memphis City Schools in their first year of implementing CSR models, Ross, Henry, et al. (1997) found that in some cases teachers were unwilling or unable to implement a particular design due to their perceived lack of choice about the selection of the design. RAND's study of the first years of the implementation of NAS designs also highlighted the importance of teacher choice of designs. Bodilly's (1998) district and principal interviews revealed that schools with a stronger commitment to implementing the designs were ones in which the school chose the design. Similarly, Bodilly (1996), in her analysis of nine design models in 36 schools in NAS's demonstration phase from 1993 to 1995, emphasized the importance of allowing the staff to

vote on the adoption of a design. In a later analysis of 40 qualitative case studies of school-level implementation of NAS designs in 1996 and 1997, she linked teacher choice in design selection to the success of the first two years of implementation (Bodilly, 1998). That is, schools for which districts forced a particular design were slower in implementation than schools that made their own choices.

In a series of case studies of the implementation of CSR models in one county's 13 schools that served culturally and linguistically diverse students, Stringfield, Datnow, and Snively (1998) found that implementation was less successful in schools where teachers did not choose the designs than in schools where they did participate in design decisions. Similarly, in a study of the first two years of implementation of a CSR design in 12 schools, Datnow, McHugh, Stringfield, and Hacker (1998) concluded that scale-up of a design was more likely to be effective in schools that elected to implement the design, compared to schools in which the design was assigned by the district or principal.

Although there is agreement that teachers in a school should play a key role in the choice to adopt a particular design, this does not preclude a district role in the decision-making process. Bodilly and Berends (1999), in a discussion of the role of the district in supporting comprehensive school reform, suggested that although the decision to choose a particular design should be left up to the school, it is beneficial to the process for districts to place certain constraints on schools, such as requiring them to make a decision within a specified time frame. They also suggested that districts can influence school decisions about designs with the level, type, and quality of information that they provide to schools. While they do not always have complete information about specific designs, districts can work with design teams to ensure that schools have accurate, comprehensive information and materials about reform models. The more high quality and timely information the district provides, the more informed a school's choice can be. For example, Bodilly (1998) reported that schools which were more informed about the design they had adopted (i.e., before implementation they had received background information on the design and related materials, and even had toured a school already using it) tended to have greater implementation in the first two years than schools that were less informed.

Fit

High quality information about the CSR model chosen by a school can also influence implementation success through increasing the chances of an appropriate fit between the school and the design. Smith et al. (1997) analyzed teacher surveys covering eight different designs in restructuring Memphis City Schools from 1995-1996, and found that there was less faculty turnover in schools with designs reflecting areas where changes had already begun and thus required less change for the faculty. The schools with less successful implementation were those where teachers were unaware of the extent of change required to implement the design, and thought that the CSR model was focused on an area different from the target of earlier reforms. Bodilly (1996) also pointed out the importance of making a good match between the school and the design features, and ensuring that schools do not adopt designs that conflict with other efforts in the school, such as would occur, for example, if a magnet school attempted to adopt a design that required detracking.

Teacher Buy-in

Active teacher participation in choosing a schoolwide reform design is crucial, in large part because it helps to ensure that teachers, who are the key implementers of the design, support the effort (Slavin, 1999). It is well known that teachers are the key component of the success of any effort aimed at fundamental school change (e.g., Goodlad, 1984; Louis & Marks, 1998; Sizer, 1984, 1992) and that including teachers as active partners is essential to achieving successful classroom-level changes (Tyack, 1990).

Thus most, if not all, designs recognize the critical importance of teacher support for a schoolwide program to be effective; many require that 80 percent or more of the faculty vote to adopt a particular program before a design team will allow a school to adopt their model (Stringfield, Ross, & Smith, 1996). Making teachers central to the decision-making process is one way of creating a natural accountability that may positively influence the implementation of the design. For example, Wang, Wong, & Kim (1999), reviewing the effectiveness of Title I schoolwide funding on school reform in 32

schools in 12 districts, noted that teachers and principals in higher achieving schools (based on district standardized test scores, and controlling for socioeconomic status) had a stronger sense of accountability than those in lower achieving schools. Thus, school-level participation in design choice may foster an increased sense of accountability in teachers and the principal, which in turn may increase efforts to implement the program and monitor progress.

Studies of CSR support the notion that teacher buy-in is an essential mechanism to the successful implementation of whole-school reform. Smith et al. (1997) found that teachers who perceived top-down decision making tended to resist the restructuring effort. And Cooper, Slavin, and Madden (1998), in a June 1996 survey of 370 principals and facilitators at approximately 225 schools implementing one specific type of CSR model across the country, found that almost all agreed that collective buy-in was a requirement for the success of fundamental change in schools, and that it played a key role in determining the quality of the program. In a study of 34 schools taking part in the Memphis City Schools restructuring initiative during 1995-96, Ross, Henry, et al. (1997) found that teacher resistance to change and teacher perception of the CSR model as just another passing reform served as barriers to implementation in some schools. Similarly, Glennan (1998), in his discussion based on Bodilly's (1998) findings from interviews with principals and district personnel, noted that those principals who considered the NAS designs a "major and permanent initiative" in the district were more likely to have a stronger commitment to implementing a design compared to principals who viewed the reforms as less permanent.

Teacher buy-in is affected not only by teachers' view of the permanence of the reform, but by their view of the necessity of the reform. Muncey and McQuillan (1993, 1996), in their five-year longitudinal study of several schools in the process of adopting one type of CSR design, concluded that program implementation and continuation was blocked sometimes because teachers were not in agreement that large-scale fundamental changes in school structure and classroom practice were necessary to improve student outcomes. The result was that in some cases a small group of teachers and the principal led the reform, creating divisions among the faculty; in contrast, in schools where there was a consensus on the need

for reform, and a shared vision, the reform efforts met with more success. Timar (1989) studied three districts whose schools were adopting the Essential Schools model, and came to a similar conclusion after finding that the restructuring was the responsibility of a small group of teachers and was not related to what was going on in the rest of the school. These examples illustrate the importance of support for the adoption and implementation of their school's schoolwide reform effort by most or all teachers. Without wide-scale teacher buy-in, not only can slow and incomplete implementation result, but the effort will affect only a few select teachers and their students, and not the whole school.

Locus of Development

Another dimension of teacher buy-in is the locus of development of the design—that is, whether the design is externally developed by outside experts, or developed locally by the district or school. Although the RAND Change Agent study (Berman & McLaughlin, 1975, 1978) was interpreted to conclude that externally-developed programs could not work, a reinterpretation of the study suggested that the study did not explore the possibilities for externally-developed programs (McLaughlin, 1990). Subsequently, several major studies of educational change have indicated that externally-developed designs can be successfully implemented and have positive results. For example, the Dissemination Efforts Supporting School Improvement (DESSI) study (Crandall & Loucks, 1983) and the Urban and Suburban/Rural Special Strategies for Educating Disadvantaged Children study (Stringfield et al., 1997) both described examples of successful externally developed schoolwide reform designs.

Studies of CSR show that not only can externally-developed designs be successfully implemented, but that they are often easier to implement than locally-developed designs. In fact, Nunnery (1998) reviewed externally- and locally-developed reform models and concluded that local development involved greater risks than use of external models, since local models often required more time and planning than pre-prescribed interventions; and Ross, Alberg, & Nunnery (1999), in a discussion of the locus of development of schoolwide programs, concluded that, on average, external-

ly-developed schoolwide programs have better results than locally-developed programs. Similarly, Bodilly (1996) found that NAS designs that used local development were less likely to experience early implementation success because teachers did not have sufficient time and resources to conduct development; and Nunnery et al. (1997), in studying the restructuring of Memphis City Schools, found that teachers reported more frustration and anxiety over reform models that required a large amount of local development.

Principal Leadership

Effective implementation requires active teacher participation in design choice working in tandem with effective leadership by the principal.

Leadership Style

The instrumental role that effective principals play in school change efforts is well documented (Murphy & Hallinger, 1992; Nadler & Tushman, 1989). Sebring & Bryk (2000), in their synthesis of eight years of research on Chicago school reform, concluded that the quality of the principal's leadership is a critical element in school improvement and identified several characteristics common among principals of improving schools. Principals at improving schools have a leadership style that includes: (1) an inclusive facilitative orientation, (2) an institutional focus on student learning, (3) efficient management, and (4) skillful use of a combination of pressure and support to motivate others.

Further, effective problem-solving strategies of principals at improving schools include: (1) dealing first with problems that can be solved quickly, (2) keeping a long-term focus on improving student achievement, (3) following a school improvement plan, and (4) conducting follow-up and striving for consistency to prevent incoherence in the planning and implementation of new programs. Finally, Sebring & Bryk (2000) identified three issues on which principals at improving schools focus: (1) promoting stronger ties between the school and community, (2) increasing teachers' professional development opportunities, and (3) creating a school-based professional community by fostering collaboration and dialogue among teachers.

Similarly, studies of schools implementing CSR also demonstrate the critical role of the effective principal. CSR studies show that principals play an instrumental role in implementation, and identify the following principal leadership characteristics as facilitating school change: commitment; strong leadership; longevity; recognition of the process of change and the necessity of matching the reform with the school; adaptation of a leadership style to fit the reform; fostering teacher ownership of the reform; successful resource allocation, including both money and teacher time; support for the staff; good communication skills; and the ability to interact with the state and district and involve parents.

In their survey of principals and facilitators at schools implementing a CSR design, Cooper et al. (1998) found that 85 percent of facilitators reported that principals were vital to the success of a school's efforts to implement the design. Anderson and Shirley (1995), in their 1992-1993 one-year study of 15 South Carolina Coalition of Essential Schools high schools, concluded that project success was contingent upon the principal. Haynes (1998) named the principal's commitment and leadership as a key factor in successful implementation.

In a study of the first year of Memphis City Schools' restructuring efforts, Smith et al. (1997) reported that data from teacher surveys indicated a relationship between strong leadership and commitment by the principal and the progress of implementation. The schools that experienced more implementation success were the schools where teachers reported that principals were aware of the change process, the strengths of the faculty, and the necessity of allowing teachers to develop ownership of the reform model; in contrast, many schools with slow start-up implementation reported problems with school-level leadership. As implementation progressed, Smith et al. (1998) reported that principal leadership was a strong factor in distinguishing between slower and faster- starting schools; in the faster-starting schools, the effective principals helped teachers choose a design that was well matched to the school's needs, successfully allocated resources and arranged schedules, and supported teachers' professional development. Similarly, Bodilly (1998) found that schools implementing NAS designs were more likely to make significant implementation progress in the first two years if they had consistent and uncontroversial leadership; and

Muncey and McQuillan (1996) found that turnover of the principal had a negative effect on implementation, and continuity of leadership had a positive effect.

The ability of the principal to change his or her leadership style to fit the reform is also an important factor in effective implementation, according to the results of Davidson and John's (1996) case studies of four Accelerated Schools elementary schools. Further, with data from a study of five elementary schools in four districts, Christensen (1996) used Critical Incident Technique to develop a taxonomy of principal behaviors that facilitated implementation of one particular schoolwide reform model. (The Critical Incident Technique is a method of identifying and categorizing behaviors by collecting and analyzing critical incidents related to the behavior being studied.) The behaviors she identified included supporting the staff, promoting communication, having positive human relation skills, interacting with the state/district, and promoting parental involvement.

One study of principals involved in CSR design suggested challenges that principals face in being effective leaders. Mims (1996) conducted open-ended interviews with seven principals from seven different reforming schools in Southern California, and found that principals thought one of the most difficult aspects of implementing change efforts was the lack of clarity about their role in the effort. Principals also suggested that they needed more time for interaction, reflection, sharing concerns, and building commitment.

Site-Based Autonomy

Still another factor that facilitates the effectiveness of leadership is site-based autonomy. Site-level autonomy in curriculum, instruction, budgets, staff, and mission are essential to successful CSR implementation (Bodilly & Berends, 1999), and an important aspect of the school change process (Davidson & St. John, 1996). Principals who have the power to hire and fire teachers to match the reform philosophy face less resistance and have more implementation success than principals without this type of autonomy (Haynes, 1998; Muncey & McQuillan, 1996). Further, Bodilly (1996) noted that even if schools were granted autonomy, they did not always use it effectively. She reported that local officials felt that sometimes

school staff lacked the ability to use effectively the power that they were granted in the areas of curriculum, instruction, budgets, staff, and mission, and this served as a barrier to implementing the CSR designs (Bodilly, 1996).

Politics

Power Relationships

One of the school leader's main challenges in reforming schools is managing the shifts in power among teachers, parents, staff, and students. Changing power relationships is at the core of school change (Demarrais & LeCompte, 1990); and transforming schools necessitates a reconceptualization of the roles and responsibilities of teachers and administrators (Hess, 1995). Sarason's (1990) major thesis in his analysis of school reform efforts is that real, lasting, and meaningful change is possible only in conjunction with changes in power relationships in the system and classroom, and that this type of change is very difficult to achieve. He stated that "...recognizing and trying to change power relationships, especially in complicated, traditional institutions, is among the most complex tasks human beings can undertake" (p. 7).

The politics involved in redefining roles has been demonstrated by many studies of school restructuring. For example, Muncey and McQuillan (1996) found that the most successful reforming schools had principals who were able to balance school efforts with top-down change. And Timar (1989), in analyzing restructuring efforts in three districts, concluded that redefining roles, managing conflict, and allocating control were central issues in attempts to reform schools. He said that "[f]inding the center of control over schools in order to create a more hospitable policy environment for restructuring is like 'nailing jello to a wall'" (p. 275).

Timar (1989) also suggested that meaningful change is unlikely without the participation and support of political entities, such as the teacher education establishment and teacher unions. Cohen (1994) recounted a case study of a high school reform effort and stressed the centrality of the politics of interpersonal issues; and Bryk et al. (1994), analyzing the Chicago school reforms, made the point that adversarial politics can lead to unfocused reform and make systemic change unlikely.

Parent and community support can provide a powerful facilitating mechanism for school reform efforts, and successful parent involvement depends to a great extent on the politics of the school and community (Wasley et al., 1997). For example, in a detailed and comprehensive study of 24 restructured schools, Newmann and Wehlage (1995) found that parent participation in elementary, middle, and high school could reinforce student learning and increase the school's organizational capacity, but it depended upon the politics and leadership within the school—that is, progress toward building a community was impeded in schools where adversarial relationships or power struggles existed. In fact, parent involvement in school reform efforts can meet with many barriers, including teacher resistance, parent and teacher apprehension, and parent and teacher reluctance (Haynes, 1998).

Other types of local politics can also serve as barriers to reform. Studies of NAS designs have shown that local politics plays a critical role in the success of the models. Mirel (1994) provided a detailed case study of how politics blocked the adoption and implementation of a NAS reform, citing local control, the role of teachers and teachers' unions, and active parents as intervening forces. Further, in studying the demonstration phase of NAS, Bodilly (1996) identified several political factors as barriers to implementing the designs. In addition to the lack of the effective use of school autonomy, as previously mentioned, another issue that influenced NAS implementation efforts was conflict between the design teams and the schools; for example, the design teams lacked political power to affect the system dictating a school's autonomy level. Bodilly (1998) also reported that implementation was delayed in districts with political issues, leadership turnover, and elections and crises, due to the strong influence that local community issues and district politics had on design implementation.

Thus, there is a certain level of interdependence between the school, district, and design team, and successful implementation requires collaboration among all three (Friedman, 1999). These multiple actors and the political nature of their interactions make efforts at school reform complex, because "...no single one...controls all the inputs needed to ensure implementation outcomes" (Bodilly, 1998, p. xvi). The result can be slow progress in fully implementing CSR models.

The Role of Districts

In the political school reform environment, the district can play an influential role in affecting the pace, form, and quality of school restructuring (Fullan & Stieglbauer, 1991; Tyack & Cuban, 1995). Districts play a central role in fostering the success of schoolwide reform models by setting the tone for change, establishing priorities and expectations, and allocating resources (Elmore & McLaughlin, 1988). In addition, districts shape the guidance instruments that are a primary source of instructional ideas for teachers, such as staff development, curriculum guidelines and materials, teacher supervision, and student assessments (Spillane, 1996).

While districts play an obvious role in restructuring toward site-based management, they can also have a great deal of influence on what occurs at the school level through the support they provide to schools (Bodilly & Berends, 1999). District support can help give value to reform efforts (Ross, Troutman, et al., 1997) and can facilitate school-level implementation (Stringfield, Datnow, & Ross, 1998). For example, higher levels of implementation of NAS designs in the first two years were associated with districts with stable leadership that was supportive of the reform effort, had no political crises, maintained a culture of trust between the central office and the schools, enabled school-level autonomy, and provided resources for professional development and planning (Bodilly, 1998).

Other CSR studies have noted that the support and guidance of the district was a critical dimension of the reform effort (e.g., Haynes, 1998; Timar, 1989) and that the success of schoolwide projects hinges on the district's ability to provide effective coordination and service delivery (Winfield, 1991). The involvement of the district facilitates the endurance and deepness of implementation, and helps to balance the tension between top-down and grassroots approaches to reform (Muncey & McQuillan, 1996; Wehlage, Smith, & Lipman, 1992).

District-level personnel must be involved in reform because they establish the climate for change and provide resources necessary to create and sustain it (Cooper et al., 1998). Schools need active support from districts in the form of information, technical assistance, staff development, evaluation, and overall accountability (Levin, 1995). Although reforming schools one at a time is possible

with just the support of the school staff and the design teams (Glennan, 1998), there is a consensus that district support is needed in order to sustain change in schools and to scale-up comprehensive school reforms on a district-wide basis (Bodilly & Berends, 1999; Cooper et al., 1998; Honig, 1999; McAdoo, 1998).

Support from Design Teams

Besides district support, another critical source of support comes from the architects of the reform model: the design team. Changing the fundamental organization of schools, relationships, responsibilities, curriculum, instructional practice, and assessments is a complex endeavor and requires a great deal of support (e.g., Bodilly, 1998; Datnow & Stringfield, 1997; Purnell & Hill, 1992; Stringfield & Datnow, 1998). Although the level and extent of support from design teams vary, analyses of implementation efforts suggest that design team support is a critical element of successful implementation—both to districts, in the form of information to share with schools; and to schools, in the form of information, professional development, materials, evaluation, and feedback. Design team support comes in many forms. RAND studies of the NAS designs found that the quality of communication and support between the design team and the individual schools affected the level of implementation and teacher support and perception of the model (Berends, forthcoming; Bodilly, 1998; Bodilly & Berends, 1999). Design teams can also have a role in developing training to build capacity, working with schools to gain district support, and helping schools offer more planning time (Levin, 1996).

Monitoring

Another important role that design teams have is in providing support for monitoring implementation. Effective design team assistance includes the development of a system of implementation benchmarks or standards, and assisting schools in assessing their progress toward achieving these benchmarks (Slavin, 1999). Providing benchmarks against which to measure progress is considered one effective mechanism by which design teams can help

schools develop the capacity to implement quality control in order to monitor curriculum development and the delivery of instruction (Bodilly, 1996). Wasley et al. (1997) found that schools which received and acted on feedback from design teams were more successful than schools which relied on internal self-evaluation. And in one study of a Roots and Wings CSR design, teachers perceived implementation checks by the design team as helpful in improving classroom practice (Ross, Troutman, et al., 1997).

Collaboration

In addition to monitoring implementation through the use of benchmarks, ongoing feedback, and other mechanisms, design teams can offer support in the form of local and national networks and professional development, including training materials and consultation with national facilitators. Networks and collaboration for teachers within and among schools are important for the success of CSR designs (Stringfield & Datnow, 1998). Bodilly (1996) pointed out that CSR designs require a new vision of professionalism, where teachers play a major role and assume responsibility for the schools. This gives design teams an opportunity to provide training and suggestions for new forms of interactions between parents, teachers, and students. Establishing networks and collaborative opportunities for teachers is one method of design team support that teachers seem to consider effective. Cooper et al. (1998) found that participation in network activities was positively related to several components of implementation. In addition, results from the first year evaluation of the Memphis City Schools restructuring effort indicated that teacher collaboration and collegiality were major strengths associated with all of the restructuring designs implemented in the city's schools (Ross, Troutman, et al., 1997); and in an analysis of 980 teacher surveys, Bol et al. (1998) found that internal collaboration was the most frequently identified positive aspect of design implementation. In addition, in a study of 10 Coalition of Essential Schools sites, McDonald (1996) found that using design teams for networking, and to leverage district and state support, were effective strategies.

PROFESSIONAL DEVELOPMENT

While networks are important, the main type of support from design teams is the provision of professional development. Professional development and training opportunities are a critical component of restructuring efforts (Darling-Hammond, 1995; Joyce, Murphy, Showers, & Murphy, 1989; Lieberman, 1995; Peterson, McCarthy, & Elmore, 1996; Quartz, 1995), and are at the heart of school change efforts (Fullan, 1994a; Louis & Miles, 1990). In a review of programs for at-risk students, Fashola and Slavin (1997) found that effective programs provided extensive professional development to teachers.

Likewise, studies of CSR show a link between the provision of professional development and successful implementation. Muncey and McQuillan (1996) found that professional development was an important factor in continuing efforts to deepen and extend reform strategies, and Haynes (1998) emphasized the importance of professional development in renewing staff knowledge and understanding of, and commitment to, the school change process.

Design-based professional development is provided in different ways. Some models provide professional development through regional facilities, others rely on design team personnel visiting the local site, and still others rely primarily on written material. While more research needs to be done on the effective delivery of assistance, there is some indication of what works. For example, Bodilly (1998) found that higher levels of implementation were associated with designs that had whole-school training, facilitators, and extensive training days. Also, teachers reported that model adoption was facilitated by frequent training, proximity to the design developers, and the availability of already established sites where teachers could observe the program in operation (Smith et al., 1997). These pilot or satellite centers can provide hands-on experiences for schools and play a key leadership role in offering technical assistance to new schools (Levin, 1996). And a consistent finding across CSR studies is that teachers attribute slow or weak implementation to insufficient training (e.g., Ross, Troutman, et al., 1997; Smith et al., 1997).

The specificity of the content of professional development varies from design to design. Some CSR models are very prescrip-

tive and provide curricula and assessments (e.g., Success for All), while other models rely more on the school to develop materials that support the philosophy of the reform (e.g., Coalition of Essential Schools). As noted earlier, models which rely more on local development are often slower to implement, and studies of design team support suggest that locally-developed models may be more challenging to implement because teachers struggle with designs that have fewer prescriptive guidelines.

In a review of strategies for educating disadvantaged children, Stringfield et al. (1997) found that programs which provide specific materials and training to teachers were more likely to be implemented, and more likely to be effective, than models which were less specified and relied on teachers to develop materials. Similarly, Bodilly (1996) found that the more prescriptive CSR models had faster implementation rates. More specifically, she noted that more successful implementation occurred where design teams had specific models of curriculum, standards, and assignments; required schools to make these design changes immediately; focused teachers' attention on curriculum and instruction matched to standards; and where a design team member or school-level facilitator was available to aid the school in day-to-day implementation and the provision of materials and specific models to use in classrooms. The more comprehensive and systemic designs, meanwhile, required teachers to focus on multiple goals, such as governance changes, the integration of social services, and/or discussions of appropriate pedagogy, and as a result experienced slower implementation.

Smith et al. (1997) found that designs that offered a structured curriculum and specific classroom guidelines were faster to start up than models which required teacher-developed materials or encouraged the development of a school vision or organization in the first year. They also found that teachers felt frustrated by designs which called for higher standards but did not outline specific mechanisms to achieve them.

In several studies, teachers expressed the desire to be provided with specific examples of instructional practices which reflected the reform. In some cases, teachers reported that training and materials from the designs were too abstract, and that the absence of concrete lesson plans or guidelines made it difficult to translate the tenets of the reform model into classroom practice (Bol

et al., 1998; Ross, Troutman, et al., 1997; Smith et al., 1997, 1998). If teachers are not given well-defined guidance in translating the reforms into classroom practice, they often continue to teach in the same ways (Bodilly et al., 1995).

Specific examples of practices are even more helpful when they take into consideration the particular school context. CSR studies show that teachers find professional development that is tailored to their specific needs the most helpful. In Cooper et al.'s (1998) study of one school reform design, most principals and facilitators reported that small training sessions tailored to the individual needs of the school seemed to work best. Similarly, Smith et al. (1997) found that teachers were most satisfied with those CSR models in which training was targeted to individual schools, the particular population of students, and teachers' experiences.

Not all teachers, however, agree that specificity is desirable. A common criticism from teachers is that prescriptive designs suppress teacher creativity (Ross, Troutman, et al., 1997) and require an inordinate amount of time for preparation (Cooper et al., 1998). Furthermore, some design teams purposely have non-prescriptive designs because their model intends to focus on general philosophies rather than curriculum. For example, Heady and Kilgore (1996) acknowledged a tension between the importance design teams may place on the larger objectives or general principles of reform, and teachers' need and desire for specific, practical guidelines.

Resources

Support from design teams is not without costs. Although resource requirements differ across schools, for example, a school with advanced technology will have fewer costs than a school that needs to upgrade its technology, and larger schools require more resources for implementation than smaller schools (Odden, 1997a). Resources are critical to any reform effort, however (Cohen, 1994; Keltner, 1998; McLaughlin, 1990), and it is unclear whether schools can support CSR efforts solely by efficiently reallocating existing resources, or whether they need additional funds to support the designs (Odden, 2000). In many cases, restructuring a school has required additional materials and human resources (Wehlage et al., 1992). Therefore, it is not surprising that design implementation

weakens or disappears when resources become unavailable (Glennan, 1998). Lack of resources is a common problem among schools implementing CSR models (Smith et al., 1997), and state and district budget cutbacks often require creative financial solutions, such as securing funds from private foundations (e.g., Gonzalez & Tucker, 1996; Haynes, 1998).

Overall Allocation

Keltner (1998) argued that resource reallocation is the key to successful financing of CSR. In his cost analysis of 58 NAS schools, he found that nearly 40 percent of the average first-year costs (estimated at $162,000) was met through reallocation of the school's personnel, money, and material budgets. Odden (1997a), in his cost analysis of NAS designs, also emphasized the importance of the reallocation of school budgets; he pointed out that the costs of staffing, materials, and professional development for the CSR designs are less than those of the resources already present in most schools. He described several methods of reallocation: redefining staff positions to increase responsibilities, reducing the number of specialists (e.g., resource specialists are often not needed in the reform designs), and increasing emphasis on ongoing training. Odden (2000) also said that strategies for helping low-achieving students can be financed by reallocating Federal and state resources from compensatory, bilingual, and special education programs.

Both Keltner (1998) and Odden (1997a) suggested reallocating the use of Title I funds to support the CSR designs. Odden (1997a) also suggested pooling the district's allocations for teacher professional development, applying for funds from state categorical grant programs, applying school improvement funds already provided by the state to CSR efforts, and creating an investment fund to help cover the costs of the design. In addition, in his analyses of the research on decentralized decision making, Odden (1997b) described how some districts provide funds for the first and second years of implementation, to provide schools with time to reallocate their existing budgets.

Studies have shown that successful resource reallocation is related to implementation success. Bodilly and Berends (1999) found in their analysis of NAS data that there was a strong positive

relationship between the amount of money a district allocated to professional development and teacher planning and the level of implementation achieved by the school. Similarly, reports from teachers indicated that design implementation was weakened by shortages in such resources as local personnel, materials, and, for some designs, appropriate technology; and that implementation was facilitated when the school had an organizing principle around which to structure the utilization of resources (Ross, Troutman, et al., 1997; Stringfield et al., 1998).

Bodilly (1998) noted that resource allocation is a mechanism by which teachers judge the commitment of the school's leadership to the reform. Resources are probably also linked to teachers' support. For example, in an analysis of teacher survey data, Berends (forthcoming) found that teachers who reported having more resources for implementation, such as materials, professional development, and time for planning, were also more likely to report having greater support for the design; and teachers' perceptions of resources and support for the designs were positively related to teacher-reported implementation.

Planning Time

Resources can be conceptualized in many ways, including staff, materials, and time. In particular, over the past several decades, lack of preparation and planning time has been a consistent and primary frustration for teachers trying to implement school reforms (Elmore & McLaughlin, 1988). Not surprisingly, obtaining sufficient time for teachers' professional development, planning, and preparation is a key resource issue in CSR efforts. Reform brings an increased workload, but often no increase in preparation time. Insufficient time to plan for implementing the models is a common barrier to implementation and a frequent concern of teachers (Muncey & McQuillan, 1996; Ross, Troutman, et al., 1997; Smith et al., 1997). In addition, Bol et al. (1998) found that a lack of resources was the most negative aspect of design implementation for each of the eight Memphis school models, and the two resources most frequently identified as insufficient were planning time and materials.

In other studies, teachers and staff reported that perhaps the most important factor in the adoption of schoolwide programs

was allowing teachers time for curriculum development and interactions with other teachers (Meyer & Wong, 1998). Teachers noted that having time allotted during the day to meet as a team was critical to building effective teams (Ross, Troutman, et al., 1997), and schools where more planning time was allowed had higher levels of implementation (Bodilly, 1998; Muncey & McQuillan, 1996). Further, in a case study of five high-performing schools, Miles and Darling-Hammond (1998) found that one principle of successful resource reallocation was provision of more common planning time for staff.

One reason why time is so problematic is that it is difficult to predict the amount of time required to adopt a schoolwide reform. CSR studies have reported that teachers are unaware of the amount of time and extent of change required to fully implement a design (Berends & Chun, 1999; Ross, Troutman, et al., 1997). Adelman and Pringle (1995), reporting on 14 case studies of restructuring schools, concluded that "school reform takes more time than is typically allocated to it, and much of that time is not paid for" (p. 29). Keltner (1998) documented the substantial proportion of the total CSR budget that is accounted for by teacher time; he concluded that teacher time for planning and professional development accounted for approximately 40 percent of the total yearly budget (estimated at $66,000) for a CSR design in the first year of implementation. Further, he found that reallocated funds were used disproportionately for paying for teacher planning and professional development time: almost 80 percent of the funding for teacher time was provided by reallocation.

FUNDING

Besides time, money is a resource that is essential for the success of comprehensive schoolwide reform programs. First-year costs vary greatly from program to program. Keltner (1998) estimated the average yearly cost in 1996-97 was $162,000, and Odden (1997a; 1997b) estimated that first-year costs ranged between $100,000 and $350,000. Five-year costs also vary, and have been estimated to range from $100,000 to almost $600,000 (Herman et al., 1999). The Federal CSRD program provides grants of up to $50,000 per school, but this money is allocated to assist schools in implementation, not to fully fund the reform effort. In fact, in most cases

this amount is not enough to cover the costs of the reform effort, especially in the first year of implementation. As with many programs, comprehensive reform models experience higher costs in the first year of implementation than in later years due to the one-time costs of training and materials (Slavin, 1999). Keltner (1998) found that 60 percent of the cost of implementing a design was supplied by outside sources, such as Federal entitlements or grants, district funds, or private grants, while about 40 percent was provided through the reallocation of personnel, materials, and budgets.

In a cost analysis of three reform models (Accelerated Schools, Success for All, and the School Development Program), Barnett (1996) concluded that information on resource requirements was very limited, and suggested the need for more information about the extent to which the cost that a particular school incurs in adopting a CSR model is typical. In a cost study of the same three models, King (1994) said that site-level variables must be considered in cost estimates of the models, because opportunity costs and the productivity of personnel resources varied across sites, which in turn caused great variation in program costs. She concluded that there is insufficient information on the cost of comprehensive school reform efforts because studies have paid little attention to the cost implications of the reforms.

Although there is not much information available on the cost of CSR models, we do have some information about the levers and mechanisms necessary to give schools the flexibility to access the needed resources. It has become evident that schools adopting CSR designs must have autonomy to ensure that they have discretionary power over the budget and resource allocations, such as staffing positions and hiring and firing, in order to be responsive to the design goals (Bodilly, 1996; Bodilly & Berends, 1999). Many teachers and principals do not perceive that they have the authority to reallocate resources to support the designs, however, and this impedes implementation (Glennan, 1998). The necessity of school decision-making authority over budget and resource allocation for successful CSR implementation is consistent with the autonomy necessary for site-based management (see Bodilly, 1996; Murphy & Hallinger, 1993; Wohlstetter, 1995).

Context

Local, District, and State Factors

The effects of implementation factors such as design choice, leadership, the political environment, and design team support are mediated by the local, district, and state context. Only a few studies, however, have examined the contextual variables that influence successful implementation of CSR models.

There is some information on how designs differ in implementation at different grade levels. In a study of the Memphis City Schools NAS initiative, Ross, Wang, et al. (1999) reported that high schools were slower to implement the designs than middle schools, and middle schools were slower starting than elementary schools. Similarly, Bodilly (1998) found that implementation was slower in the secondary grades than in the elementary grades, and slower in traditionally structured secondary schools than in alternative or restructured secondary schools. Smith et al. (1997) noted that secondary schools which had to tailor elementary school designs to their schools were slow to start implementation, and that teachers in the secondary schools reported having to increase planning time significantly. Secondary schools may be slower to implement CSR designs because they must be responsive to graduation requirements, standardized tests, and college entrance exams, and these serve as significant barriers for high schools in adopting the models (Bodilly, 1996). As a result of these barriers, Bodilly and Berends (1999) concluded that secondary schools need additional implementation supports.

In addition to the grade and level of the school, parent and community context can play a role in the implementation success of schoolwide programs. For example, in the Memphis City restructuring schools which reported greater parental involvement, teachers were more positive about implementation of the designs (Smith et al., 1997); conversely, implementation in other schools was weakened where parents did not understand the design (Ross, Troutman, et al., 1997).

Student mobility also can affect implementation. For example, teachers in restructuring schools said that transient student populations weakened the acclimation of students to a particular reform

model (Ross, Troutman, et al., 1997). And Stringfield et al. (1998), in their study of 13 culturally and linguistically diverse schools, found that demographic and numeric shifts in the student population decreased the level of implementation of school reform models.

Teacher characteristics can also influence implementation. One study of CSR implementation examined how support and implementation varied according to teacher characteristics. In his analysis of teacher survey data, Berends (forthcoming) found that teachers over age 40 were significantly less likely to support the reform changes, and that schools with a high percentage of minority students had significantly less teacher support than low-minority schools. The survey data also indicated that there was no significant relationship between implementation levels and teachers' gender, race or ethnicity, type of educational degree, age, or years of experience in the school. These results are consistent with the literature on effective schools, which suggests that teacher characteristics are not consistently related to student achievement (Purkey & Smith, 1983).

Pace of Reform

Another important contextual element of implementation is time. Studies of CSR thus far might only be considered preliminary, considering the length of time it takes for complete school restructuring. School reform is a slow process (Cohen, 1994). For example, Levin (1991) estimated that it takes approximately six years for a school to transform completely into an Accelerated School; Haynes (1998) concluded that institutionalizing the Comer School Development Program takes five to seven years; Hess (1995) predicted that it would take more than five years for the Chicago school reform changes to affect achievement; and Darling-Hammond (1988) said that reform of a single school can take ten years. Sizer agreed that reform of a single school can take many years; he explained that "We must be humble and patient in attempting [reform]. Schools are complicated and traditional institutions, and they easily resist all sorts of well-intentioned efforts at reform" (1984, p. 224).

There is evidence that implementation levels can vary dramatically even from the first year to the second. For example, Berends (forthcoming) found that the levels of increased implemen-

tation from year one to year two were statistically significant. These findings are supported by case studies of NAS that revealed that implementation deepened from the first to the second year, and that design teams agreed that many changes take much longer than two years to implement (Bodilly, 1996). Even after three years, many NAS designs were not fully implemented (Bodilly & Berends, 1999). For example, Bodilly (1999) visited 40 NAS implementing schools in Spring 1996 and Spring 1997, and found that only about half of the schools were implementing at the level expected by design teams.

Long-term commitment to a reform model develops over time, and teachers need strong assistance in understanding it, concrete examples of how to make the changes, focused training, and time (Bodilly, 1996). As discussed earlier, some designs are slower starting than others. For example, Smith et al. (1998), in a study of 34 restructuring schools in Memphis, found, as did Bodilly et al. (1995) and Smith et al. (1997), that some comprehensive designs which focus on philosophical changes (e.g., ATLAS, Coalition of Essential Schools) are intentionally slower starting than designs that focus on core curriculum (e.g., Success for All, Roots and Wings). The former designs place more emphasis than the others on governance, organizational structures, and home-school connections, which require a diffuse focus and, as a result, more time.

It takes many years for models to be implemented and for their effects to be studied (Barnett, 1996); and teachers say that it can take years before they understand what the design entails (Bodilly, 1998). The slow pace of school reform affects the ability to assess implementation success, as well as the ability to measure effects on teachers, students, and parents. A further complication is that while implementation can strengthen over time, it can weaken as well. Even now, evaluations are finding that, consistent with previous research, implementation weakens over time in some cases (e.g., Muncey & McQuillan, 1996). Recognizing the importance of this possible trend, ongoing studies of CSR efforts are tracking changes in level of implementation and their effects on outcomes (Berends, 1999).

Policy Environment: Systemic Reform

Comprehensive school reform operates in the wider environment of systemic reform. Systemic reform was designed to improve achievement by fostering the alignment of all levels of the education system, such as alignment between content and performance standards and between assessments and the curriculum. Reform efforts were envisioned as a way to support school-level change through school initiative, while providing support from the wider policy environment (Corcoran, 1997; Fuhrman, 1993; Smith & O'Day, 1991).

Systemic reform has been conceptualized as combining coordinated state policies with restructured governance (Smith & O'Day, 1991). Sometimes called standards-based reform, this type of reform is an effort to make the educational system more rational, coherent, focused, and efficient (Cohen, 1995). The primary examples of national and state systemic initiatives are Goals 2000; the National Science Foundation State Systemic Reform Initiative; and the California, Kentucky, and Vermont reforms (Cohen, 1995).

O'Day and Smith (1993) stated that in order for systemic reform to work, a restructured governance system must allow schools the resources, flexibility, and responsibility to design and implement strategies for teaching and learning that respond to curriculum and standard changes. They said that school-level flexibility and control is essential to the successful operation of the system. Similarly, Fuhrman and Elmore (1990), drawing on a study of educational reform in six states, concluded that state-local relationships is not a "zero-sum game," but should be a model of mutual influence. Smith and O'Day (1991) also argued that systemic reform requires a combination of bottom-up and top-down change. In short, systemic reform ideology supports a combination of top-down, bottom-up approaches, in which state-level guidance and accountability combine with local-level initiative and responsibility (O'Day & Smith, 1993; Schmidt & Prawat, 1999).

Systemic reform affects the choice and implementation of CSR models in several ways. For example, in an implementation study of the CSR program in several midwestern states, Friedman (1999) reported that schools and districts considered fit with state reform goals and mandates in deciding whether to apply for CSRD

funds, and in choosing models. Friedman (1999) concluded that coordinating and integrating CSRD with state-level systemic reforms was a major contributor to the efficiency and effectiveness of reforms. Similarly, Wasley et al. (1997) found that the schools which made greater progress were the ones that were able to connect ongoing state, district, and school-level reform efforts with the CSR design.

This coordination is a complex undertaking. Although the district office may support CSR, the competing demands of statewide systemic reform may constrain the district's choices in curriculum and instruction, and this may cause a tension between the district and its implementing schools (Ross, Alberg, & Nunnery, 1999). Further, training and development for other reform efforts can interfere with the time that would otherwise be spent in professional development for the CSR model (Hatch, 1998). Thus, it might be useful to explore more fully how systemic reform initiatives affect incentives for school restructuring (Barnett, 1996).

Several recent studies have addressed the issue of coordinating the goals and mechanisms of systemic reform with those of comprehensive schoolwide programs. Glennan (1998) found that the lack of alignment of designs with jurisdiction accountability systems, such as student assessments and school-level report cards, significantly impedes implementation. Bodilly (1998) also highlighted the problematic nature of the incompatibility of accountability and assessment systems, and the conflict between what was being learned and what was being tested. Smith et al. (1997) found that every school in their study of the Memphis City Schools restructuring initiative was concerned that the reform designs were not closely aligned with the Tennessee Comprehensive Assessment Program (TCAP). Bodilly and Berends (1999) said that case studies of NAS revealed that new methods of teaching and learning were often abandoned in order to drill for performance on standardized tests; and noted that "high stakes tests are a two-edged sword," in that they may motivate teachers and schools to adopt new curriculum and instructional strategies associated with CSR, but the same tests may discourage them from adopting a richer, more in-depth curriculum (see also Mitchell, 1996).

Teachers in CSR studies noted that traditional evaluations did not include or reflect what they perceived as important out-

comes of the reform models, such as higher order thinking skills (e.g., Levin, 1996). Teachers were also wary that the skills required by state-mandated tests were not being mastered by students. Some teachers even feared that implementation of the reform design would negatively impact test scores, because they thought that at-risk students needed more basic instruction to work on academic skills (Ross, Troutman, et al., 1997). In fact, Heady and Kilgore (1996), in an analysis of schools implementing the Modern Red Schoolhouse design, revealed that in one school teachers and students focused so much on the core curriculum of the reform that they did not prepare for the state mandated tests, and their scores decreased.

Aligning designs with district accountability systems to prevent teachers from having to deviate from or abandon the designs in order to satisfy state standards is a continuing challenge (Glennan, 1998). Although there are many challenges involved in navigating changes in assessments (see Mitchell, 1996), several design teams have suggested administering a separate assessment that includes components from the state assessments as well as ones that were more aligned with the design. Schools have also tracked other measures, such as teachers' assessments of student achievement growth (Gonzalez & Tucker, 1996), and improvements in dropout and attendance rates, discipline referrals, and post-high school plans; however, there are no widely accepted alternative measures, although there is agreement that conventional standardized assessments do not measure many valued student outcomes (MacMullen, 1996).

Darling-Hammond (1997) suggested that most restructured schools have been operating under waivers from traditional school requirements, primarily because "they cannot simultaneously meet those requirements and do the teaching that produces student success" (p. 332). Many believe that current tests are not good judges of schools' efforts to meet new goals or the progress of school improvement programs (e.g., Romberg, 1992; Tushnet, 1992). Teachers in restructuring schools agree, saying that traditional evaluations do not reflect what they perceived as important outcomes of the reform models (Muncey & McQuillan, 1996; Ross, Troutman, et al., 1997).

Principals are also concerned about the alignment between

state assessments and CSR models. In interviews, 20 NAS school principals reported that most standardized tests were not aligned with the instructional practices that were part of restructuring schools, and that the content of the tests did not address the changes in behavior and learning that the reforms were targeting (Mitchell, 1996). Although the extent of alignment differs according to the model design and the state's particular standardized test, and the design teams often emphasize that their designs will help schools and districts raise scores on their mandated tests, the conflicting incentives between state assessments and reform objectives have yet to be resolved.

The Effects of Comprehensive School Reform on Student Outcomes: Preliminary Findings

Although much of the CSR research focuses on implementation, there is some information about student outcomes, based on both previous related research and recent CSR studies. Comprehensive school reform designs are, for the most part, an outgrowth of the effective schools movement. The effective schools literature points to specific characteristics of successful schools, such as school-level management, leadership, an articulated curriculum and organization, schoolwide development of staff, parent involvement and support, schoolwide recognition of academic success, maximized learning time, and district support (Purkey & Smith, 1983). Most of the practices encompassed by CSR models are comprised of these components, which have been shown to be effective in increasing student learning. Thus, although the effective schools literature did not prescribe the methods by which schools can become successful, the research described the components of successful schools, and in this way can be considered to provide empirical support for CSR models (e.g., Wang et al., 1993).

More recent research on school programs also provides support for CSR models. For example, Fashola and Slavin (1997) reviewed programs for at-risk elementary and middle school students. Since there was little evidence of ineffective programs, the researchers were limited to identifying the conditions that are typically present in programs that are successful. They identified a set of elements usually present in schools with programs that work: a small set of very well-specified goals, a clear set of procedures and materials linked to those goals, and frequent assessments that indicated whether students were reaching the goals. The programs incorporated many elements, such as research-based curricula, instructional strategies, classroom management techniques, assessments, and methods for helping underachieving students, all of which were coordinated with instructional goals. Similarly, a reanalysis of data from the national evaluation of Chapter 1 (Puma et al., 1997) indicated that schools with a well-integrated, coordinated approach to curriculum instruction and remedial services had higher achievement levels than schools using more targeted assistance strategies (D'Agostino, Borman, Hedges, & Wong, 1998).

Findings from these evaluations can be used to infer that CSR models will experience positive achievement results after they have reached adequate implementation, but presently there is insufficient evidence available for most CSR models to determine their effectiveness. Fashola and Slavin, synthesizing CSR evaluations, have concluded that schoolwide designs showed promise, although conclusive evidence of program effectiveness is not available (Fashola & Slavin, 1997; Slavin & Fashola, 1998). For example, the American Institutes for Research (AIR) synthesized the outcome research on 23 CSR models, indicating a similar conclusion: that very few of the models have been the subject of high quality evaluations that justify confidence in their effectiveness (see Herman et al., 1999). In addition, the few models that do have a substantive amount of research (e.g., Accelerated Schools, Coalition of Essential Schools, Success for All, and the School Development Program) are models for which evaluations were conducted mainly by the design teams, not objective third-party evaluators. Further, most of the studies of CSR do not meet the criteria of rigorous evaluations; they include neither randomized assignment to the model, matched control groups, the following of individual students over time, nor replicated studies (Slavin, 1999).

Until now, most of the CSR studies have focused on implementation; however, the RAND study of NAS is now turning to evaluation of student outcomes, and several very recent studies of schoolwide reform in Memphis City Schools have evaluated student outcomes. The results of the outcomes studies of the Memphis City Schools NAS initiative show promising results. Ross, Sanders, Wright, and Stringfield (1998), in an analysis of Memphis City Schools' 1995 cohort of 25 restructuring elementary schools (grades 2-5), found that after two years of implementation, student achievement gains (measured by standardized achievement tests) at restructuring schools were significantly higher than at matched control and other schools, and that program effects were significant for low-achieving schools, but not for high-achieving schools.

Similarly, Ross, Troutman, et al. (1999) analyzed third-year data from 25 schools that began their original restructuring effort in 1995, and second-year data from 12 schools that also began restructuring in 1995, and found that restructured schools generally outperformed non-restructuring schools. The most positive impact

was experienced by socioeconomically disadvantaged students. These gains were not found for schools that started restructuring in 1996, however, and Ross, Troutman, et al. hypothesized that this may be because control schools were becoming increasingly similar to restructured schools. Further, consistent with implementation studies that showed curriculum-based designs (e.g., Success for All) were faster starting than more philosophical designs (e.g., Accelerated Schools), curriculum-based designs tended to show significant differences in achievement with their matched controls, whereas the more philosophically-based designs did not (Ross, Wang, et al., 1999b). Several other studies using matched control designs have also reported effects on standardized test scores (e.g., Chasin & Levin, 1995; Knight & Stallings, 1995; McCarthy & Still, 1993).

Given the length of time it takes for a school to implement a schoolwide reform model fully, it is wise that evaluations of CSR programs have focused on implementation instead of student outcomes. But for schools seeking guidance in choosing and adopting a CSR design, the limited data on achievement outcomes are problematic. As many have pointed out, "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" (Legters & McDill, 1994, p. 42). This type of information is important for schools to have to help them choose designs that will be effective for their particular student and teacher populations.

As designs become more mature, outcome evaluations are becoming more practical and appropriate. The challenge is to ensure that evaluative outcome studies address the weaknesses of past research on school reform efforts, and provide reliable and valid attributional data about the schoolwide interventions.

RECOMMENDATIONS FOR IMPLEMENTATION

The findings from studies of recent comprehensive school reform restructuring efforts conducted over the last several years have pointed to several implications and recommendations for implementation of CSR models. These recommendations are generally consistent across evaluations and model designs. They address every stage of implementation, including model choice, the professional development of teachers, managing the change process at the school, and factors that influence the scaling-up of the CSR models.

(1) **Districts and design teams should help schools develop a shared vision and ownership of the reform.** As discussed earlier, school participation in the choice of designs is important for implementation success. Thus, districts should not require schools to adopt designs or programs. Studies have shown that teachers who participate in the decision-making process and are active participants in restructuring the school are able to implement the designs more effectively. To capitalize on this process, design teams should help staff develop ownership of the reform. The entire faculty should be included in the reform effort from the outset, and design teams and districts should help schools develop the capacity to envision and plan organizational change (Bodilly & Berends,1999; Levin, 1995; MacMullen, 1996; Slavin, 1997; Ross, Troutman, et al., 1997).

(2) **Principals need support to ensure their authority and power to shape implementation at the school level, and continuity of leadership.** Study after study has shown that the principal's leadership is critical to successful implementation. Further, successful implementation requires school-based management that enable schools to make decisions about instruction, personnel, and allocation of resources, and to adapt reforms to their particular needs. Therefore, it is important that design teams make clear what the principal's role is and offer support and training. The districts must also offer support, in the form of site-based management and resources, which will allow principals to take the lead in shaping the vision of reform at their schools (Bodilly, 1998; Christensen, 1996; Haynes, 1998; Levin, 1996; Mims, 1996; Muncey & McQuillan, 1996; Smith et al., 1997).

(3) **Teachers need more time for planning.** A frequent and common complaint of teachers at reforming schools was that they did not expect curriculum planning to take as much time as it did, and there was not enough time during the day to collaborate with other teachers in planning the curriculum and exploring instructional practices. Schools need to acknowledge that initial implementation is extremely time-consuming, and build the time into the process (Ross, Troutman, et al., 1997).

(4) **Mechanisms for across-school collaboration should be established.** Schools and design teams need to structure a process to share information and coordinate with other schools which have either adopted the same design or are in a similar stage of implementation, in order to encourage and access the development of local expertise. Demonstration sites can play an important role in demonstrating evidence of success, but a process needs to be established to connect newly implementing schools with demonstration sites in order to facilitate the sharing of information (Bodilly, 1996; Ross, Troutman, et al., 1997; Stringfield & Datnow, 1998).

(5) **Design teams should provide more specific school-based professional development, tailored to teacher and school needs.** Teachers assert that they want the design teams to provide more focused training that is specific and tailored to the population of the school, with detailed examples of how to translate the reform ideals into classroom practice. Focusing professional development on teaching and learning, and making it practical so that teachers can adapt it to their local context, facilitates implementation (Ross, Troutman, et al., 1997; Smith et al., 1998; Stringfield & Datnow, 1998).

(6) **Professional development should include discussions about changing relationships and responsibilities.** An integral component of CSR is the changing roles and responsibilities of parents, students, teachers, and the principal. The systemic changes in power structures that are part of restructuring need to be addressed. One way of doing this is to incorporate information and discussions of expectations about changing roles among participants into professional development activities. Design team support in the develop-

ment, implementation, and assessment of the change effort can help provide diverse perspectives and clarifications, and can help promote understanding among the various participants (Honig, 1999; Muncey & McQuillan, 1996; Ross, Troutman, et al., 1997).

(7) **Schools must reallocate resources and seek new funds.** In order to implement schoolwide change successfully, schools need to reallocate money and personnel, and often need to obtain new funds. They also need assistance in obtaining new resources, reallocating existing funds, and getting additional support from private foundations and community organizations. One method of reducing costs is to assign a current staff member to the position of model facilitator, instead of hiring additional staff to fill that position. Using funds from Title I to support comprehensive schoolwide reform models, as well as reallocating local funds to focus on schoolwide reform at the district and school level, are also useful strategies for funding CSR (Bodilly & Berends, 1999; Keltner, 1998; Odden, 1997a, 1997b; Smith et al., 1998; Stringfield & Datnow, 1998).

(8) **It is important to benchmark implementation, and not focus solely on student outcomes.** Given the primacy of implementation in fostering desired effects and linking them to the program, and given the variation of the pace, level, and depth of implementation across sites, it is essential to document the implementation process. Design teams can assist schools by providing benchmarks for assessing their progress. It is also important to identify the appropriate supports that design teams and districts can offer to ensure successful implementation, and to set quality standards for design team assistance in this process. Identifying appropriate supports and standards will assist in benchmarking implementation and offer insights into desired goals and practices (Bodilly & Berends, 1999; Ross, Alberg, & Nunnery, 1999).

(9) **District standards and state testing objectives need to be integrated to allow schools to link achievement goals to reform designs.** One way of addressing this problem is for design teams to assist schools in the development of alternative assessments that are relevant to the particular reform design. Designing alternative assessments, however, is expensive and difficult. Another alternative

is to develop strategies for integrating the reform design curricula with the skills assessed by state-mandated tests. In addition, for reform to be successful at the local school, districts and states must support schools through alignment of standards and assessments at the state, district, and school level (Ross, Troutman, et al., 1997; Smith et al., 1998; Stringfield & Datnow, 1998).

(10) **The importance of the district's role in CSR efforts should be highlighted.** Change must flow both ways: from the top down, and from the bottom up. Districts should provide the regulatory and political environment that facilitates its implementation. They can provide help in assessing problems, and information to assist in making choices about a design, including estimates on costs and the level of required investment overall. By helping schools understand the designs, districts can help them monitor and refine implementation. Districts can also help schools set realistic timelines for implementation and expectations for results, and assist with communication and training. However, while districts should hold schools accountable for implementation and results, they should not make district funding contingent upon district rules and regulations, and should ensure that schools have autonomy over staffing and funding decisions. In effect, districts should support schools in their restructuring efforts, but not impose rules on them (Bodilly & Berends, 1999; Haynes, 1998; Ross, Alberg, & Nunnery, 1999; Prestine & Bowen, 1993).

Districts also play a key role in providing additional funding sources. They must be willing and able to aggregate the resources needed to support the design and must have the "political and managerial capacity" to allocate resources to participating schools (Glennan, 1998). Further, district leadership should play an important role in the funding process—not only in providing extra funds and helping schools to obtain private grants, but also in supporting and guiding schools to reallocate funds and utilize Title I funds to support CSR efforts (Keltner, 1998; Odden, 1997b). Districts should be the central mechanism of accountability for schoolwide reform efforts, and the Federal government should recognize and support this role (Bodilly & Berends, 1999).

(11) **Changes in the Federal role in comprehensive schoolwide reform can facilitate the success of implementation and outcomes.** Several CSR researchers have argued for an increased and/or changed Federal role in CSR programs. For example, the Federal government might assist districts and schools in becoming more informed consumers of school reform by disseminating information about programs, realistic timelines for developing and adopting schoolwide programs, costs, resource investments, and political and regulatory barriers to implementation and the need for district support (Bodilly & Berends, 1999). The Federal government might alter its role to be a more supportive partner by providing funding and technical assistance for professional development, helping schools monitor and districts identify their needs, and exchanging information about effective practices and improvement (Wang, Wong, & Kim, 1999). Likewise, the Federal government can play a major role by supporting a nationwide enterprise of design development, evaluation, and dissemination of information from programs. Schoolwide programs could be a key mechanism by which Title I operates, and desirable Federal activities would include funding third-party evaluations of existing programs, funding the development of new models, and experimenting with innovative methods for professional development, quality control, and network building (Slavin, 1997, 1999).

RECOMMENDATIONS FOR FUTURE RESEARCH

The ability to assess the success of the CSR movement is limited by the quality of the research on schoolwide reform models. Research on the outcomes of large-scale comprehensive schoolwide programs is in its initial stages. There are many case studies of restructuring schools, but very few comprehensive, well-designed empirical studies that allow attribution to a particular schoolwide intervention and that are conducted by third-party researchers (Fashola & Slavin, 1997).

ESTABLISHMENT OF ATTRIBUTION

The classic attribution methodology, experimentation, is very difficult to establish for school programs. As Elmore (1975) noted years ago, "...the byzantine complexity of the public policy-making process makes the conduct of social experiments extremely difficult" (p. 24). In addition, the call for randomization in experimental designs is in direct conflict with the research and expert knowledge which emphasizes the importance of schools selecting their own reform model. Nevertheless, the call for randomized experiments is usually strong. For example, Ross, Alberg, and Nunnery (1999) assert the need for more planned experimentation in alternative settings, combined with rigorous evaluation designs. Despite the difficulty in making educational and social programs the subject of experimentation (Smith, 1975), it is not impossible, and it has been done.

While many researchers believe that only randomized experiments can adequately provide the basis for causal assertions, the debate continues about the extent to which this is true (Cook, 1991). But given the social and political difficulty of implementing social experiments, especially large-scale, generalizable studies, school research relies predominately on quasi-experimentation with matched control and comparison groups. These evaluation designs, with or without a matched comparison group, provide weak evidence of model effectiveness because they do not take into account the selection effects of families choosing the school, and factors such as mobility and demographic changes (Barnett, 1996; Schweinhart & Wallgren, 1993).

Alternative Study Designs

Several researchers have suggested directions that would improve the quality of study and increase the ability to make generalizations about CSR that would be useful for both practitioners and policymakers. One suggestion is to collect data on a sufficient number of models to permit generalizations about the range of effects, as well as the conditions and circumstances, that are most likely to be associated with successful implementation (Barnett, 1996). The studies of the Memphis City Schools and RAND's studies of NAS have already begun to move in this direction. Another suggestion is to employ well-designed longitudinal studies to address attribution and help identify reasonable time frames in which to expect results (Bodilly & Berends, 1999; Corcoran, 1997). A third recommendation, which would also help to attribute results to a particular program, is to identify a baseline of indicators for determining growth, collect pretest data on students, administer individual tests to students, and follow their progress over time. These methods are helpful for tracking students' improvement, and have been incorporated into some CSR research, for example, in many evaluations of Success for All (Barnett, 1996). A key challenge in longitudinal studies is student mobility and cost (MacMullen, 1996). Still another suggestion which will help to strengthen the usefulness of studies is to identify and study local organizational structures that support implementation and the institutionalization of reforms (Slavin, 1999).

Despite the consensus on the importance of professional development in reforming schools, not many studies have focused on how professional development activities related to reform designs affect classroom practice. This is a planned focus for ongoing NAS studies (Berends, 1999), and is an important consideration for other CSR studies.

Consideration of Context

As discussed earlier, more research is also needed on the effects of designs in different types of schools in different districts (Berends, forthcoming). For example, there is little information on the effectiveness of the programs in achieving implementation or

student academic improvements in multicultural, multilingual contexts (Slavin, 1999), or for disadvantaged children (Fashola & Slavin, 1997; Wang, Haertel, & Walberg, 1993). Stringfield et al. (1998) conducted one study of this nature, which showed that these programs can be implemented in multicultural contexts. Fashola, Slavin, Calderón, and Duran (1996) reviewed programs serving schools with large populations of Latino students; Muncey and McQuillan (1996) noted that smaller schools met with less conflict in implementation; and Berends (forthcoming) examined whether schools' structural characteristics, such as the racial/ethnic and socioeconomic composition and school size and level, were associated with implementation and outcomes. Otherwise, few studies address these school context effects.

Prior research indicates that school context factors can be influential in school change efforts. Previous studies have shown that large schools and secondary schools are more complex than elementary schools, and are both more likely than small schools and elementary schools to resist change because teachers are less likely to collaborate in a way that would enable them to work around a common mission, as envisioned by whole-school designs (see Lee, Bryk, & Smith, 1993; Lee & Smith, 1995, 1997; Newmann, Rutter, & Smith, 1989). In addition, there is limited information on how the designs change when adopted in different schools, or how designs may change over time in the same schools due to contextual or other factors (Stringfield et al., 1994). Moreover, studies are needed on the effects and process of scaling-up reforms in a multitude of rural, suburban, and urban areas (Stringfield & Datnow, 1998).

Taking into consideration school contextual factors will help answer questions about what kinds of student grouping and school organization strategies are most effective at different grade levels, and how to improve transitions from home to school, and to elementary, middle, and high schools (Slavin, 1999). Expanding studies to include different types of schools would also help our ability to generalize results and separate out effects of staff characteristics. Specifically, generalizing results to other schools is problematic because it is difficult to separate the talents of the teachers and administrators who are implementing the program from the actual model. Further, although some information is available about the characteristics of schools which have successfully implemented

the designs and features that contributed to successful implementation, there is little information to gauge how the average school that serves disadvantage children compares to the CSR schools which have been studied (Barnett, 1996).

Review of Individual Components of CSR Designs

In addition to including school context measures, analysis of the separate components of CSR models would be instructive. Although determining the relative contributions of each component of a multi-faceted program is not possible with most common evaluation designs (e.g., Schweinhart & Wallgren, 1993), it would be useful to attempt to correlate the relative contributions and interactions of different components of a CSR model to particular outcomes (Barnett, 1996; Madden et al., 1993). Separating out components would provide information about the uses of paraprofessionals, the types of professional development that work best, and the ability of preservice and teacher induction programs to contribute to improving teachers' skills and knowledge (Slavin, 1999). Also, although rarely addressed, separate components may operate differently in different settings, and the cost implications may vary (Madden et al., 1993).

Future studies should also examine outcomes with respect to such factors as implementation quality (e.g., depth and extent of implementation), school climate, and teacher support, and the relationship between the restructuring design and teacher effectiveness and mobility over time (Ross, Troutman, et al., 1999). Teacher mobility is a key issue because a substantial part of the success of comprehensive schoolwide reform may hinge on the attraction and retention of dedicated teachers who support the reform. Evaluations should track changes in the school's staff and students in order to measure the extent to which CSR designs may decrease turnover (Barnett, 1996).

Costs and the Impact of Resources on Outcomes

As previously discussed, there is very little information available on the cost of CSR designs and how costs may differ between districts. Also, there have been no thorough cost studies

conducted in conjunction with outcome studies. And important components of cost, such as the increased time and effort required by staff, parents, and students, have not been considered in CSR studies. Further, the potential cost of widespread implementation is unclear, but it would probably require extensive training and the development of a supportive infrastructure (Barnett, 1996). Collection of individual student-level descriptive statistics each year on such factors as per student expenditures, student-staff ratios, and class sizes would provide information about cost changes and the source of resources (Barnett, 1996).

Measurement of Student Achievement

Another research issue that needs to be addressed is the measurement of student achievement. As previously mentioned, statewide assessments often do not consider some of the most important goals of a reform, such as improving student-teacher relationships, improving critical thinking skills, and increasing student engagement. Because they fail to assess students' ability to think critically and to solve challenging real-world problems, standardized tests have limited ability to measure what students actually know and can do (Berlak et al., 1992; Wiggins, 1993). Teachers in CSR studies noted that traditional evaluations did not reflect what they perceived as important outcomes of the reform models, and also were wary that the skills required by state-mandated tests were not being mastered by students. Some even feared that implementation of the reform design would negatively impact test scores, because at-risk students need more basic instruction in academic skills (Ross, Troutman, et al., 1997). Since "programs almost always have their strongest impacts on the objective they emphasize" (Fashola & Slavin, 1997, p. 291), and in the years closest to the intervention period (Slavin, Karweit, & Wasik, 1993), it would be helpful if evaluations accounted for these factors and used assessments that are aligned with the reforms, both in terms of content and timing. Moreover, there is a need to think about what types of accountability mechanisms, for both the school and teacher, could simultaneously encourage innovation while meeting high performance standards. It would be particularly useful to identify ways that testing can be employed "as an incentive for improvement, innovation and

capacity-building and not solely as a means for punishment" (Bodilly & Berends, 1999, p. 117). Along these lines, it also would be informative to have more research that studies the reform efforts from the students' perspective (MacMullen, 1996).

It is apparent that there is much room for improvement in studies of school change efforts. Legters and McDill (1994) claimed that "[n]o 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" (pp. 42-43). Many CSR researchers acknowledge the weaknesses in their studies and are seeking ways to improve study designs. Among their recommendations are the funding of independent research organizations to conduct multi-site randomized evaluations with five- to ten-year follow-ups (Barnett, 1996); and Federal sponsorship of a reform design competition, followed by support for design team evaluations and eventually third-party evaluations of promising programs (Slavin, 1997).

CONCLUSIONS

The conclusions that can currently be drawn about comprehensive school reform designs apply mainly to implementation. The school's participation in design choice is important for implementation success. Change is facilitated when teachers are active participants in the process. Having the majority of teachers support the reform is a necessary precondition for full and timely implementation, and also for the reform to be a "whole school change." While districts can and should provide information about the designs, schools themselves must choose. This illustrates one area where centralized information and influence can work in conjunction with local autonomy to achieve desired results. Another key finding about design choice is that many schools have the choice of either externally- or locally-developed models, and studies have shown that local development requires more time, and that external models are more successful.

Once a design is chosen, the implementation success is largely dependent upon leadership; faster start-up is associated with effective principals, and lasting implementation is associated with stability and continuity in leadership, as well as continuous support. These findings suggest a potential complication in the scale-up of schoolwide reform. If a design is largely dependent on the influence, commitments, and leadership abilities of talented and dedicated principals, then large-scale expansion to many schools may be problematic (Muncey & McQuillan, 1993).

One potential solution is to focus efforts on changing roles in the entire school system. Reforming schools have to deal with shifts in roles and responsibilities (Thompson, 1994); the change in power structure is a key element of CSR. Although the design team has a role in providing information to schools about changing roles, district support in altering the power structure is critical, especially for sustaining change and scale-up efforts.

Implementation also relies on support from the design team, which has a prominent role in facilitating collaboration and providing professional development. Networks, both local and national, contribute to the successful implementation of CSR models. Professional development, however, is the primary mechanism of design team support. In several studies, teachers have expressed

the desire for more specific training on how to translate the reform into classroom practice. But there is a tension between increasing prescriptiveness and stifling creativity, and between a design team's goal of having a school address philosophical educational issues and the teacher's need for specificity.

In addition to the issue of specificity, studies indicate that schools need more resources to implement CSR designs. Often teachers do not have enough preparation or collaboration time to implement the models. And although not much is known about the costs of the designs, especially as costs may vary from site to site, it is evident that schools need to have autonomous control over their budgets and resources in order to make site-based decision making meaningful.

Along with resources, contextual factors also affect implementation. Studies show that it is more difficult for secondary than elementary schools to implement the designs, that active parent involvement in school change efforts facilitates implementation, that mobility in teacher and student populations impedes implementation, that teacher demographic characteristics do not seem to affect the process of school change, and that full implementation takes a long time—five years or more.

Schoolwide change occurs not only in the contextual environment in and around the school, but also in the wider policy environment. Schools must address the challenges of integrating schoolwide programs with systemic reform efforts. This involves addressing the conflict between accountability to statewide standardized tests and faithfulness to a particular CSR design, which may not address those skills targeted by the statewide assessment.

Findings on outcomes are limited, in large part because the CSR designs have only been in effect for several years and it takes at least that long for effects on student achievement to show. Also, many reviews of individual designs that have been conducted are not rigorous studies and do not allow the inference of causation. The effective schools literature suggests that most of the designs contain practices that are consistent with successful schools, but most CSR studies have not assessed the outcomes of these practices. However, the RAND New American Schools (NAS) study is now focusing on student outcomes (results are not yet available), and the few studies on Memphis City Schools and single-model evaluations which have measured student outcomes show promising results.

New studies of CSR outcomes must address the weaknesses of past research, as some are doing. Studies should be led by objective third-party evaluators, and contain a longitudinal component that follows students over time, in order to make attribution possible. Also, studies need to address cost issues and consider the role of school and district contextual factors in implementation and outcomes; and they should use assessment instruments that address the goals of the reform design.

Another area that needs attention is providing schools with easily accessible information about the nature of programs that work for different types of schools and students. *An Educators' Guide to School Reform*, developed by the American Institutes for Research (AIR), is an attempt to provide practitioners with an accessible format for reviewing evaluations of most of the prominent comprehensive schoolwide reform programs (see Herman et al., 1999). In addition, the U.S. Department of Education is currently putting into place The FINDBEST system to collect evaluation evidence and consumer reviews of existing programs. These efforts are limited, however, by the extent to which quality information is available on program outcomes.

So far, the findings from studies of CSR are consistent with lessons learned from previous large-scale school reform evaluations. For example, CSR study findings are consistent with Berman and McLaughlin's (1978) groundbreaking Change Agent study, which highlighted the importance of understanding implementation before impacts, combining bottom-up and top-down approaches, staff training that emphasizes specific strategies, having a critical mass of supporters in the school, principal leadership, district support, and the mediating effect of the local institutional contextual setting.

It remains to be seen whether comprehensive school reform will become institutionalized. Many promising programs have, up until now, relied on heroes, and scaling-up successes have been few (Stringfield and Datnow, 1998). Shanker (1990) said that it is necessary to create incentives so that restructuring lasts. These thoughts are consistent with calls by researchers in the field for studies and design team support to focus more attention on factors that facilitate and support implementation in the school system, to prevent individual personalities from being the main variable in success stories.

Institutionalization is even more difficult given the tenuous

role of policy in changing systems. As the RAND Change Agent study found, and many after that, it is very difficult for policy to have an effect on practice (McLaughlin, 1990). Tyack (1990) suggested that the mechanisms through which policy can affect schools is even more tenuous. He stated that "[t]o the degree that school governance is now characterized by fragmented centralization, we may have the worst of both worlds: many accountants to higher state and [F]ederal authorities but few people really accountable to students or parents" (p. 187).

There are others, too, who are not optimistic about the prospects for widespread reform, for different reasons. Some are doubtful that the reforms will be institutionalized and spread (e.g., Murphy, 1991), and suggest that many reforms disappear because they are not institutionalized and built into the normal structure of schools (Fullan & Miles, 1992). Others are not enthusiastic about the prospects for school-by-school change, thinking it too slow, and believing it should be on a more grand scale (e.g., Schlecty, 1997); still others do not believe that developing model schools is the answer, but rather think that efforts should focus on local development (Fullan, 1994b). In contrast, some supporters believe that the CSR movement can be successful, but will depend upon districts making design-based assistance a fundamental feature of their jurisdiction's reform strategy (Glennan, 1998).

The essence of the critiques, however, is that CSR may focus too much on the link between restructuring and outcomes, instead of focusing on the classroom (Murphy, 1991). Making schoolwide governance and organizational changes is easier than making changes in curriculum and pedagogy (Cuban, 1988; Huberman & Miles, 1984), which may explain the emphasis on restructuring. But studies have shown that while restructuring efforts lead teachers to make changes in the organization and decision making, they do not necessarily affect teaching strategies, instruction, or curriculum (Easton, 1991; Fullan & Stieglbauer, 1991; Hallinger et al., 1992).

While it is essential that design team support, and studies of the CSR movement, focus on implementation, it should not be at the expense of eliciting and documenting changes in teachers' classroom instruction. It is the improvement of teaching practice that is the essential mechanism to improve students' learning, and this is, after all, the ultimate goal of comprehensive schoolwide reform.

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APPENDIX: DESCRIPTIONS OF COMPREHENSIVE SCHOOL REFORM MODELS

This appendix provides brief descriptions of the New American Schools (NAS) designs, as well as several other popular schoolwide reform models. NAS is a national initiative to develop replicable schoolwide reform programs. The following descriptions of select comprehensive schoolwide designs are reprinted with permission from *An Educators' Guide to Schoolwide Reform*, published in 1999 by the American Institute for Research. For descriptions of additional models, and more detailed information, including data on design team support, student achievement effects, and cost, see the *Guide*.

ACCELERATED SCHOOLS

OVERVIEW

The Accelerated Schools approach was developed in the belief that at-risk students should have the same rich curriculum and instruction typically reserved for the "gifted and talented." The approach's name signifies the developer's conviction that at-risk students must learn at an accelerated pace to catch up with more advantaged students. Thus, the primary goal is for at-risk students to perform at grade level by the end of sixth grade.

Under the approach, members of the school community are encouraged to work together to transform classrooms into environments where students think creatively, explore their interests, and achieve at high levels. Central to this approach is the work of John Dewey, an education philosopher who believed that an "effective education" in a democratic country implies faith in the potential of children and adults to understand and shape the world.

The approach is grounded in three principles. The first is unity of purpose, which means that parents, teachers, students, and administrators strive toward a common set of goals. The second is

school-site decisions and responsibility, in which all members of the school community are encouraged to share responsibility for making and implementing decisions, and for holding themselves accountable for the results. The third principle is building on strengths, which means that schools should draw on the expertise and experience of everyone involved in the school community.

The approach was developed by Henry Levin, Professor of Higher Education at the Stanford University School of Education. Accelerated Schools was first implemented in two San Francisco Bay Area elementary schools in 1986. Today, there are more than 1,000 Accelerated Schools in 40 states.

Central Components

Organizational Change, Staffing, and Administrative Support. Accelerated Schools encourages broad participation in decision making by administrators, teachers, and parents. Collaborative inquiry guides school organization, which serves as a model for governance.

Schools are required to create two faculty positions: a part-time (25 percent) coach, and a part-time internal facilitator. The coach, typically someone affiliated with the district office, the state department of education, or a university, provides some of the training and technical assistance required to implement the approach. The facilitator, typically a member of the school's staff, assists the coach in this process.

Curriculum and Instruction. The developer expects each school to make its own decisions about curriculum, instructional strategies, and resource allocation. However, it expects the Accelerated Schools philosophy to guide those choices. For example, Accelerated Schools literature emphasizes educational philosopher John Dewey's belief that children learn best through *collaborative inquiry*, which involves working with others to solve shared problems. Schools are expected to implement a curriculum that provides all students with opportunities to use hands-on approaches to solve problems while working in pairs or in small groups.

In addition, the developer encourages schools to make curricular and pedagogical choices that emphasize student strengths,

language development across subjects, and problem-solving and higher-order analytic skills. The developer also expects decisions to be guided by common objectives for all students, and hopes that schools will provide opportunities for students to understand what they are learning by grounding that learning within the communities and cultures of the students.

Supplies and Materials. The developer does not require or provide schools with particular materials, but recommends that materials be consistent with the curricular approach described above.

Scheduling and Grouping. Schools are encouraged (but not required) to group children heterogeneously, to use cross-age groups, and to use students as peer tutors.

Monitoring of Student Progress and Performance. In addition to the kind of student learning that standardized tests measure, the developer recommends that schools measure student creativity and resourcefulness, critical-thinking skills, and problem-solving abilities. The developer also suggests the use of demonstration projects and portfolios of student work.

Family and Community Involvement. The developer believes that involvement of parents is central to the success of Accelerated Schools. Parents are expected to read and agree to a statement that clarifies the school's goals and outlines the obligations of parents, students, and the school staff. Schools encourage parents to become involved with the decision-making process, by joining task forces or committees.

AMERICA'S CHOICE

OVERVIEW

The primary goal of America's Choice is to raise academic achievement by holding students to high standards in the core subjects of English, language arts, mathematics, and science. This includes proficiency in reading by the third grade, readiness for algebra by the eighth grade, the ability to write clearly and concisely by the tenth grade, and knowledge of biology, chemistry, and physics (for a certificate of Initial Mastery) by graduation from high school.

America's Choice School Design centers on five areas: standards and assessments, learning environments, community services and support, high-performance management, and public and parent engagement.

America's Choice evolved over the past decade, growing out of work by the National Center on Education and the Economy (NCEE) to support and develop standards and assessments. According to the developer, the approach is based on reviews of the research in many areas, including learning theory, standards and assessments, curriculum, and modern management. Beginning in 1992, together with another center, 17 states, and six districts, NCEE developed internationally benchmarked student performance standards and matching reference exams. Subsequently, NCEE began to develop curricula to match performance standards and exams.

In 1998, NCEE codified its research and experience into the current America's Choice design. Since the approach has been the product of such gradual evolution over the years, very few schools, if any, incorporate the full range of America's Choice. Thus, it is difficult to determine the number of schools that could be considered America's Choice schools. According to the developers, however, America's Choice serves all grade levels in urban, suburban, and rural districts, and there are an estimated 300 schools in 14 states using the approach as of July 1998.

CENTRAL COMPONENTS

Organizational Change, Staffing, and Administrative Support. The approach includes a component that targets the orga-

nization and management of school districts. It holds that the role of the central administration is to provide clear goals, collect accurate data about progress toward those goals, share decision-making power with those most closely connected to the work being done in schools (e.g., teachers, classroom aides, principals, and parents), and hold schools and school staffs accountable and reward them as appropriate.

America's Choice also emphasizes the roles of several school leaders: the principal, design coach, literacy coordinator (K-8), school-to-career coach (high school), community outreach coordinator, a site council, and the leadership and management team. The developer expects the principal to be the instructional leader and human and financial resources leader, as well as to ensure that the staff has the tools needed to improve student achievement. The design coach's role is to coordinate the implementation of America's Choice at the school in conjunction with the principal. The literacy coordinator's role is to work individually with K-8 teachers to help them use instructional strategies recommended by the developers. The role of the school-to-career coach in high schools is to help teachers use learning standards in the curriculum, connect the high school to business and industry and postsecondary institutions, and coordinate implementation. The community outreach coordinator serves as the school's liaison to the community and focuses on helping students and families receive social support services as needed. A site council monitors implementation of the approach. The leadership and management team, consisting of the principal, design coach, literacy coordinator, community outreach coordinator, school-to-career coach, and other school staff, implements the approach.

The developer requires that teachers above second grade specialize in two or three subjects (e.g., English and social studies, or math and science). The developer reasons that specializing in subjects will help teachers guide students toward a deeper understanding of those subjects.

Each America's Choice high school is divided into houses of fewer than 400 students. Each house has a separate team of teachers, a head teacher, and relative autonomy.

Curriculum and Instruction. With the emphasis on standards in America's Choice schools, the curriculum is critical. The approach lays out a detailed program of instruction. According to the developer, the prekindergarten and kindergarten curricula

emphasize early literacy education and phonemic awareness. The curricula for kindergarten through eighth grade emphasize writing and reading, using both phonics and whole language approaches to reading instruction. Additional attention is given to mathematics, art, music, science, physical education, and social studies.

The high school curriculum includes the standard set of academic core subjects (English, mathematics, science, social studies, etc.). Students take America's Choice eighth-grade reference examinations in English language arts and mathematics to help teachers plan instruction that meets students' needs. America's Choice also includes a program entitled "on-ramps" at both the elementary and secondary levels, to provide tutoring for students who lag behind in mathematics and reading.

Supplies and Materials. NCEE publishes classroom materials that are recommended, but not required. In addition, the developer provides workshops to help school staff find materials that meet the new standards. NCEE also offers help to teachers interested in developing their own materials. Through Harcourt Brace, the developer offers America's Choice schools access to performance standards, reference examinations, practice tests, and sample items and model responses that were used on the examinations.

Scheduling and Grouping. The developer recommends small groups, classes, and schools. In the primary grades, 20 students per class is recommended. In the secondary grades, the approach recommends 400 students per "house." Planning time must be set aside for the teacher team of each house, as well as for teachers of the same content area at each grade level, to discuss instructional practices. The same standards and materials apply to all classes. The developer does not suggest any specific strategy for grouping students within classes.

America's Choice also uses "class teachers." Through eighth grade, these are teachers who are assigned to students for at least three school years. Thus, a student has the same teacher and classmates for three consecutive years. In high schools, the class teacher stays with students and advises them until they meet the Certificate of Initial Mastery standard. Class teachers teach and advise students, and are the main contact for parents.

For primary grades, the developer requires the first two and one-half hours of each day to be set aside for literacy. Of this block, one-half hour is for instruction in phonics skills, spelling, vocabulary, and grammar; one hour for writing; and another hour for reading. The next hour is dedicated to mathematics. Twice a week, one hour of art and music is scheduled. Two hours per week each are provided for science, social science, and physical education. For upper elementary grades, the approach designates two hours daily for reading, writing, literature, and the humanities, one hour for mathematics, and "substantial time weekly" for science, art, music, social studies, and physical education. For grades six through eight, one four-hour block per day is mandated for English, language arts, mathematics, science, and social science.

Monitoring of Student Progress and Performance. Since the goal of the approach is to raise achievement by holding students to high standards, teachers are required to monitor student progress in meeting the standards regularly, using weekly oral and written assessments that are embedded in the curriculum. The developer expects students to earn a Certificate of Initial Mastery by their junior year, demonstrating proficiency against the standards for English language arts, mathematics, biology, physics, and chemistry.

America's Choice schools use the America's Choice Reference Examinations to measure student growth, and the America's Choice Portfolio System to make sure students' work covers the full set of standards over time. The reference Examinations, published by Harcourt Brace, are based on the America's Choice Performance Standards in English language arts, and mathematics for fourth, eighth, and tenth grades. According to the developer, a Reference Examination in science for grades four, eight, and ten is under development and will be available in 1999.

Family and Community Involvement. The developer requires schools to have a community outreach coordinator to support students and their families (e.g., helping families access social services). A school-to-career coordinator is required in high schools to help develop a link between students and employers and postsecondary institutions in the area. According to the developer, both of these positions can be, and usually are, filled by existing personnel.

ATLAS COMMUNITIES

OVERVIEW

The ATLAS Communities approach (Authentic Teaching, Learning, and Assessment for All Students) is based on the belief that all students can and must reach their full potential. A key feature of ATLAS is the Pre-K to 12 "pathway." The "pathway" refers to feeder patterns of elementary, middle, and high schools, which the approach seeks to coordinate to produce a coherent educational program for each student, from the first day of school through graduation.

ATLAS works with pathways toward five goals: (1) to improve learning for all students by focusing on teaching for understanding; (2) to evaluate student work through a variety of standard and authentic assessments; (3) to engage teachers in serious, sustained professional development through whole-faculty study groups; (4) to involve families and other community members in the education of their children; and (5) to reorganize the internal structures and decision-making processes of schools and districts to support the above goals.

The approach was formed in 1992 as a partnership of four school reform organizations: the Education Development Center in Boston, the Coalition of Essential Schools at Brown University, Project Zero at Harvard University, and the School Development Program at Yale University.

According to the developers, ATLAS builds on a base of research and examined practice drawn from each of the sponsoring organizations. Specifically, the approach draws on *essential questions* and *student exhibitions* from the Coalition of Essential Schools; *professional development* and *curriculum development* from the Education Development Center; *multiple intelligences, authentic assessment,* and *Teaching for Understanding* from Project Zero; and *family involvement, school climate,* and *management and decision-making* from the School Development Program. According to the developers, the approach is based on theories of change, and influenced by experiences in early sites.

During its first several years of development, ATLAS worked with three pathways in Norfolk, Virginia, Prince Georges County, Maryland, and Gorham, Maine. Since then, ATLAS has

expanded to encompass 63 schools in eight states, and 14 pathways.

Central Components

Organizational Change, Staffing, and Administrative Support. ATLAS requires professional staff to be organized within each school and across the pathway into whole-faculty study groups. According to developers, these study groups become the vehicle for professional development and a catalyst for changes in teaching, learning, and assessment. In addition, ATLAS schools are required to develop a school leadership team composed of the principal, teachers, other school staff, and parents (and sometimes other administrators and students). This team assumes many of the responsibilities traditionally held by the principal, such as planning the annual calendar and schedule, overseeing the budget, organizing professional development, and communicating with the district. The developers suggest that the relationship between the district and school involve co-management.

ATLAS provides each pathway with a site developer, who works with school and district staff, organizes professional development, and helps implement ATLAS. Districts are required to fund a part-time pathway coordinator. The pathway coordinator typically is a teacher or administrator who is relieved of some other duties.

Curriculum and Instruction. The ATLAS approach to curriculum and instruction encompasses the *Teaching for Understanding* framework developed by Harvard's Project Zero. According to the developers, particular features of this framework include: (1) coherent learning goals and curricula from kindergarten through 12th grade; (2) focus at each grade level and subject area on a few important topics, emphasizing depth rather than breadth; (3) inclusion of basic skills taught in the context of solving problems; (4) developmentally appropriate curriculum and instruction; and (5) respect for individual differences while maintaining rigor for all students.

Instructional strategies include project-based and cooperative learning activities, teacher-facilitated discussions, and occasional direct instruction or lecture to provide particular kinds of information.

According to the developers, the ATLAS approach encourages everyone in the school to assume non-traditional roles. Students, for example, are asked to become questioners, explorers, creators, and problem solvers. Teachers and administrators are encouraged to regard themselves as mentors and coaches, observing students' work and providing feedback, suggestions, encouragement, and guidance for improvement. Families and community members are encouraged to act as resources for, and facilitators of, learning.

Supplies and Materials. The developers do not require or provide specific instructional materials, but, as implementation progresses, they may recommend learning materials consistent with the approach. The developers require administrators and key teachers to use handbooks to guide faculty study groups. These books are provided to 30 percent of the school staff as part of professional development (additional copies can be purchased for $20 each).

ATLAS recommends that staff members purchase its instructional guides ($5 to $20 per book). Available titles include: *Learning from Student Work, Asset Mapping, The Curriculum Planner, Teaching for Understanding* (Harvard Project Zero), *The Whole-Faculty Study Group* (Corwin Press), and *Dimensions of an Exhibition* (Coalition of Essential Schools).

Scheduling and Grouping. According to the developers, because ATLAS is a framework, not a prescriptive program, it does not require specific strategies for scheduling or grouping. However, the developers recommend scheduling that allows teachers to work together in study groups. They also recommend flexible grouping of students and longer blocks of time for instruction at the secondary level.

Monitoring of Student Progress and Performance. According to the developers, ATLAS provides a framework for student assessment, which should be related to standards that have been adopted by the state, district, pathway, or school community. The developers recommend a range of assessments, including standardized tests, school- and teacher-made tests, exhibitions of mastery, portfolios, and community-based projects. Teachers are also encouraged to examine and discuss student work using protocols provided by the developers.

Family and Community Involvement. The developers will not implement ATLAS without significant family and community support. Involvement is encouraged in three areas: teaching and learning, assessment, and management and decision-making. According to the developers, ATLAS schools engage parents and the community in ongoing discussions about governance, teaching, learning, and assessment. ATLAS promotes parent involvement in activities such as parent conferences and student exhibitions. ATLAS also encourages parents and the community to become involved in making school and pathway decisions, preferably by joining school leadership teams. Like the staff, parents and community members are expected to review data, plan implementation, assess progress, and evaluate results.

AUDREY COHEN COLLEGE: PURPOSE-CENTERED EDUCATION®

OVERVIEW

The primary goal of Audrey Cohen College: Purpose-Centered Education is to improve academic achievement for all students by providing an understandable thematic focus to education. A secondary goal is to increase attendance and decrease disciplinary problems, as needed. The idea for Purpose-Centered Education grew from research on educational implications of the changing economy. Specifically, the developer felt that an information-based global society requires students to learn and act in more complex ways.

Purpose-Centered Education is an approach that seeks to transform the organization of school curricula. Rather than being organized around content areas (e.g., English, mathematics, science), each semester is organized around a thematic "Purpose," which incorporates the traditional core subjects. For example, one semester of the kindergarten curriculum is organized around the purpose, We Care for Living Things℠.

The approach was adapted from a model developed in 1970 under the leadership of Audrey Cohen, founder of the College for Human Services in New York City (renamed Audrey Cohen College in 1992). As of August 1998, 16 schools in six states use Purpose-Centered Education; 12 of the 16 schools are elementary. The developer markets the system to elementary, middle, and high schools, and maintains that the system is designed for all learners.

CENTRAL COMPONENTS

Organizational Change, Staffing, and Administrative Support. Purpose-Centered Education requires little organizational change within schools, according to the developer. The approach does, however, require that schools allow flexibility in scheduling classes for longer or shorter time periods, as needed, and that teachers plan collaboratively. Schools are required to have a facilitator, called a Staff Resource Specialist, who coordinates and sustains the reform effort. Typically, schools staff this position with existing per-

sonnel (e.g., a lead teacher or the director for staff development).

The developer expects school principals to demonstrate strong leadership and a philosophical commitment to the approach, and to maintain open communications with the faculty. The Audrey Cohen College system also requires a part-time liaison from the central district administration to work with the school.

Curriculum and Instruction. The defining characteristic of Purpose-Centered Education is a redesigned curriculum. Students work toward two Purposes in each grade (i.e., one each semester), studying the traditional subjects such as English, mathematics, and science in a thematic framework. According to the developer, this organization is designed to focus student learning on a "complex and meaningful purpose" that "contributes to the world at large." For example, the first-grade Purposes are We Work for Safety℠ and We Use Transportation to Bring the World Closer℠. The fifth-grade Purposes are We Improve the Environment℠ and We Use Technology to Meet Human Needs℠; the 12th-grade Purposes are I Apply my Special Knowledge to Make a Better World℠ and We Invent Cultural Relationships for a Stronger World℠.

Each semester, students plan, implement, and assess a Constructive Action® in which the knowledge and skills they have learned that semester are used to benefit the community and the larger world.

The developer does not specify a particular instructional strategy, but encourages schools to incorporate a range of instructional practices. These practices may include: flexible scheduling of classes; whole-class, small-group, and individual instruction; team teaching, guest speakers (especially parents) who are termed "Purpose Experts"; "Purpose Trips"; and other hands-on activities.

Supplies and Materials. The developer reports that it strives to use a school's existing textbooks and to work with schools to recommend supplemental materials. Audrey Cohen College is currently developing a list of recommended materials. Teachers are expected to develop curricula around each of the Purposes, using prototype materials.

Technology, most significantly e-mail and Audrey Cohen College's K-12 Web site chatrooms, plays an important role in facil-

itating collaboration among teachers, parents, and students.

Scheduling and Grouping. The developer does not require a particular approach to grouping students for instruction; however, it recommends grouping students at different achievement levels together. In addition, instructional staff are encouraged to schedule both the length of classes and the organization of activities and student groups within each period as appropriate for a given task.

Monitoring Student Progress and Performance. The developer has identified a set of 24 generic abilities, or Purpose-Achievement Standards, that students are expected to reach to demonstrate that they have achieved a Purpose. These standards are assessed each semester, from kindergarten through high school. Audrey Cohen College works with schools to align the Purpose-Achievement Standards with state and local guidelines for monitoring student progress and performance. The developer also emphasizes the importance of grades and writing samples, and coaches teachers to correct student performance problems.

Family and Community Involvement. The developer believes that parents play an important role in educating children. In addition to supporting their child's learning at home, parents are encouraged to contribute their professional skills by volunteering as "Purpose Experts." According to the developer, parents and business leaders frequently visit the school to share with students their own expertise as it relates to a semester's Purpose.

COALITION OF ESSENTIAL SCHOOLS

OVERVIEW

The key feature of the Coalition of Essential Schools (CES) is the set of "Common Principles" that guide school reform:

(1) The school should focus on helping children learn to use their minds well.
(2) The school's goals should be simple: that each student master a limited number of essential skills and areas of knowledge.
(3) The school's goals should apply to all students.
(4) Teaching and learning should be personalized to the maximum feasible extent.
(5) The governing practical metaphor of the school should be student-as-worker, teacher-as-coach.
(6) The diploma should be awarded upon demonstration of mastery of the central skills and knowledge of the school's program.
(7) The tone of the school should stress unanxious expectation, trust, and decency.
(8) The principal and teachers should perceive themselves as generalists first and specialists second.
(9) Teacher loads should be 80 or fewer pupils, and per-pupil cost should not exceed traditional school costs by more than 10 percent.
(10) The school should demonstrate non-discriminatory and inclusive policies, practices, and pedagogies.

The Coalition of Essential Schools (CES) is not a specific model of school reform. Rather, the Common Principles are intended to be used by schools to shape their own reform efforts—including curriculum and instruction—that fit their particular situations. Although the developer recommends several instructional techniques and methods of scheduling students consistent with the Common Principles, no specific changes are mandated.

The Coalition of Essential Schools was founded in 1984 by Theodore Sizer, Professor of Education at Brown University. Based

on the findings of Sizer's *A Study of High Schools*, conducted from 1979 to 1984, and his widely read book, *Horace's Compromise*, Sizer delineated a set of principles to guide reform in high schools. Subsequently, CES has expanded to include elementary and middle schools. In 1988, CES and the Education Commission of the States formed a partnership, Re: Learning, which focuses simultaneously on reform at the school level and policy changes at the state level. In 1998, approximately 1,000 schools (more than half elementary schools) were engaged with CES at some level of involvement; about 250 of those schools were members. Fifty regional centers and networks provide support to member schools and to other schools exploring or planning membership.

Central Components

Organizational Change, Staffing, and Administrative Support. District commitment, as evidenced by a letter from the school board or the district office, is a requirement for a school's membership in the Coalition. In addition, the school's principal must be willing to include teachers and other staff in deciding on the school's goals, schedules, and management. The developer requires that 80 percent of a school's faculty must vote to participate in the Coalition of Essential Schools.

The Coalition encourages schools to think about ways in which they can become "smaller, more personalized" learning communities. To this end, some member schools have limited student enrollment, while others have employed a "school-within-a-school" strategy. Though the Coalition does not actively promote this approach, the developer says that implementing the Common Principles in a school-within-a-school can be an appropriate first step toward full implementation. If this approach is taken, the developer stresses the importance of the rest of the school supporting the strategy and developing a plan for eventual schoolwide implementation of the strategy.

The Coalition feels that the Common Principles should guide change within the school's particular context. Therefore, the Coalition is willing to work with schools regardless of their organizational or management structure.

Curriculum and Instruction. The Coalition does not provide or require schools to adopt a specific curriculum or particular instructional techniques. Instead, the developer encourages teachers to work with the same set of students and have common planning time so that they get to know students well and can plan instruction that is intellectually focused, rigorous, and appropriate.

As embodied in the second Common Principle, the Coalition suggests that teaching staff, with input from parents and community members, identify a limited number of goals students should achieve by the time they leave the school. Teachers should focus the curriculum and instructional techniques around the identified skills and knowledge, governed by the philosophy "less is more." According to the developer, superficial coverage of many areas should give way to deep exploration of fewer areas.

Supplies and Materials. The developer does not provide or require any specific materials, but makes professional development available to help teachers develop curricula around essential questions.

Scheduling and Grouping. The Coalition encourages secondary schools to maintain a ratio of 80 students to one teacher, and elementary schools to maintain a ratio of 25 students to one teacher. It also encourages teachers to have the same expectations for all students and, therefore, to place students of different abilities together in the same instructional group (i.e., heterogeneous grouping). The developer encourages block scheduling, in which classes meet for longer periods every other day. Both block scheduling and team teaching (i.e., two teachers working together in several subject areas with a larger group of students) are seen by the developer as promoting deeper learning among students. However, none of these components is mandatory to the approach.

Monitoring of Student Progress and Performance. A key component of the Coalition of Essential Schools is embedded in the sixth Common Principle, which calls for students to demonstrate their mastery of skills and knowledge. According to the developer, mastery is often demonstrated through student exhibitions, which vary across schools. For example, at some schools, students work during their final year of school on a year-long project to show their

mastery of the subjects studied, and they take oral examinations in all subjects.

The national Coalition office encourages schools to use a combination of standardized and "authentic" (i.e., similar to tasks one encounters outside of school) methods of assessment, according to their individual needs. In considering the success of their programs, CES encourages schools to consider developing "habits of mind" in students and a school culture that promotes decency and trust.

Family and Community Involvement. The developer states that family and community outreach is an important component of the approach, particularly in defining the goals the school sets for students. It encourages schools to involve family and community members in identifying the skills and knowledge that students should be expected to master in order to graduate.

Co-NECT

Overview

Co-NECT is a schoolwide approach that focuses on improving achievement by integrating technology into instruction, organizing lessons around interdisciplinary projects, and reorganizing schools into multi-grade clusters of students and teachers.

The Co-NECT organization reports that the approach is based on a large body of research on effective schools, primarily drawing from three research strands. First, it draws from research showing that schools can improve student performance when the whole faculty focuses on achieving challenging, concrete, and measurable results. Second, it incorporates research linking increased student achievement with schools that allow teachers to take responsibility for a common group of students and promote close, sustained relationships among teachers, students, and families. Third, it encourages *authentic pedagogy,* which requires students to think, develop in-depth understanding, and apply academic learning to important, realistic problems. According to the organization, the approach also incorporates two other "best practices": using multiple standards of assessment, and incorporating technology in ways that enhance student learning.

Co-NECT was founded in 1992 by members of the Educational Technologies Group at BBN (Bolt, Baranek, and Newman) Corporation. In the 1998-99 school year, 75 schools in eight states were using the approach. Of the 47 schools working with the developer in the 1997-98 school year, there were 25 elementary schools, 15 middle schools, five high schools, one K-8 school, and one K-12 school.

Central Components

Organizational Change, Staffing, and Administrative Support. Co-NECT encourages significant organizational changes, based on research and best practices, but does not require any specific action. Schools are encouraged to reorganize into small communities of teachers and students from different grade levels ("clusters"). Parents, teachers, and students also are asked to form a school

design team to help plan and implement reforms. Although not required, schools are encouraged to hire a local facilitator.

Co-NECT also provides a full-time site director to work with a group of approximately five schools within a given geographic area. According to Co-NECT, a site director visits each school regularly, conducts training workshops, and guides teams. Many site directors have been teachers or administrators in Co-NECT schools.

Curriculum and Instruction. In the Co-NECT approach, students work on projects that can cover multiple content areas, solving real-life problems. According to the organization, this project work is designed to develop in-depth understanding in a range of content areas, higher-order thinking skills, and strong skills in reading, writing, and mathematics. Many projects apparently involve the use of technology, including using computers to share information with students in other schools and to communicate with experts in different fields. Students are expected to demonstrate their skills and knowledge with products and presentations.

Teachers are expected to develop three projects per year, using a common planning period to work together on them. Using the Co-NECT Exchange, the organization's Web site (www.co-nect.com), teachers can choose from projects developed by Co-NECT staff or other teachers. Examples of projects recently available are *Why Vote? The Co-NECT Election Project*, a one month program for third through tenth grade, and *The Underground Railroad Project*, a year-long project for third through eighth grade.

Supplies and Materials. Two types of instructional resources are seen as vital to the approach: a technology infrastructure, and materials for project-based instruction. The developer requires schools to provide Internet access for teachers so that they can access the organization's online services. It encourages, but does not provide or require, computers on every teacher's desk and in every classroom, suggesting an optimal user-computer ratio of 5:1. No specific materials are required or provided for project-based instruction.

Scheduling and Grouping. Co-NECT does not require any specific grouping or scheduling changes. However, the developer

encourages schools to set up a common planning time for teachers to plan projects together and to schedule blocks of time during the day for students to conduct group projects.

To help students develop bonds with their teachers, Co-NECT recommends that students stay with the same teacher for at least two years. In this practice, called "looping," a teacher follows a group of students from one grade to the next, and then starts over. For example, a teacher might teach fourth grade one year, fifth grade the next, and sixth grade the next, then "loop" back to fourth grade.

Monitoring of Student Progress and Performance. Co-NECT calls for multiple forms of assessment, including standardized tests, student portfolios, exhibitions, classroom observations, and other indicators. The developer provides a comprehensive set of rubrics and a process for scoring student portfolios. The developer also helps schools develop assessments and provides workshops to help faculty use the assessment tools.

Beginning in the 1998-99 school year, Co-NECT helps schools create schoolwide portfolios of student work. Co-NECT staff will train panels of community raters (for example, parents and business leaders) to evaluate the quality of students' work and create a composite picture of student achievement that can accompany standardized test scores.

Family and Community Involvement. According to the developer, Co-NECT emphasizes parent and community involvement. Parents and community members are encouraged to volunteer in the classroom and serve on the school design team or the portfolio and implementation review panels. Businesses are encouraged to provide schools with access to resources and to work with students on community projects, internships, and other activities.

EXPEDITIONARY LEARNING OUTWARD BOUND

OVERVIEW

Expeditionary Learning Outward Bound is a comprehensive school design that aims to transform curriculum, instruction, assessment, and school culture and organization. It is based on two central ideas: that students learn better by doing than by listening; and that developing character, high expectations, and a sense of community is as important as developing academic skills and knowledge.

Expeditionary Learning involves five core practices. The first is *learning expeditions*, long-term, multidisciplinary projects that combine academic, service, and physical elements. The second practice is *reflection and critique*, which involves teachers working with each other to examine their own instruction and students' work. Third, the *school culture* emphasizes community and collaboration, high expectations for all students, service, and diversity. Fourth, the *school structure* is reorganized to share decision making among teachers and administrators and to develop relationships among staff, students, parents, and the community. The fifth practice is *school review*, or assessment of student performance and degree of implementation as measured against benchmarks provided by the developer. Expeditionary Learning was established in 1992 by Outward Bound USA.

CENTRAL COMPONENTS

Organizational Change, Staffing, and Administrative Support. Expeditionary Learning requires one major organizational change: a transformation to shared decision making. The approach requires teachers, parents, and other community members to be involved in the school leadership and decision-making process. No major changes are required in staffing or administrative support.

Curriculum and Instruction. Expeditionary Learning requires significant changes to instruction. A defining component of the approach is that students engage in learning expeditions, extended studies that focus on a single theme, while incorporating

instruction in different subject areas. Expeditions typically involve service and fieldwork and culminate in student presentations or performances to families and community members. Instructional staff are expected to align expedition topics and goals with state and district standards and curriculum guidelines.

Supplies and Materials. Expeditionary Learning does not require or provide specific instructional materials. However, the developer provides materials to help school staff implement the approach. Some of the materials address theoretical and philosophical topics; others provide models and practical information for developing expeditions.

Scheduling and Grouping. Schools adopting Expeditionary Learning are asked to make significant changes to the daily schedule. First, schools eliminate the traditional 50-minute, single-subject period; instead, they devise a schedule that accommodates learning expeditions (which may average ten to 16 weeks). Second, schools rearrange the schedule to provide instructional staff with weekly common planning time.

Expeditionary Learning schools do not group students according to performance level; rather, the developer promotes heterogeneous grouping. For some learning expeditions, students from different grades are grouped together. Expeditionary Learning schools assign instructional staff to the same group of students for at least two years, which, according to the developers, helps build trust and a sense of community among teachers and students.

Monitoring of Student Progress and Performance. Expeditionary Learning attempts to use "real-world performance" as its primary assessment measure (e.g., demonstrations or portfolios of student work). Instructional staff are encouraged to reflect regularly on student progress, and also on what student achievement says about the instructional practices of the school. Students also are subject to the regular state and district standardized assessments.

Expeditionary Learning schools are required to conduct an annual self-review that examines the link between school instructional activities and student performance, and measures school practices against core practice benchmarks.

Family and Community Involvement. Expeditionary Learning encourages parent and community involvement, especially in the learning expeditions. Community members and parents are encouraged to contribute their own expertise and talents and to attend student presentations at the end of each expedition.

The developer also encourages schools to work with local community agencies and businesses to provide opportunities for student learning (e.g., internships).

MODERN RED SCHOOLHOUSE

OVERVIEW

Modern Red Schoolhouse was designed to help schools achieve standards-based reform, focusing on six areas: organization and finance; technology; curriculum; standards and assessment; community involvement; and professional development. The approach intends to help schools set high academic standards that are consistent with district and state assessments and cover rigorous core content. The approach attempts to build on a school's strengths, address weaknesses, and develop a plan for continuous self-improvement. In addition, schools are expected to assume increasing responsibility for many items that are traditionally controlled by the district (e.g., budgeting, personnel assignments, curriculum details, scheduling, teacher/student ratios, and time allotted to various subjects). Developed in 1992 by the Hudson Institute, Modern Red Schoolhouse is now a separate private, non-profit organization.

According to the developer, the approach was built around the idea of a "little red schoolhouse" that draws people together for a common purpose, and was based on research in psychology, sociology, and education. The approach was first used in six elementary schools in 1993. In 1994, two middle schools and one high school were added. At the time of this report, 29 elementary schools, 14 middle schools, and seven high schools in 11 states were using the Modern Red Schoolhouse approach, although the developers note that only five of these 50 schools have fully implemented the program.

CENTRAL COMPONENTS

Organizational Change, Staffing, and Administrative Support. According to the developer, full implementation of this approach requires that schools, principals, and instructional staff have considerable freedom in determining how best to meet the needs of their students. The approach requires districts to give schools more autonomy in choosing their curriculum; in assigning, hiring, and firing staff; in scheduling classes; and in allocating school budget funds. Modern Red Schoolhouse recommends that schools control 80 percent of their budget by the third or fourth year of

implementation. The developer suggests that the approach may be most effectively and easily implemented in districts that are decentralized.

Modern Red Schoolhouse also recommends that school staff assemble six committees: community involvement; curriculum; organization and finance; standards and assessment; technology; and professional development. Together with the principal, committee chairs form a leadership team that may be expanded to include parents, faculty members, and community representatives.

To assist with the development and implementation of long-range plans, Modern Red Schoolhouse trainers work on-site with each of these groups. Schools are encouraged, but not required, to hire a technology coordinator.

Curriculum and Instruction. The developers recommend that schools teach eight core subjects (math, science, English, history, geography, foreign language, art, and cultural literacy). Schools not already teaching these subjects are encouraged to consider using the Core Knowledge curriculum. Modern Red Schoolhouse does not provide or require a specific curriculum; rather, the developer supports local teachers in developing curricula that are coherent across grades. Trainers from the developer's staff work at the school to help instructional staff develop lesson plans. Scoring guides ("rubrics") are then developed by the teachers as part of the training program. These scoring guides, according to the developer, should be consistent with state and local standardized tests and should become part of lessons.

Supplies and Materials. Although no specific supplies and materials are provided or required, Modern Red Schoolhouse recommends using technology in the classroom for several purposes, including sharing information, assessing students, and tracking student progress on goals. The developer requires that schools have: a network of computers, a fileserver, a modem, instructional and management software, voice mail, student workstations (6:1 ratio), and cable and satellite down-links.

Depending on local circumstances, the developer also recommends that schools use the Core Knowledge scope and sequence and/or Open Court reading materials. Assessment materials are

provided through "capstone units" developed by national experts. According to the developer, teachers are trained to find inexpensive ways to provide suitable materials for their students.

Scheduling and Grouping. The Modern Red Schoolhouse encourages schools to build schedules and group students in ways that promote "continuous progress." Options that schools may use include grouping by student performance (i.e., "ability grouping"); grouping students together with the same group of teachers for multiple years (i.e., "looping"); scheduling after-school or summer programs; having ungraded classrooms; and providing time for students to work individually or in small groups on projects that the students themselves devise and complete (i.e., "self-directed learning"). The developer suggests that scheduling should allow adequate time for planning lessons and for students to explore topics in depth (particularly in the upper grades).

Monitoring Student Progress and Performance. The Modern Red Schoolhouse approach uses standardized tests, assessments based on student performance, and individual student contracts to monitor student progress. Through the required Individual Education Compact (IEC), goals are developed for each student, with progress toward meeting those goals monitored and discussed by the student, teacher(s), and parents. Ideally, discussing and revising progress reports to parents should occur annually.

Schools are required to use "capstones," assessments that gauge student progress in the classroom in regard to standards. Teachers and Modern Red Schoolhouse trainers also work together to develop a curriculum that is consistent with tests required by the state or district.

Family and Community Involvement. Modern Red Schoolhouse considers parent and community involvement central to the approach. Parents are encouraged to become involved in learning about classroom activities, assisting in the classroom, and, as appropriate, serving on school-related committees. Schools are encouraged to establish parent centers and to provide referrals or establish a network to provide social services.

PAIDEIA

OVERVIEW

The Paideia approach is designed to help students acquire content knowledge and develop critical thinking and problem-solving skills. Developed in 1982 by philosopher and educator Mortimer Adler (philosophy professor at the University of Chicago at the time), and a group of his colleagues known as the Paideia Group, the Paideia approach focuses on changing classroom practice in three "columns" of instruction:

- Didactic teaching—instruction led by the teacher;
- Coaching—individual instruction with one-on-one guidance from the teacher; and
- Socratic seminars—small-group discussions facilitated by the teacher.

Since 1982, the Paideia approach has been adopted by more than 80 elementary and secondary schools across the country. The program is now run by the National Paideia Center (first established in 1988) at the University of North Carolina.

CENTRAL COMPONENTS

Organizational Change, Staffing, and Administrative Support. According to the developer, the entire school must be changed to fully implement Paideia. The National Paideia Center requires that each school designate a full-time approach facilitator, whose primary responsibility is to coordinate and assist implementation activities at the school level.

The developer also notes that administrative support and teacher buy-in are critical to the success of the approach because it requires radical changes to traditional instruction. For example, Paideia puts more emphasis on coaching and classroom seminars than on teacher-centered lectures, which traditionally take up a large amount of instructional time.

Curriculum and Instruction. The Paideia approach stresses

that all students should develop reading, writing, listening, speaking, and critical thinking skills through a liberal arts curriculum. It also promotes other curriculum activities—such as fine arts, athletic activities, and music—that center around core academic subjects.

Although traditional teacher-led instruction is one of the three main instructional practices, coaching and seminars actually form the core of the Paideia approach, according to the developer. The developer believes that, through coaching and seminars, students learn to explore ideas, develop fundamental thinking skills, and apply their knowledge and skills in real-life situations.

Supplies and Materials. Paideia does not provide or require special instructional materials. Schools are expected to select their own materials. However, the developer does encourage the use of "classics in the classroom"—great literature, art, and music—a term more recently broadened by the developer to include "contemporary classics," such as *The Color Purple* by Alice Walker. The developer also recommends that the classroom include a variety of printed materials, including high-quality student projects and exhibits.

Scheduling and Grouping. The developer recommends that schools set aside time for teacher and student planning and schedule the school day in response to the needs of the varied curriculum. For example, schools may need to set aside larger blocks of time for seminars.

Although scheduling will vary according to specific curriculum objectives, Paideia recommends that only 10 to 15 percent of instructional time be spent on didactic teaching. According to the developer, 60 to 70 percent of instruction time should be devoted to coaching, and 15 to 20 percent to classroom seminars. Also recommended are a two- to three-week period for "coached" student projects (from assignment to completion).

Grouping is flexible in the Paideia approach, with teachers responsible for grouping students within classes and determining the size of seminar groups. In some cases, seminars involve cross-classroom grouping.

Monitoring Student Progress and Performance. In the Paideia approach, teachers determine instructional goals based on content and curriculum standards, then measure student perfor-

mance against these goals. Accordingly, evaluation should focus on the progress of individual students.

For this reason, the developer does not require specific tools for assessment. However, according to the National Paideia Center, the approach emphasizes assessments that are rooted in each student's work, including checklists completed by students and teachers together, rubrics, narrative assessments that describe student progress, and portfolios of student work.

Family and Community Involvement. Paideia emphasizes (but does not require) family and community involvement as an integral part of the approach. According to the developer, Paideia schools encourage parent participation in activities designed both for children and adults, particularly through afternoon and evening programs. The developer encourages schools to train parents and community members to lead student seminars. In addition, the developer encourages schools to use a community seminar, with texts discussing democracy, to help strengthen civic participation in the school community.

ROOTS AND WINGS

OVERVIEW

(Note: Roots and Wings incorporates and builds upon Success for All. To better understand both the reading component of Roots and Wings and other general issues, the reader is encouraged to review the Success for All profile.)

Designed to be used in conjunction with the Success for All reading program, Roots and Wings is a comprehensive model that seeks to provide challenging content and experiences to children in the major core content areas of reading and language arts, mathematics, science, and social studies.

The main goal of the approach is to improve academic achievement in elementary schools. Secondary goals include reducing the number of referrals for special education, reducing the number of students who are retained in grade, increasing attendance, and addressing family needs.

Roots and Wings was created in 1993 by the developers of Success for All, Robert Slavin and Nancy Madden at the Johns Hopkins University, to extend the Success for All curriculum. Over 1,130 pre-K-6 schools in 44 states have adopted Success for All, with over 200 of the schools using Roots and Wings. The approaches also have been adapted for use in Canada, Mexico, Australia, Israel, and England. Although it is geared primarily to urban environments, a wide range of schools now use the approach. The developers plan to add 400 to 600 schools per year.

CENTRAL COMPONENTS

Organizational Change, Staffing, and Administrative Support. Schools may need to make a number of substantial changes to implement Roots and Wings. In addition to the changes required for Success for All (e.g., additional staff, restructured reading groups, possible changes in special education and retention policies), the "MathWings" and "WorldLab" components of Roots and Wings require modifying instructional strategies. In WorldLab, for example, students focus on problem-solving, and teachers are

expected to act as guides to students rather than lecturers. As with Success for All, Roots and Wings requires a full-time facilitator and approximately three tutors.

Curriculum and Instruction. According to developers, Roots and Wings emphasizes student-led, cooperative activities. Roots and Wings uses the same reading curriculum as Success for All. The developer provides a mathematics curriculum, entitled MathWings, that aligns with the National Council of Teachers of Mathematics guidelines and standards. It has three main components:

- daily routine of problem solving, facts, homework check, logbook, and team organization;
- series of units, spanning three to five weeks, that involve the whole class and include project (performance-based) tasks as the introductory lesson; and
- two-week period, scheduled to occur between most whole-class units, when students are working individually on building or refining skills or investigating additional math topics.

WorldLab, a curriculum that combines science and social studies, encourages students to investigate real-world problems and topics in small groups. Central components of WorldLab include:

- a design that promotes an understanding of the interdependence of economic, political, biological, and physical systems;
- use of simulation (role playing), group investigation, and cooperative learning;
- involvement of community resources (i.e., people in the community who have relevant, specialized knowledge);
- encouragement of problem solving and higher-order thinking; and
- student projects that help solve community problems.

Some of the WorldLab units for grades one and two are *Birds, Forests, and Harvests around the World.* Units for grades three through six include *Archeology, Encounters* (which looks at interac-

tions among cultures from ancient times through the early American Settlement), *From Rebellion to Union*, and *Inventors.*

Supplies and Materials. In addition to the curriculum materials for Success for All, Roots and Wings schools use instructional materials that support the WorldLab and MathWings curricula described above.

Scheduling and Grouping. As with Success for All, schools implementing Roots and Wings group students by achievement level for reading. According to the developers, students work in heterogeneous homerooms during MathWings and WorldLab. Students also stay in homeroom groups of mixed achievement levels for other subjects.

In addition, the schedule of a Roots and Wings school is structured. The developers require schools to set aside 90 minutes for reading, one hour for math, and 60 to 90 minutes for WorldLab each day.

Monitoring Student Progress and Performance. In addition to Success for All reading assessments, which are administered every eight weeks, Roots and Wings has ongoing informal assessments built into the math and WorldLab curricula.

Family and Community Involvement. Roots and Wings contains the same family and community involvement component as Success for All. This requires establishing a family support team at each school.

SCHOOL DEVELOPMENT PROGRAM

OVERVIEW

The School Development Program (SDP) was founded in 1968 by James Comer, a child psychiatrist at Yale University. The approach is based on the theory that children learn better when they form strong relationships with the adults in their lives—including parents, teachers, and members of church and other community groups—in an environment of mutual respect. The main goal of the program is to develop in students the personal, social, and moral strengths necessary to achieve success in school. The School Development Program addresses these issues with nine essential elements:

- Three mechanisms (the School Planning and Management Team, the Student and Staff Support Team, and the Parent Team);
- Three operations (the Comprehensive School Plan, the Staff Development Plan, and Assessment and Modification); and
- Three guiding principles (no-fault problem solving, consensus decision-making, and collaboration).

The School Development Program was first implemented in 1968 in two elementary schools in New Haven, Connecticut, and now operates in more than 700 schools. It is primarily an approach for elementary schools serving disadvantaged students, although it has also been used in middle and high schools.

CENTRAL COMPONENTS

Organizational Change, Staffing, and Administrative Support. Implementing the School Development Program requires significant organizational change. The developers expect districts using this approach to have a facilitator to serve all schools using the approach. As described above, the three mechanisms, three operations, and three guiding principles must be implemented, each of which affects school organization, staff, and administration.

The first mechanism is the School Planning and Management Team, composed of approximately 12 teachers, parents, professional support staff (e.g., social workers, school psychologists), and paraprofessional staff (e.g., classroom aides, secretaries, janitors). The principal is the group leader. As described by the developers, the School Planning and Management Team has four major responsibilities: 1) establish policies that affect the curriculum, school environment, and staff development; 2) carry out school planning, resource assessment, program implementation, and evaluation of the curriculum, school environment, and staff development; 3) coordinate the activities of all individuals, groups, and programs in the school; and 4) work with parents to establish a calendar of social activities for the school.

The second mechanism is the Student and Staff Support Team, composed of teachers, school psychologists, social workers, special education teachers, counselors, and other support service staff. The Student and Staff Support Team provides input to the School Planning and Management Team on ways to integrate mental health principles into school management, to ensure that the school environment supports the students' learning and developmental needs. The Student and Staff Support Team also supports individual classroom teachers in regard to particular students who may be having difficulties with behavior or learning. The team is expected to meet weekly to discuss students referred by classroom teachers.

The third mechanism, the Parent Team, supports activities to involve parents in the school. There are different levels of participation, so parents can choose how involved they wish to be. All parents are encouraged to participate in several school-sponsored activities each year, such as a field trip to a museum. These activities allow parents to get to know members of the school staff, so they feel more comfortable with the school. Parents who wish to be involved more directly are encouraged to participate as classroom assistants, tutors, or aides. Finally, parents who are committed to being highly involved can participate as members of the School Planning and Management Team.

The operations that must be put into place include: adopting a Comprehensive School Plan, which lays out specific goals for the school in terms of both climate and academic areas; adopting a Staff Development Plan, which focuses teacher training on needs

related to the goals specified in the Comprehensive School Plan; and developing a monitoring and assessment system to track progress toward meeting the school's goals.

The behavior and actions of staff are expected to be guided by three principles.

No-fault problem solving means that, when problems arise, individuals focus on finding solutions rather than assigning blame.

The second guiding principle is *consensus decision making.* The developers believe that consensus decision-making is preferable to making decisions by majority vote. The idea is that reaching consensus forces individuals to discuss their differences and understand each other's points of view, while voting forces individuals to choose sides. In addition, voting results in "winners" and "losers," which is not conducive to building strong, mutually respectful relationships.

The third and final guiding principle is *collaboration*, which means that the principal and the teams work together to lead the school reform process.

Curriculum and Instruction. Although no particular curriculum is provided or required, the developers offer a curriculum called "Literacy Initiatives," for improving reading skills at the elementary school level. The developers also conduct a literacy audit with each school. According to the developers, this involves a review of state and district standards (especially in literacy, but across all subjects) as well as test score patterns over several years. School staff, working with the developers, then are supposed to identify standards upon which to focus.

Supplies and Materials. The School Development Program does not provide or require particular supplies or instructional materials. Decisions regarding supplies and materials are left to the discretion of the school. However, in addition to offering the Literacy Initiatives, the developers are working on "Curriculum Alignment for Instructional Improvement," linking schools' expectations of students with state and national standards, and linking those standards to school curricula, textbooks, tests, and class organization.

Scheduling and Grouping. The School Development Program does not offer guidelines for scheduling classes or for grouping students within classrooms. According to the developers,

these decisions should be based on data about student performance and discussions of the school planning and management team.

Monitoring of Student Progress and Performance. According to developers, a key component of the approach is ongoing research on student achievement. A national database that tracks student academic performance, as well as student outcomes on multiple measures of school environment, is maintained. According to the developers, students identified as having reading problems through this process participate in reading labs using work stations.

Family and Community Involvement. The developers believe that parental involvement in the school is essential for students to achieve their potential. The Parent Program provides structured opportunities for parents to become involved in decision making, spend time in the classroom as tutors or aides, or simply participate in social activities involving the entire school community.

SUCCESS FOR ALL

OVERVIEW

Success for All is a comprehensive approach to restructuring schools, especially those serving students placed at risk, to ensure that every child learns how to read. The approach has nine components:

- a reading curriculum designed to provide at least 90 minutes of daily instruction in classes regrouped across age lines according to reading performance;
- continual assessment of student progress (at least once every eight weeks);
- one-to-one reading tutors;
- an Early Learning Program for prekindergarten and kindergarten that emphasizes language development and reading;
- an emphasis on cooperative learning as a key teaching strategy;
- a family support team to encourage parent support and involvement as well as to address problems at home;
- a local facilitator to provide mentoring, counseling, and support to the school as needed;
- staff support teams that assist teachers during the implementation process; and
- training and technical assistance provided by Success for All staff on such topics as reading assessment, classroom management, and cooperative learning.

The main goal of Success for All is to ensure success in reading. Secondary goals include reducing the number of referrals to special education, reducing the number of students who are retained or "held back," increasing daily attendance, and addressing family needs.

The Success for All approach was developed by Robert Slavin and Nancy Madden at Johns Hopkins University. They designed Success for All in response to a challenge from Baltimore City Public Schools to develop an approach that would address the problems of urban students, based on research about effective

instructional practice. They established the first Success for All school in 1987. Since then, Success for All (and its companion approach, Roots and Wings) has been adopted by over 1,130 pre-K-6 schools (nearly all Title I) in 44 states. The approach has also been adapted for use in Canada, Mexico, Australia, Israel, and England. Although still geared primarily to urban environments, the approach is also used by many schools in rural and suburban settings. The developers plan to add another 400 to 600 schools per year.

Central Components

Organizational Change, Staffing, and Administrative Support. Schools may need to make extensive changes to implement Success for All successfully. The first change may be additional staff; schools must have a full-time facilitator to help implement the program, and may need to hire additional teachers or paraprofessionals for the required one-on-one tutorials of struggling students. The facilitator is a certified teacher (generally paid for using Title I funds) who coordinates staff implementation of the program. In addition to working with staff by visiting classrooms, coaching, and conducting ongoing professional development, the facilitator supervises the eight-week assessments and serves as liaison among teachers, administrators, tutors, family support staff, and parents. According to the developers, few Success for All schools hire additional staff; most reallocate current staff to fill required roles.

Second, reading classes may have to be restructured to meet the requirements of the approach. Success for All requires 90 minutes per day of reading instruction targeted to classes grouped by reading level beginning in grade one. Grouping is revised every eight weeks based on individual assessments of students' reading skills.

Third, with regard to special education and retention, Success for All encourages schools not to refer children for special education services and not to retain children in grade. Instead, as discussed below, the program is designed to support all children's learning in general education classrooms. When considering adoption of Success for All, a district may need to consider its policies on one or both of these issues.

Curriculum and Instruction. Success for All uses a highly structured curriculum focused on reading and English language arts. (Its sister approach, Roots and Wings, expands into other subject areas.)

The Early Learning Program, for prekindergarten and kindergarten, focuses on developing oral language skills using developer-provided materials. In the Early Learning Program students listen to, retell, and act out stories. In mid-kindergarten or first grade, students begin Reading Roots, a beginning reading program in which students work with controlled-vocabulary mini-books and repeated oral reading. Reading Roots involves a blend of phonics and "whole language" techniques and uses children's literature and student text supplemented by teacher-read text. Prekindergarten through first-grade students almost exclusively use materials provided by the developer.

In grades two through six, students work with another program, Reading Wings, which uses a wide range of commonly available basals, anthologies, and novels. The developer requires teachers to use specific strategies in Reading Wings, in which students read stories to each other and discuss content and structure, as well as participate in activities on listening comprehension, vocabulary building, reading fluency, and writing. According to the developer, the reading lessons are fast-paced, with a variety of activities in each lesson, and an emphasis on students learning in cooperative activities.

A Spanish version of the reading curriculum, *Lee Conmigo* or *Exito Para Todos*, is available for students in bilingual and English-as-a-Second-Language programs.

In addition to the writing activities that are part of the reading curriculum, the developer provides a curriculum that focuses on writing. Grades one and two use Writing from the Heart, in which students are introduced to the writing process (e.g., write for a real audience, revise, and build skills in the context of writing). Grades three through six use Writing Wings, in which teams of four to five students of different skill levels work together. Students write individual drafts which they critique and revise together.

Finally, Success for All includes an extensive tutoring program in grades one through three. Students having difficulty learning to read receive tutoring from certified teachers or other qualified

and trained instructional staff. In assigning students to tutors, Success for All gives priority to students in first grade.

Supplies and Materials. Although teachers may adapt materials, the developer requires schools to work with the Success for All materials in prekindergarten through first grade. For grades two through six, the developer provides materials, called "Treasure Hunts," tailored to the reading materials already used in the school. Treasure Hunts have been developed to accompany the most widely used basal readers, anthologies, and novels. All new materials are sent to teachers in Success for All schools for review, and are then piloted in Success for All classrooms before being distributed.

Finally, the developer requires schools to have an adequate number of books and other materials to accompany the various components of the approach (e.g., space and supplies for the facilitator, books given as resources to parents, and materials such as books, paper, and pencils to be used during one-on-one tutoring).

Scheduling and Grouping. Success for All requires schools to organize students by reading performance level into multi-age groups of approximately 20 students for at least 90 minutes per day for reading instruction. For the rest of the day, students are in heterogeneous, age-grouped homerooms.

According to the developers, the approach is geared to helping all students learn to read in the regular classroom. The developers' materials suggest that helping students learn to read should vastly reduce the need for placement in special education classes. One of the tenets of Success for All is that children should be removed from the regular classroom only under extreme circumstances and when all other options have been exhausted.

Monitoring of Student Progress and Performance. Success for All requires formal assessments of student progress at least every eight weeks. These assessments are embedded in the curriculum. The results are used to reevaluate reading grouping and change student assignments if needed. Because Success for All attempts to provide reading instruction tailored to the specific level of each student, accurately assessing students and placing them into the appropriate reading group is important.

In addition to formal assessments, ongoing informal assessments of progress are also encouraged. These informal assessments also help to tailor instruction to the specific level of the students.

These regular reading assessments also help to identify students who are struggling before they fall far behind. These students receive one-on-one tutoring for 20 minutes per day at times other than regular reading or mathematics periods. First-grade students get priority for tutoring.

Family and Community Involvement. Parent support is critical to the Success for All approach. Each Success for All school has a "family support team" to increase family involvement. The goal of these teams is to encourage parents to read to students, to involve parents in school, and to help families address any problems at home that affect a student's ability to learn in school (e.g., by providing referrals to social services). Teams typically include an administrator (principal or assistant principal), the Success for All facilitator, and others such as social workers, counselors, attendance monitors, teachers, and volunteers.

RESOURCES

In addition to AIR's *Guide*, the following catalogues and reviews of schoolwide approaches are available:

American Federation of Teachers. (1997). *Raising student achievement: A resource guide for redesigning low-performing schools.* (AFT Item Number 3780). Washington, DC: Author.

Education Commission of the States. (1998). *Selecting school reform models: A reference guide for states.* Denver, CO: Author. (ED 428 426)

Educational Research Service. (1998). *Comprehensive models for school improvement: Finding the right match and making it work.* Arlington, VA: Author. (422 632)

Fashola, O.S., & Slavin, R.E. (1998, January). Schoolwide reform models: What works? *Phi Delta Kappan, 79*(5), 370-379. (EJ 558 163)

Herman, R., & Stringfield, S. (1997). *Ten promising programs for educating all children: Evidence of impact.* Arlington, VA: Educational Research Service.

Northwest Regional Educational Laboratory. (1998). *Catalog of school reform models* (1st ed.). Portland, OR: Author.

Slavin, R.E., & Fashola, O.S. (1998). *Show me the evidence! Proven and promising programs for America's schools.* Thousand Oaks, CA: Corwin Press. (ED 421 488)

Wang, M.C., Haertel, G.D., & Walberg, H.J. (1998). *Achieving student success: A handbook of widely implemented research-based educational reform models.* Available: http://reformhandbook-lss.org/

Wang, M.C., Haertel, G.D., & Walberg, H.J. (1998). *What do we know: Widely implemented school improvement programs.* Philadelphia, PA: The Mid-Atlantic Laboratory for Student Success.

BIOGRAPHY OF THE AUTHOR

Dr. Laura Desimone is a research scientist at American Institutes of Research (AIR). Her work at AIR includes projects on parent involvement in standards-based reform and comprehensive school reform, the effect of teacher's professional development on changes in classroom instruction and student achievement, and the proper use of state student achievement data in assessing the effects of Federal school reform programs. Previously, Dr. Desimone led a multi-year evaluation of a comprehensive school reform model, the CoZi program, at the Bush Center in Child Development and Social Policy at Yale University. She also was involved in a national study of effective programs for children with disabilities at the Frank Porter Graham Child Development Institute in Chapel Hill, NC; in a study of school reform programs targeting at-risk students, also in North Carolina; and in a study on a dropout program for Hispanic students in California.

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