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ABSTRACT

This monograph reviews recent trends in school reform and proposes "learner-based accountability" as a new paradigm for conceptualizing and implementing school reform. The first chapter notes both an economic mandate for school change and a mandate for increased equity. It identifies key findings of the school effectiveness movement and stresses the importance of defining and monitoring the intended impact of reform initiatives on educational results. The second chapter reviews the movement to define standards and outcome frameworks, with sections addressing the establishment of national goals and standards (the Goals 2000 initiative), standards established by the National Council of Teachers of Mathematics, and recommendations of the National Council on Educational Standards and Testing. It also considers other outcome frameworks including those explained in reports of the Secretary of Labor's Commission on Achieving Necessary Skills (the SCANS Reports), the outcome framework for special education developed by the National Center on Educational Outcomes (NCEO), curriculum frameworks established by specific states, and implications of these standards for students with diverse needs. The final chapter addresses how the learner-based accountability paradigm can provide a focus for schools and be systematically monitored by means of management information system (MIS) technology. Application of a school-based MIS to support students with special needs is discussed in relationship to implementation of the NCEO framework. (Contains 48 references.) (DB)

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A monograph prepared for the

Northeast Regional Resource Center

by:

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A NEW PARADIGM—HIGH LEVELS OF SUCCESS FOR ALL

*"If schools are to be responsive to the different needs and talents of diverse learners, they must be organized to allow for variability rather than to assume uniformity. . . Rather than seek to make the current system of schooling perform more efficiently by standardizing practice, school reform efforts must focus on building the capacity of schools and teachers to undertake tasks they have never been called upon to accomplish. Schools and teachers must work to ensure that **all** students learn to think critically, to invent, to produce, and to solve problems. Because this goal requires responding to students' nonstandardized needs, it far exceeds what teacher-proof curricula or administrator-proof management processes could ever accomplish."*

Linda Darling-Hammond, 1993

The Economic Mandate for School Change

Across the nation, reform efforts are focussing on what students need to know and be able to do in a highly complex, technological society and global marketplace. Within this context of reform, educators, business leaders, policy makers, and legislators agree that the level of student achievement in American schools must be raised. The two parts to this national "call to arms" are: 1) too many students are failing to achieve even basic competencies; and 2) the world we live in requires skills that are not being explicitly addressed in schools. These two concerns have led to a nationwide emphasis on defining desired student outcomes, establishing standards of performance, and holding schools accountable for helping all students learn at high levels.

The momentum to create high academic standards for all students has been fueled by the shift from an industrial-based economy to an information-based economy, a shift that has left many American workers without the necessary skills to succeed. Because the demands of society are different today, the economy no longer has a place for individuals who are willing to work hard but have minimal skills. According to a report published by the Hudson Institute, more than half of the new jobs created in this decade will require education beyond high school, and 90 percent will require at least a high school education (Hudson Institute, 1987).

Numerous studies and reports have described the deficiencies and "skills gap" in the American workforce, concluding that unless educational performance in the United States improves dramatically, American workers will be unable to use the new technologies that will create most of the world's jobs and economic growth in the next century (United Way of America, 1990, U.S. Department of Labor, 1991, Hudson Institute, 1987). The high school completion rate hovers around 75%, students with a diploma are not necessarily literate, and many of those who enter college or the workforce are not prepared to meet the increasing demands of a rapidly changing, technology-driven, and increasingly competitive market place.

The need to link educational reform to a mission of ensuring that all students are prepared to meet the challenges of a high technology information age has been underscored by virtually all sectors, including corporate America, and improving student performance is the focal point of major policy initiatives nationally and in almost every state capitol. Such prominent groups as the National Business Roundtable, the National Governor's Association, and the Education Commission of the States have endorsed the concept of redesigning education around high standards of student performance as the fundamental principle of school reform.

The emerging reform agenda is calling for a "new paradigm" of education that puts student achievement at the center of the school's mission, and holds schools accountable for providing educational opportunities that enable all students to acquire the necessary knowledge, skills, and personal orientations needed to succeed in adult life. An emphasis on higher levels of learning for all students means that schools must shift to a new paradigm driven by assumptions, principles, and practices that contrast sharply with the current paradigm on which schooling in America is based.

For the past 100 years, our schools met the workforce needs of an industrial society by organizing learning around a standardized curriculum delivered in standardized time periods called Carnegie Units. Within this structure, curriculum is defined as a set of units, sequences, and facts, and grades are based on the averaging of performance over a fixed period of time. Credentials (Carnegie units) are awarded based on "time served", and the failure of significant

numbers of students is not only accepted, but regarded as an expected result of norm-referenced testing. The technology-driven information age requires a very different approach to education. Today's workplace already requires individuals to understand multidimensional problems, design solutions, plan their own tasks, evaluate results, and work cooperatively with others. These changes represent a new mission for education that requires schools not merely to deliver instruction but to be accountable for ensuring that educational opportunities result in all students learning at high levels. The teacher's job is no longer to "cover" a time-based curriculum, "but to enable diverse learners to construct their own knowledge and to develop their talents in effective and powerful ways." (Darling-Hammond, 1993).

The Mandate for Equity

The nationwide focus on student performance has heightened concerns about the educational outcomes of students with diverse needs, including students with disabilities. Echoing other educational constituents seeking answers about the outcomes that result from special education is a report of the National Council on Disability (1989), which summarized the views of parents, educators, taxpayers, and others.

> *"The time has come to ask the same questions for students with disabilities that we have been asking about students without disabilities: Are they achieving? Are they staying in school? Are they prepared to enter the work force when they finish school? Are they going on to participate in post-secondary education and training? Are they prepared for adult life?"*

In its Twelfth and Thirteenth Annual Reports to Congress on the Implementation of The Education of the Handicapped Act (now entitled the Individuals with Disabilities Education Act), the Department of Education reported dismal outcomes for students with disabilities. In 1987-88, nearly one-third received a failing grade in at least one of their courses, and in 1988-89, only slightly more than one half of students with disabilities exiting the school system left with a diploma or certificate. Despite the similarities between students who are labelled as learning

disabled and those who are not, in 1988-89 more than 80% of the learning disabled students received educational services outside the regular classroom.

The National Longitudinal Transition Study (NLTS) collected school performance data on more than 8,000 youth between the ages of 13 and 23 who were in special education programs in the 1985-86 school year. The study determined that 1 in 10 students did not receive grades in any courses, and that a third of the students considered to be in graded programs received a failing grade in one or more courses. About a third of the 8,000 students dropped out of school over the two year period; and the dropout rate for students with a learning disability was 36% (Wagner, 1989).

Underlying the momentum to create standards, better schools, and better educated students is a strong belief that "students who have been traditionally allowed to fail must be helped to succeed, and that many more must become not just minimally schooled but highly proficient and inventive (Darling-Hammond & Snyder, 1993). More than ever before in our nation's history, policymakers and the public are recognizing that educational failure and undeveloped human talent are permanent drains on society.

> *"To fulfill the old promise of American education—that students will be prepared to take their place in society—requires a new level of performance for the system, and a new level of effort at reform. . . Standards-based reform seeks to establish clear attainable standards at internationally competitive levels: for the entire student population. This represents a new way of thinking—a paradigm shift—about American students. It raises our expectations for every student in every school, not just some students in some schools."*
>
> *National Education Goals Panel, 1993*

The New Paradigm—A Catalyst for School Reform

The current movement to reform American schools represents a large-scale shift in national and state-level policy making toward performance-based reform (Finn, 1990). The paradigm that puts learner outcomes at the center of the school's mission has shifted the purpose and direction of reform initiatives to an emphasis on higher levels of learning for all, and school accountability to key stakeholders such as parents, business representatives, and community members. A conceptual transformation is occurring in education today, and improving the level of student learning in America's schools has become the focus of educational policy thinking and action across the nation. State policy making bodies have placed the debate over what students should know and be able to do at the center of major statewide efforts to define standards of achievement, design new curricular frameworks, and adopt richer assessment systems to measure students' and school performance (Wilhoit,1992). This shift has fundamentally altered traditional views of school improvement.

Many educational change experts recognized the need for this shift a decade ago. In 1983, Theodore Sizer, the founder of the Coalition of Essential Schools, described it as "one that rejects time-based, means-based, bell-curve-based schooling in favor of results-based, success-based schools" (Sizer, 1992). Dr. Philip Schlecty of the Center for Leadership on School Reform describes the "mandate for change" this way:

> *"Altering the rules, roles, and relationships that govern the way time, people, space, and technology are deployed and used so that schools are organized around children and the work we want them to do, and so that communities are organized to support the creation of conditions that will allow those children to succeed at what we want them to do."*
>
> *Schlecty, 1993*

Throughout the history of educational change, the emphasis has been on improving the process of education—changing instructional methods and practices, adopting new programs, altering

schedules, etc. Educators and reformers focussed on the content of education—on changing the curriculum, the textbooks, the lessons and adding new programs. Hundreds of learning objectives (which were thought of as outcomes) were derived from existing curricula (content) rather than designing curricula to facilitate the achievement of intended outcomes representing what students should actually know and be able to do. Our attention to the product of education—the educational achievement of students—was largely ignored in the old paradigm. New programs, practices, and curricula may have been "validated" by virtue of having produced desirable results where they were developed and evaluated, but when these innovations were adopted by others, their impact on students was rarely assessed, and often non-existent.

Efforts to reform schools over the past several decades conformed to the industrial model, regarding schools as bureaucracies with various layers of management and instructional delivery that could be improved by increasing efficiency. The reforms of the 1970's tried to standardize the quality of schooling by mandating curriculum guides and narrowing textbook selection. When the effective schools movement began, it focussed on the common characteristics of "high achieving" schools. These characteristics, called "correlates" of school effectiveness, became the foundation of hundreds of school improvement initiatives across the country. The first and last of these correlates, as expressed by Edmunds, Lezotte, and others, were thought of as the "pillars" of school effectiveness—**an emphasis on success for all students** and **frequent monitoring of student progress** toward achieving success. However, while many schools involved in the effective schools movement made a commitment to frequent monitoring of student progress, progress was tracked in terms of very limited notions of educational success—getting satisfactory grades, getting promoted, and accumulating credit. Although the school improvement models of the '80s sought to define the various dimensions of school effectiveness, few of them directly addressed the outcomes of education. Achievement was defined in terms of the educational process, and educators became chagrined to learn that a surprising number of students who had achieved these educational milestones did not have the knowledge, skills, attitudes and personal qualities that are prerequisites to success in the "real

world" (Lezotte,1991, Lezotte and Jacoby, 1992, Eaker, Ranells, and DuFour, 1991, Levine and Lezotte, 1990). What we learned from the effective schools movement was that implementing new programs and practices does not ensure better results.

> *"Unfortunately, site-based innovations mean nothing if a school cannot determine if the efforts have had an effect on students. Most schools move from innovation to innovation ('We are doing whole language, or cooperative learning, or curriculum integration') and define success as the implementation of the latest innovation. To be blunt, this is nonsense. What difference does any innovation make if a school cannot determine effects on kids?"*
>
> *Glickman, 1992*

In the past, special education a'so was driven by an emphasis on the content and process aspects of reform rather than a systematic examination of the outcomes and benefits that resulted for students. For more than a decade after the enactment of P.L. 94-142 in 1975, attention at national, state, and local levels focussed on compliance with the procedural provisions of the Act that were designed to ensure access and equity for students with disabilities. Today, however, special educators have also shifted to an emphasis on defining appropriate outcomes for students with disabilities, and on determining the extent to which various programmatic and instructional approaches result in students' acquiring the knowledge, skills, and orientations they need to lead productive and fulfilling lives.

More and more educational leaders are recognizing that embarking on school reform without defining and monitoring the intended impact of reform initiatives on educational results does not lead to improved outcomes or higher levels of learning for students. The emphasis on student outcomes and school accountability that is driving current national and state-level reform efforts thus represents an important shift in our orientation toward educational change and innovation in America's schools.

THE MOVEMENT TO DEFINE STANDARDS AND OUTCOME FRAMEWORKS

"In the absence of national standards, we have evolved a haphazard, accidental, disconnected national curriculum based on mass-market textbooks and standardized, multiple-choice tests. Education reform must begin with broad agreement on what children should learn. Learning, after all, is the heart and soul of education. When there is no agreement regarding what students should learn, then each part of the education system pursues different, sometimes contradictory goals."

Diane Ravitch, 1993

National Goals and Standards

Under the Goals 2000: Educate America Act, the National Education Goals adopted by the nation's governors in 1990 have been codified into law. The National Governor's Association proposed the national goals as a vision of change for all children. The goals were designed from a belief that "efforts to restructure education must work toward guaranteeing that all students are engaged in rigorous programs of instruction designed to ensure that every child, regardless of background or disability, acquires the knowledge and skills necessary to succeed in a changing economy" (National Governor's Association, 1990).

Secretary of Education, Richard W. Riley described the National Education Goals as a shared vision "of the education system our country needs for the 21st century. It is one in which schools help every child (regardless of her background or where he attends school) to reach challenging academic standards and leave school prepared for responsible citizenship and a productive future. . . It is of an education system that is committed to producing real results, for all of its students" (U.S. Department of Education, *Community Update*, September, 1993). Under Goals 2000, the National Goals have set the following vision for America's schools.

By the year 2000:

1) *All children will start school ready to learn;*

2) *The high school graduation rate will be at least 90%;*

3) *All students will leave grades 4, 8, and 12 competent for their level in English, math, science, foreign languages, civics and government, economics, arts, history and geography, and the capacity to use their minds well for responsible citizenship, further learning, and productive employment in our nation's modern economy;*

4) *The nation's teaching force will have access to professional inservice training programs;*

5) *United States' students will be first in the world in math and science achievement;*

6) *Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship;*

7) *Every school will be free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning; and*

8) *Every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.*

By focussing on improving the knowledge and skills of the nation's students, the National Education Goals provide a foundation for developing national standards that are intended to: 1) identify what students need to know and be able to do to live and work in the 21st century; 2) raise the achievement of all students; 3) ensure that all students have equal educational opportunity; and 4) create a coherent and consistent approach to education in the nation's educational system. The standards movement reflects widespread recognition that the lack of consensus about what students should learn in the nation's schools is contributing to the erosion of student achievement. Proponents of standards argue that "when no one agrees on what students should learn, then each part of the educational system pursues different, and sometimes contradictory, goals. As a result, the education system as a whole is riddled with inequity, incoherence, and inefficiency" (U.S. Department of Education, 1992).

The work of the National Council of Teachers of Mathematics (NCTM) demonstrated the power of national curriculum standards to drive education reform in a coherent manner. Published in 1989, the NCTM *Curriculum and Evaluation Standards for Mathematics* were created through a review and consensus process involving a wide array of participants including business leaders, parents, mathematicians, and thousands of teachers who collaborated on what students should know and be able to do in mathematics. The NCTM used a similar consensus process to develop the *Professional Standards for Teaching Mathematics* and recently began a two-year effort to develop standards for math assessment that will expand upon concepts contained in the curriculum-standards document.

What is unique about the NCTM effort is that it evolved from the initiative of the professional community. The momentum and authority to develop the mathematics standards didn't come from a government agency or corporate group, but from the nation's math teachers who had surveyed their field and decided it needed to change. The NCTM Standards represent an empowering vision of school mathematics for all students. They are based on the premise that all students need to learn more and different types of mathematics in order to be productive citizens in the 21st century. The Standards emphasize that "students need to learn to value mathematics, to reason and communicate mathematically, and to become confident in their power to use mathematics coherently to make sense of problematic situations in the world around them" (Romberg, 1993). Since their publication, the NCTM Standards have had a significant impact on curriculum development efforts, instructional practices, assessment, staff development, and teacher education at every level. Every commercial mathematics textbook published since 1989 has claimed to incorporate the NCTM standards, and according to the NCTM, by 1992 about a third of the nation's mathematics teachers were using the new standards (Ravitch, 1993). A survey by the Council of Chief State School Officers indicated that at least 41 states have realigned or are in the process of realigning their state frameworks with the NCTM Standards (Blank and Dalkilic, 1992).

Following the work of NCTM, in 1992, the National Council on Educational Standards and Testing (NCEST), a bi-partisan group established by Congress, published the report, *Raising Standards in American Education* which put the issues of standards and assessments before the public. NCEST recommended the development of high standards that were national, not federal, (i.e., not controlled by the federal government), voluntary, not mandatory, and dynamic, not static. Their report emphasized that the standards should be developed through a participatory process and should be used to provide focus and direction to curriculum reform in various content areas, but not to create a national curriculum. NCEST did not recommend a single national examination, but rather "a national testing system that was fair and equitable, in which different tests would be linked to common standards" (Ravitch, 1993). NCEST provided clarification of the meaning of standards by recommending that the national standards be developed to include: 1) content standards—what students should know and be able to do; and 2) performance standards—the level(s) of student competence in the content (O'Neil, J., 1993, Selden, R., 1992).

Proponents of national standards and assessments consider them to be the "best way to propel education reform forward, from the state policy level to classroom instruction," and the most effective means of quickly energizing the entire system (National Association of State Boards of Education, 1992). The Goals 2000: Educate America Act is intended to provide a framework for meeting the national goals by promoting coherent nationwide, systemic education reform to "ensure equitable educational opportunities and high levels of achievement for all American students," providing a framework for reauthorization of all Federal education programs, and by promoting the development and adoption of "a voluntary national system of skill standards and certifications." The law establishes the National Education Goals Panel and the National Education Standards and Assessment Council which will develop and certify voluntary national content, performance, and opportunity-to-learn standards, as shown in

FIGURE 1

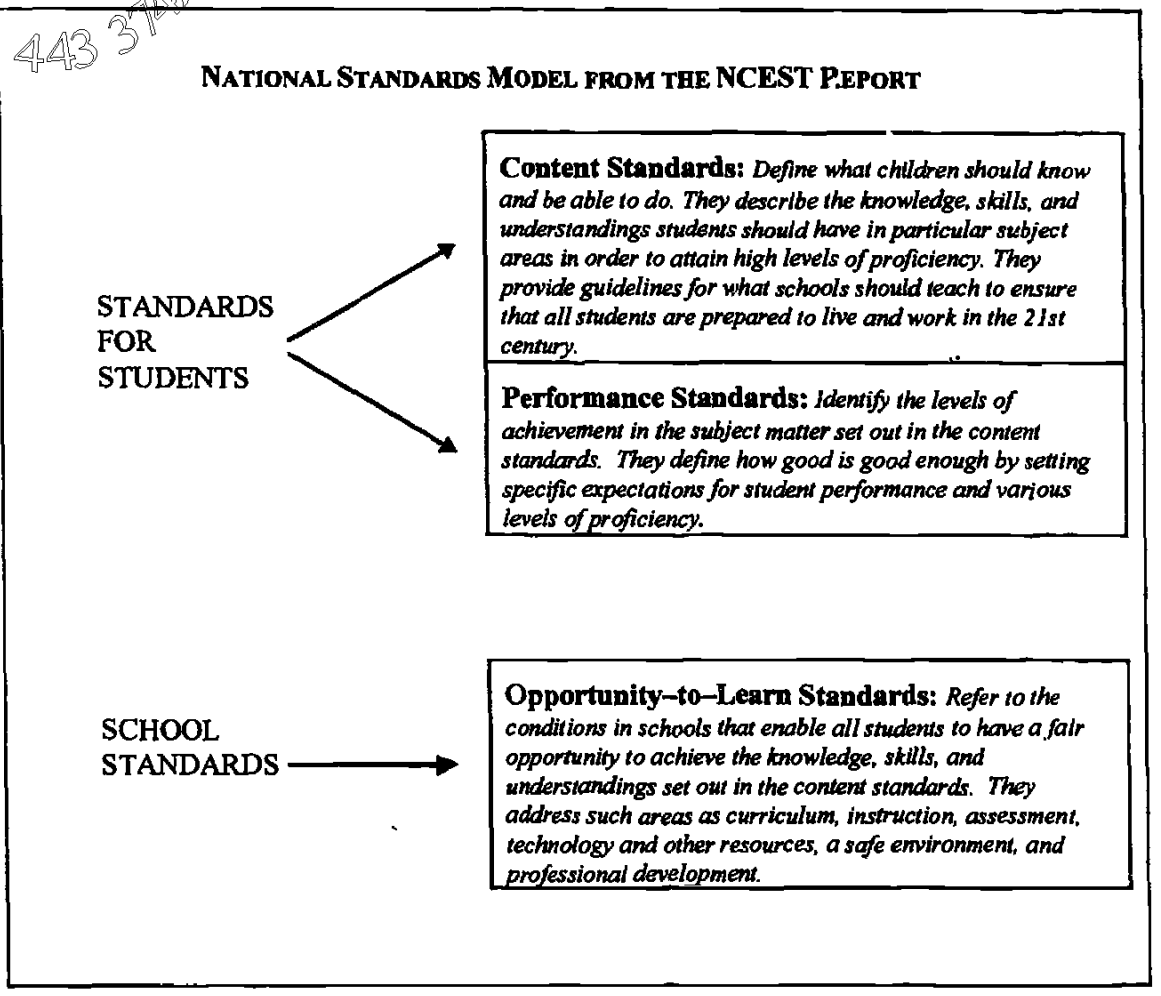


Figure 1 above. The legislation does not propose a single national examination. The legislation calls for states to submit a Strategic Educational Reform Plan developed by a multi-constituency group. If the plan is approved, the state will qualify for funds to implement the plan, including funds that can be awarded to schools that undertake reforms called for in the legislation.

Currently, at least 11 national professional and subject-matter groups are spearheading efforts to set academic standards for their own disciplines, and the U.S. Department of Education has funded national standards projects in the arts, civics, English, foreign languages, geography, history, and science. For the first time, specialists in various disciplines are setting aside their parochial interests to agree on a core set of knowledge and skills that all students, not just high achievers, should be taught. However, the education standards resulting from these efforts will be anything but standardized. The projects are highly diverse in terms of funding levels (ranging from $30,000 to over $3 million), timelines, scope of participation, and specificity of learner outcomes. Some projects are developing detailed guidelines, while others are defining broad themes on which to base instruction. The boards that oversee some of the standards projects have a high representation of scholars, while others rely more on teachers. As the standards-setting movement gains momentum, concerns are being raised that the documents may be too numerous, lengthy, and different from one another, and contain too much to teach (Viadero and West, 1993, Viadero, 1993). Thus, while all of the initiatives appear to be significantly influenced by the work of the NCTM, educators will be seeing more diversity than uniformity in the approaches and the quality of standards produced.

Outcome Frameworks

Paralleling the interest in national standards has been the emergence of outcome frameworks intended to provide direction in determining what students should be taught to meet both the challenges and the promises of adulthood in an increasingly technological and changing world.

The SCANS Reports

Notable at the national level is the outcome framework developed by the Secretary of Labor's Commission on Achieving Necessary Skills (SCANS), which focussed on how schools should prepare young people for work. The Commission's charge was to define the skills needed for employment today in all manner of jobs. The first SCANS report, *What Work Requires of*

Schools: A SCANS Report for America 2000, emphasized that the demands on business and workers are very different with the "globalization of commerce and industry and the explosive growth of technology on the job." The report concluded that "all American high school students must develop a new set of competencies and foundation skills if they are to enjoy a productive, full, and satisfying life", and that the nation's schools must be transformed into high-performance organizations "relentlessly committed to producing skilled graduates as the norm, not the exception" (U.S. Department of Labor, 1991).

Five competencies were identified, which, in conjunction with a three-part foundation of skills and personal qualities "lie at the heart of job performance today", and represent essential preparation for all students. The report emphasized ". . .seldom does one of these eight components stand alone in job performance. They are highly integrated, and most tasks require workers to draw on several of them simultaneously." The five competencies and three foundation skills, referred to in the SCANS document as "workplace know-how", are depicted in Figure 2.

A second report, *Skills and Tasks for Jobs: A SCANS Report for America 2000*, included hundreds of detailed, job-related examples of how the competencies and foundation skills would be used (and required) in various job tasks. A third report, *Learning a Living: A Blueprint for High Performance*, provides specific examples and recommendations for integrating the SCANS competencies into the curriculum, and compares traditional approaches to various skills (e.g., writing) to approaches that are consistent with workplace requirements.

The SCANS Reports begin from the premise that while "schools do more than prepare young people for work", all of the major national reform efforts recognize a need "to link education to the real world. All seek a particular kind of learner, one who can put knowledge and skills

FIGURE 2

WORKPLACE KNOW-HOW

The know-how identified by SCANS is made up of five competencies and a three-part foundation of skills and personal qualities that are needed for solid job performance. These are:

WORKPLACE COMPETENCIES—Effective workers can productively use:

- **Resources**—They know how to allocate time, money, materials, space, and staff.
- **Interpersonal skills**—They can work on teams, teach others, serve customers, lead, negotiate, and work with people from culturally diverse backgrounds.
- **Information**—They can acquire and evaluate data, organize and maintain files, interpret and communicate, and use computers to process information.
- **Systems**—They understand social, organizational, and technological systems; they can monitor and correct performance; and they can design or improve systems.
- **Technology**—They can select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment.

FOUNDATION SKILLS—Competent workers in the high-performance workplace need:

- **Basic Skills**—reading, writing, arithmetic and mathematics, speaking and listening.
- **Thinking Skills**—the ability to learn, to reason, to think creatively, to make decisions, and to solve problems.
- **Personal Qualities**—individual responsibility, self-esteem and self-management, sociability, and integrity.

SCANS, 1992

into practice as a productive worker, a responsible citizen, and a more complex human being." To the extent that the SCANS Reports deal with issues of equity and diversity, they do so with respect to minority and low-income workers and those with limited proficiency in English. While they do not directly mention students or workers with disabilities, they do argue forcefully for respecting differences in people:

> *"Education in the SCANS skills must begin with the realization that there are many paths to the same goal; that assessments should play to students' strengths, not their weaknesses; and that tests should not needlessly penalize students who need more time. . . Variation and diversity are not the enemies of high-quality education. The enemy is rigid insistence on a factory model of schooling, a prescription for failure that refuses to accommodate diversity or to allow those students with special strengths to function productively."*
>
> *Learning a Living: A Blueprint for High Performance, 1992*

The SCANS reports continue to influence the development of outcome and curriculum frameworks at the national, state, and local levels, because they have brought core competencies and foundation skills to life for policy makers, educators, and students alike. Moreover, the SCANS framework of competencies and skills are seen as highly relevant to life-roles other than work.

An Outcome Framework for Special Education

The National Center on Educational Outcomes (NCEO) at the University of Minnesota, was funded by the Office of Special Education Programs to develop an outcome framework and a set of outcome indicators for students with disabilities. NCEO's Conceptual Model of Educational Outcomes was developed in collaboration with the National Association of State Directors of Special Education (NASDSE) through a consensus process involving hundreds of educators, policy makers, administrators, and parents. It is viewed by NCEO as an inclusive framework that is applicable to all students, not just students with disabilities. Shown in Figure 3, the model includes eight outcome domains. Two of the domains, Presence and Participation, and Accommodation and Adaptation are placed within the context of the educational process itself—i.e., NCEO proposes that an examination of outcomes for all students, including students with disabilities, must take into account their level of participation in school and their adaptation and coping skills. The six other domains included in the model are Physical Health, Responsibility and Independence, Contribution and Citizenship, Academic and Functional Literacy, Personal and Social Adjustment, and Satisfaction.

For each of the domains, the model identifies outcomes, indicators of outcomes, and data sources for the various indicators. The domain of Academic and Functional Literacy includes five overall outcomes, two of which reflect the nationwide emphasis on higher order thinking skills and use of technology. The five outcomes for which students must demonstrate competence are: communication; problem-solving strategies and critical-thinking skills; math, reading, and writing skills; other academic and nonacademic skills; and using technology. NCEO views its model as providing a framework and examples that can be used by states, districts, and schools. NCEO is also using a consensus-building process to identify outcomes and indicators for developmental levels that will span from 3 years of age to post-school age.

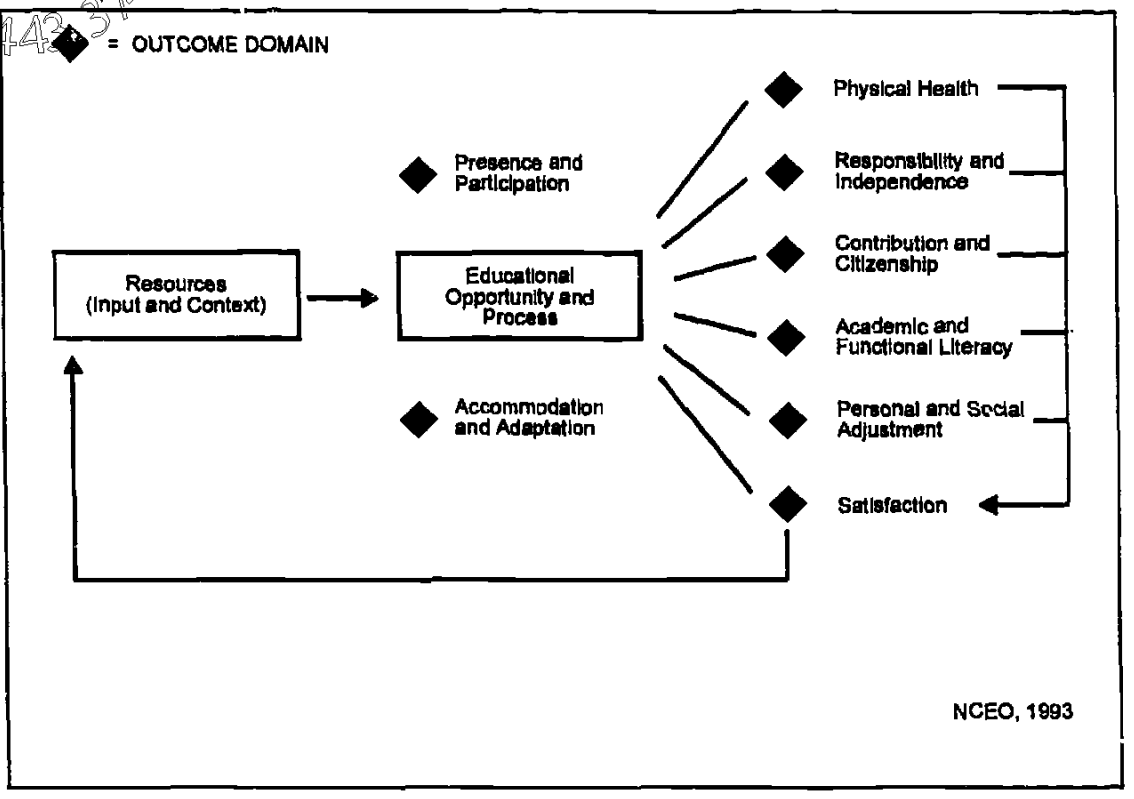
State Frameworks

Over the past several years, many states have started to create curriculum frameworks that represent a new vision of what students should learn in school and a more integrated approach to education. According to the National Association of State Boards of Education, at least 30 states have identified essential student outcomes. While various states differ philosophically about what is important to include in the school curriculum, the underlying purpose of most of the states' efforts is to align curriculum and instruction with clear definitions of student learning.

The state initiatives are often linked to state assessment programs or curriculum frameworks, and attempt to provide direction for reform at the local level. California was the first state to develop and use a state curriculum framework as a master plan for reforming instruction, assessment, textbooks, staff development, and teacher education.

Some states (Connecticut, Maine, Michigan, and South Carolina) have developed frameworks that tie learner outcomes to a thematic organization of subject matter. These frameworks have been designed to provide a vision of the opportunities to learn that schools should provide for students. Other states, including Florida, Kentucky, Pennsylvania, and Vermont,

FIGURE 3



are seeking to integrate "real-life" workforce characteristics into the curriculum, "attempting to ensure that students perform at significantly high levels and meet expectations held by schools and future employers" (Olsen and Massanari, 1992).

Maine and Virginia developed frameworks called a "common core of learning" to articulate a vision of education in their respective states. Through the notion of a "learning core," these states did not attempt to define everything that students would learn during their education experience, but rather what must be common to all students. Maine's Common Core of Learning (1990) was intended to challenge traditional beliefs about students and schooling by providing a conceptual model of what students will need to know in the 21st century in the following four

areas: Personal and Global Stewardship; Communication; Reasoning and Problem-Solving; and the Human Record. Organized as a cross-disciplinary integrated approach to teaching and learning, it was developed as a basis for charting the course of educational change in Maine.

Regarding the participation of students with disabilities, the state-sponsored commission of business and educational leaders, professionals, and parents that developed the Maine framework stated, "we believe exceptional students should experience the Common Core of Learning to the degree that they are able, with the support of teachers who build on their strengths. The Individual Education Plan (IEP) is the vehicle for identifying which learning outcomes are appropriate for a given student."

Virginia developed a program called World Class Education with a Common Core of Learning as its centerpiece. Six principles guide the Virginia program: 1) a focus on outcomes and the results of education; 2) schools will be held accountable for their results; 3) the assumption that all students can learn; 4) an emphasis on collaboration, rather than competition; 5) an emphasis on active, constructed, and connected learning, drawn from a variety of content areas and related to real problems; and 6) the role of assessment in supporting better teaching and learning (Bradford and Stiff, 1993). Virginia's Common Core of Learning was not designed as a state curriculum, but rather as an outcomes-based framework for voluntary school improvement.

What Standards and Outcome Frameworks Mean For Students With Diverse Needs

Understandably, those who advocate education reform on behalf of students with disabilities have expressed concerns about the implementation of the national goals and have identified major issues about how the achievement of students with disabilities will be assessed in meeting the goals. Advocates have emphasized that students' needs for special accommodations to complete tests must be taken into consideration, and have pointed to research showing that many schools leave students with disabilities out of testing programs to boost overall district scores

(DeStefano, L. and Metzer, D., 1991; Schrag, J., 1991). Each year, the National Education Goals Panel produces a report on the nation's progress toward the national goals. However, most of the sources of information used for the report do not include students with disabilities. The National Center on Education Outcomes (NCEO) pointed out that in many cases, the lack of progress information for students with disabilities on goals that focus on academic achievement and performance is related to the exclusion of students with disabilities from national data collection programs (McGrew, K.S., Thurlow, M.L., Shriner, J.G., and Spiegel, A.N., 1992).

The NCEST report did not address the issue of how students with disabilities would be accommodated in a national standards and testing system, and concerns have been raised about how a national system will deal with the issue of equity for these students and for poor and minority students. Several national groups are calling for broader collaboration and consensus about how to make high standards work for all students. These groups have emphasized that "democratic standards-setting must keep equity central. We cannot develop a list of new standards and then ignore the savage inequalities in the opportunities students have to learn" (Stewart, 1993). The following statement is an excerpt from a document entitled *Criteria for National Testing Proposals* which is signed by more than 50 education and civil rights leaders, including James Comer, Linda Darling-Hammon, Keith Geiger, John Goodlad, and Ted Sizer.

> *". . .we believe that any real effort to create accountability in American schools must focus equal or more attention on improving the capabilities of children to learn and schools to teach as it does on gauging educational 'outcomes'. . . Given the tremendous differences between today's achievements and the goals set for America 2000, the inadequate supports for children and families in American society, and the dramatic inequalities among schools' resources, any policy to establish benchmarks for achievement without creating equity in the educational resources available to children would be a cruel hoax."*
>
> *National Association of State Boards of Education, 1992*

Supporters of national standards struggle with some basic issues that have important implications for special education. One basic question focusses on whether it is possible to develop a relevant set of content standards for all students, including those with special needs. O'Neil points out that "all of the efforts to establish national standards in various subject areas at this point affirm the goal that all students should be expected to master a core set of content standards." However, opinions diverge on the matter of student performance standards, i.e., levels of student attainment of the content standards. On one side of the discussion are the proponents of one set of performance standards and a mechanism for measuring and reporting performance for all students on these uniform standards. This view assumes that multiple performance standards would have negative results by encouraging differential expectations and tracking. Others point to the need for differentiated standards and emphasize the importance of recognizing that some students will develop more specialized expertise in certain content areas. This view also reflects the belief that outcomes for students with disabilities should reflect the individual and diverse educational needs of those students. It assumes that performance standards for some students with disabilities will be differentiated at certain points in the curriculum or at certain age or grade levels.

In its recent report to the National Education Goals Panel, *Promises To Keep: Creating High Standards for American Students*, the national Technical Planning Group for Goals 3 and 4 (goals aimed at academic achievement) emphasized that subject area content standards must be developmentally appropriate:

> *"The standards proposed should support and challenge students achieving at all performance levels. While they should not represent minimum expectations, the standards should be suitable to and within the capabilities of students to learn. Regardless of students' perceived ability, the standards should be achievable with proper supports and sustained effort. They should build appropriately on students' developed capabilities at the elementary, middle, and high school levels of schooling. Any student who works hard in a good program should be able to meet the standards, and any student who meets the standards should be well prepared for his or her future."*

The Technical Planning Group emphasized that "all students should be held to high and appropriate standards, and should be included in efforts to characterize the nation's level of education achievement." Their report made specific reference to the importance of high standards for students with disabilities:

> *"The purpose of standards-based reform is to include everyone in deeper understanding of the most important and enduring knowledge and skills. To succeed, the nation must raise achievement at all levels—among the most able as well as the average and the disabled."*

The report indicated that the standards set by the national professional organizations will be appropriate for many students now served in special education, recognizing that "for students with some disabilities, it might be appropriate to modify the conditions of instruction and methods of assessing attainment of those standards."

> *"The standards discussed in this report would apply directly to all students except those, like the severely mentally retarded, whose individual diagnosis implies a judgement that the student cannot meet them. The Technical Planning Group defers to health and special education professionals to identify on a case-by-case basis the standards, both the content and level of performance, appropriate for these students."*

The challenge facing special educators is to achieve consensus on appropriate outcomes for students with disabilities. The fundamental question is whether to have the same outcomes for all students, or to differentiate outcomes for different levels of ability or functioning. The publication *ISSUES & OPTIONS In Restructuring Schools and Special Education Programs (McLaughlin and Warren, 1992)* outlined some of the assumptions, strategies, and implications that relate to each option. Having a unified set of outcomes for all students assumes that there is one set of educational outcomes to which all students are entitled and which all students can attain. The risk is that the educational goals and needs of students with disabilities, particularly those with moderate or severe disabilities, may go unnoticed or not be reflected in the outcomes all students must achieve. A unified set of outcomes assumes that there is a unified curriculum based on a common core of knowledge that all students must have.

> *"Within a unified curricular framework, students with disabilities receive instruction in the broad curricular domains, but at levels commensurate with their current functioning and with instructional modifications, as needed. The primary need is for breadth and balance—meaning that the curriculum should be defined not in terms of narrow subject matter but broader areas of knowledge and skill. A unified curriculum accompanies the concept of a unified system and responds to a unified set of outcomes."*
>
> *McLaughlin and Warren, 1992, p. 61*

Having a differentiated set of outcomes assumes that "some students with disabilities may have unique educational needs that require a separate set of outcomes and performance measures that can be used for accountability purposes, and that it is educationally acceptable for those students to have different outcomes" (McLaughlin and Warren, 1992, p. 47). This option requires curricula with distinct alternatives designed to meet the unique educational needs of certain students with disabilities. The risk is that this approach will result in further separation of these students from the regular curricula, and could result in increased referral and identification if regular education viewed the alternative outcomes as less stringent, "thus providing a safety valve for students who are failing in the regular system."

Beneath the surface of the current dialogue around standards for students with special needs is a question of whether the American dream truly belongs to all students, and whether American society is morally committed to equal opportunity. Believing that high standards of learning are appropriate and even necessary for all students requires fundamental changes in our approach to schooling.

> *"In the past how students were taught was mostly fixed, and the results varied—some students failed, most learned at least some of what they were taught. To enable all students to learn at high levels, varied instructional strategies are needed to challenge them. The standards are fixed but the means of reaching them are varied. . . High standards for all is a way to say that we will refuse to settle for low levels of learning for any student. . . All students will have opportunities to learn at higher levels when American society acts on its belief that this result is important now and in the future, it is fair, and it is possible."*
>
> *National Education Goals Panel, 1993*

Proponents of national standards hope they will provide the leverage needed to address equity issues—the necessary leverage to overcome the low expectations set for so many students, to ensure that all schools and teachers are aiming at the same high goals, and to motivate states and local districts to provide the resources necessary to provide all students with equal opportunities to meet high standards. Standards help to clarify that the purpose of schooling is not to sort people into artificial and often limiting groups, but to make the knowledge and skills that are essential to success in today's society accessible to all so that all students have the chance to achieve their full potential.

SEAs will have to provide leadership in building a consensus on appropriate outcomes for students with disabilities in their states. First of all, consensus needs to be built regarding the extent to which educational outcomes for students with disabilities should be the same or different from the outcomes defined for students in general education. States have taken very different positions on this issue. For example, Kentucky has emphasized the inclusion of all students in general education outcomes that focus on the application of academic and problem-solving skills (Kentucky Council on School Performance, 1989). Michigan has taken the opposite approach by developing specific outcomes for each disability category (Frey, 1991). These outcomes are not intended to replace general education outcomes, but to define the skills that students with specific disabilities will need in order to achieve the outcomes defined for the general population.

Numerous national organizations and agencies have studied the issues surrounding the implications of outcomes and accountability measures for students with disabilities and related national initiatives. Their reports highlight the challenges of equity, inclusion, high standards, and parallel versus unified delivery systems. These groups include the Office of Special Education Programs (OSEP), U.S. Department of Education, the National Association of State Boards of Education, the National Association of State Directors of Education, the Council for Exceptional Children, the American Association of School Administrators, the National Association of Secondary School Principals, the National Association of Elementary Principals, the National Parent Network on Disability, and others. These groups have been active participants in a far-reaching dialogue related to defining life-long outcomes that span the full range of abilities and needs that will ultimately impact on how educational programs are structured for students with disabilities in the future.

LEARNER-BASED ACCOUNTABILITY—A FOUNDATION FOR SCHOOL REFORM

> *"Accountability is achieved only if a school's policies and practices work both to provide an environment that is conducive to learner-centered practice and to identify and correct problems as they occur. . .accountable schools institute practices for feedback and assessment, safeguards to prevent students from 'falling through the cracks,' and incentives to encourage all members of the school community to focus continually on the needs of students and the improvement of practice."*
>
> *Linda Darling-Hammond & Jon Snyder, 1993*

New Expectations for Student Success

A commitment to higher levels of learning for all students is a commitment to **learner-based accountability,** and this commitment is central to the emerging paradigm that is driving educational reform efforts. It is creating new roles for teachers and new perspectives of school accountability. Establishing this commitment is a major challenge for schools and requires an effort of sufficient 'ntensity to overcome political and substantive barriers" (Darling-Hammond and Snyder, 1993). The school restructuring movement has become a major vehicle for helping schools shift to a new paradigm that reorganizes schools to be genuinely accountable for their students and to their communities. It makes student learning and school accountability the central elements of meaningful reform. Restructuring activities "change fundamental assumptions, practices, and relationships both within the organization and between the organization and the outside world in ways that are intended to result in higher levels of learning for all students. Unlike past reforms that often addressed elements of the educational system separately and focussed on improving the existing organization, restructuring addresses the changes needed in the total system and all of the interlocking influences on student performance" (Conley, 1993, David, 1991).

The central questions that drive school restructuring efforts are: What do we want students to know and be able to do? What kinds of learning experiences produce these outcomes? What

does it take to transform schools into places where this happens? In their extensive efforts to document the policy and organizational requirements of school restructuring, Darling-Hammond and her colleagues at the National Center for Restructuring Education, Schools, and Teaching (NCREST) have described new concepts of accountability that emphasize high levels of learning for all rather than the "traditional school outcomes of success for some and failure for many others." They call these forms of accountability "**learner-centered,** since they seek to focus on the needs and interests of learners for appropriate and supportive forms of teaching, rather than on the demands of bureaucracies for standardized forms of schooling" (Darling-Hammond, Snyder, Ancess, Einbender, Goodwin, and Macdonald, 1993, p.v.). Putting the learner at the center of school accountability means that schools are responsible for effectively engaging diverse learners, rather than being accountable for merely providing programs and delivering instruction regardless of the outcomes.

Recognizing that learner outcomes will not improve unless they are directly addressed, **learner-based accountability means that the entire culture of a school drives toward increasing student success.** This view of accountability implies that as educators, we are responsible for demonstrating the impact of policies, programs, placements, and practices on learner outcomes—that we are accountable to the consumers of education, the children, as well as to the parents, community members, and other stakeholders that provide financial support for education. This notion of accountability is different from bureaucratic forms of accountability that focussed on compliance with procedures and directives. It "grows from a belief that school staff must look at and be guided by the results they produce in their students" (Yssledyke and Thurber, 1992).

Some of the principles underlying learner-based accountability challenge traditional concepts of school organization. These principles emphasize designing curriculum based on what we want students to know and do, providing expanded opportunities for all students to learn and demonstrate what they are expected to know and do at a very high level, having high

expectations for all students, and shifting the reliance on norm-referenced standardized tests to the use of criterion-based performance assessments (Brandt, 1993). The curriculum is developed from the competencies students should demonstrate, rather than writing objectives that are derived from existing curricula.

The premise behind organizing schools around desired standards of student performance is that there will be high expectations for all students, since instruction will ultimately focus on higher levels of learning and competencies for all students. This approach has significant implications for students with diverse needs, since it implies that "teachers will be much more focussed on the learning capabilities of their students and far less on covering a given amount of curriculum in a given time block." Focussing on outcomes creates an inevitable need for educators to accommodate the differences in learning rates in any group of students ". . .this paradigm challenges schools to establish delivery systems that can adjust to these time differences" (Spady, 1992, 1993). The assumptions, principles, and practices that are the foundation for this new paradigm for schooling are dramatically different than those underlying the current paradigm, as shown in Figure 4.

The principles driving the new paradigm hold great promise for ensuring positive educational outcomes for students with disabilities through inclusion. In its earliest form, inclusion was tied to the principle of "least restrictive environment" from P.L. 94-142. Early efforts were largely characterized by the physical movement of students out of self-contained classrooms and out-of-district placements into regular classrooms, where they might or might not receive support from a specialist in the classroom or resource room setting. While this approach may appear to achieve the goals of equal access and integration, effective inclusion requires that certain conditions be in place. These include a student-centered, success-oriented philosophy; instructional approaches that foster cooperative learning and ensure that a wide range of

FIGURE 4

CURRENT PARADIGM FOR SCHOOLING	NEW PARADIGM FOR SCHOOLING
• Schooling is organized around time: curriculum is "covered"; instruction is paced by the schedule, and assessment occurs at "unit" intervals. The "inputs" and process of education are emphasized over "product", or results. Schools accept the failure of a significant number of students.	• The orientation to schooling is learning, achievement, and success. There is an emphasis on high levels of learning for all students. Diverse abilities, developmental levels, readiness, and learning styles are addressed so that all can succeed. The pace of instruction is based on learning, not how much content has to be "covered."
• Learning is organized around a standardized curriculum delivered in standardized time periods. Credentials are awarded based on "time-served", issued in "Carnegie Units."	• Learning is organized around what students should know and be able to do. Credentialing is based on student demonstration of proficiency in these knowledge and skill areas.
• The curriculum is derived from existing content, which is most often determined by textbooks. The curriculum is defined around a set of units, sequences, concepts, and facts.	• The curriculum is derived from standards that define what students should know and be able to do. Subject matter is "integrated" around "real-world" tasks that require reasoning, problem-solving, and communication.
• Assessment is done at the end of instruction and is narrowly focussed on lower-level and fragmented (end-of-unit) skills that can be assessed through paper-pencil responses. Grades are based on a cumulative averaging of performance over a fixed period of time. Norm-referenced standardized test results are the basis of accountability, through which, by definition, half of all students in a norm group will perform below average.	• Assessment is integrated with instruction and focusses on what students understand and can do. Assessment methods reveal students' actual competencies through demonstrations, portfolios of work, interviews, and other observational measures. Grades are based on culminating knowledge and competencies rather than an averaging of test scores. Criterion-referenced tests and performance-based assessments are used.
• School accountability is defined in terms of programs offered, attendance rates, and dropout rates; the number of students who are credentialed, and the results of standardized norm-referenced tests. There is minimal systematic monitoring of student progress on an ongoing basis.	• The school is accountable for ensuring and demonstrating that all students are developing proficiencies that represent high level standards for what students should know and be able to do. There is an emphasis on frequent monitoring of student progress.
• School improvement focusses on improving the existing organization, e.g., by adding new programs, improving school climate, and increasing staff participation in decision making.	• School reform efforts are challenging and seeking to change the assumptions and practices that characterize how schools are currently organized.
	Center for Resource Management, 1994

resources, including computers are accessible to all students; a learner-driven curriculum that accommodates differences in student learning rates; appropriate in-class support; and opportunities for community-based experiences. Educational decision-makers involved in restructuring can also learn from methods emphasized in special education such as: individualized assessment and educational planning; modifying instruction and assessment to build on students' strengths; addressing post-school, "real world" requirements; planning for and supporting students through critical transition points; and involving parents in making decisions about their child's education.

The growing emphasis on student learning and educational results that now drives improvement in all areas (including special education) represents an important opportunity to overcome a long history of fragmented programs and services. Recognition of the enormous diversity that our students represent—in abilities, learning styles, language and culture, personal orientations, home situations, etc.—requires a level of individualization that traditional, "regular" education was not equipped to provide. By focussing on the levels of learning we want all our students to achieve, and by examining educational models in practice that demonstrate what is possible, we can move toward an empowering vision of education that achieves desired results.

Learner-based accountability recognizes that what we really mean by success for all students is success for each student: the school is accountable for ensuring that each and every student is making reasonable progress toward acquiring the knowledge, skills, and orientations that represent the standards for what students should know and be able to do. Learner-based accountability also means that the school is responsible for tracking the extent to which students with particular characteristics or who are exposed to specific programs and practices are succeeding. The ability to systematically monitor the progress of individual and specific groups of students, then, becomes essential to ensuring success. The question, then, is no longer whether to establish accountability systems based on learner outcomes, but how.

A Learner-Based Accountability System

The question of "how" to establish a learner-based accountability system is an important one because it raises issues about the purposes of accountability and the importance of ensuring that such systems are not narrowly focussed, but are responsive to the broader issues associated with ensuring excellence and equity for all students. Student outcomes have to be examined in the context of educational practice and the nature of opportunities that schools provide for students to learn—the question of why outcomes appear as they do has to be addressed (Darling-Hammond, 1989, 1991,and 1992, Oakes,1989). An accountability system has to incorporate methods for accessing and using ongoing information about student performance and school effectiveness as well as processes that reinforce the use of effective practices.

NCREST identified three building blocks of accountability as well as several key capacities that support the implementation of a comprehensive and effective accountability system. The core building blocks include: 1) a set of policies and procedures that encourage and support good teaching and valuable learning; 2) methods for regularly eliciting information that shows how the school is functioning for all students and that pinpoint what areas of the school context may be influencing the school's success or failure with individual students and various groups of students; and 3) mechanisms for rethinking and changing practices—in individual cases or in cases involving overall school functions—if students are not being well served.

Underlying the NCREST accountability model are fundamental elements of school and classroom practices that have very positive implications for all students, including students with disabilities and those with a range of diverse needs. These practices include the following.

- A school organization that ensures attention to students' needs and problems and brings coherence to teaching and learning.
- School policies and practices that "work both to provide an environment that is conducive to learner-centered practice and to identify and correct problems as they occur."
- School operations that "heighten the probability that good practices will occur for students; reduce the likelihood that harmful practices will occur; and provide internal self correctives in the system to identify, diagnose, and change courses of action that are harmful or ineffective."
- A set of processes for guiding practice and for using information to improve practice.
- Vehicles for staff interaction, shared inquiry, and continued learning that strengthen practice and create opportunities for continual evaluation and improvement of teaching.
- Forms of student assessment that reveal student strengths, talents abilities, and performance capacities.
- Feedback and assessment practices that prevent students from "falling through the cracks."
- "Incentives to encourage all members of the school community to focus continually on the needs of students and the improvement of practice."
- Systematic tracking of the progress of individual students or cohorts of students (rather than using aggregated averages of test score data) to determine the distribution of student achievement and school effectiveness.
- Evidence of the growth and progress of individual and groups of students over time—collecting and analyzing student performance data longitudinally to examine whether changes are the result of shifts in practice.
- Mechanisms that help schools continually evaluate how well they are meeting students' needs.

Creating Learner-Centered Accountability, NCREST, 1993

Using Management Information System Technology to Support Learner-Based Accountability

Putting learner outcomes at the center of school accountability is leading to more widespread recognition of the necessity for school-based capacity to systematically monitor student performance, and to evaluate the extent to which new approaches to curriculum, instruction, and assessment result in higher levels of student learning. However, while there is a growing body of educational research and practice literature on the many dimensions of school accountability at

both the policy and program levels, less attention has been given to how schools can develop the essential information system capacities that relate to learner-based accountability.

For years, researchers and practitioners have emphasized the limitations of aggregated measures of student outcomes which do not support an understanding of whether specific groups of students are benefitting from their educational experiences. New visions of learner-based accountability require school-level capability to demonstrate the outcomes achieved by various groups of students by disaggregating data (sorting information) so that results can be correlated with pertinent student, program, and educational process variables; i.e., being able to obtain information about the performance of students with particular characteristics, the programs and practices to which they are exposed, and the outcomes they achieve.

> *"The purpose for disaggregating student outcome data is to give the district and the individual schools a vehicle for evaluating their own effectiveness. The process seeks to identify the percentage of pupils in various subsets who achieve mastery of the essential learning at each grade level by program, course, school, etc. Through this analysis, a district and building can monitor whether students from all socioeconomic levels, different races, and both genders are mastering the essential student outcomes. Past experience verifies that such an analysis is one of the most critical steps in helping staff see the need for change. This analysis clearly shows whether the curriculum is being equitably learned by all students."*
>
> *". . . Disaggregation is a practical, hands-on process that allows a school's faculty to answer two critical questions: Effective at what? Effective for whom? It is not a problem-solving process but a problem-finding process."*
>
> *Lezotte and Jacoby, 1992*

The Center for Resource Management, Inc. (CRM) has conducted extensive research and development activities to determine the information system requirements of achieving school-level, learner-based accountability. This work involved hundreds of regular and special educators, parents, and community members, and drew from CRM's role in directing two major statewide school improvement initiatives in New Hampshire, from conducting school-level student outcome studies in more than 150 schools involved in school improvement and school restructuring projects in New Hampshire. South Dakota, and Colorado; and from evaluation studies that were funded under OSEP's State Agency/Federal Evaluation Studies (SAFES) Program. A key issue that cut across all of these projects was how state-of-the-art management

information system (MIS) technology can be used to build school capacity to systematically monitor student outcomes, demonstrate accountability, and implement continuous data-based program improvement. Areas that were examined include:

1. How schools currently access and use student performance data.
2. The requirements of creating an integrated school-level database of student performance data and other pertinent information.
3. The types of information that regular and special educators believe should be included in an accountability system.
4. The types of questions the system should address, and how data would be used by regular and special educators to improve student performance.
5. How relational database technology can be used to enable schools to disaggregate a wide range of pertinent data, and to link student performance data with demographic and programmatic information.
6. The training and technical assistance requirements of helping school staff develop skills that relate to effectively accessing and using information for monitoring, accountability, and ongoing improvement.

The research process highlighted that focussing on student outcomes and developing essential information system capability represents a major culture change for most schools. Access to and use of performance data are extremely limited, and the way information is stored does not lend itself to easy access or analysis. Student performance data and other pertinent information is typically located in a variety of places, or is routinely destroyed at the end of a school year. Administrative software packages most commonly used by schools were not designed to function as accountability systems. They create schedules, generate report cards, produce school and grade-level attendance reports, and in some cases, grade distributions for specific courses. They were not designed to disaggregate performance data or to correlate performance data with demographic or educational process variables. Schools, therefore, can't link student performance data to specific programs, practices, and policies. This has made ongoing internal evaluation impossible, and has created a long-standing dependency on external evaluation; that is, without the assistance of external evaluators, schools have not been able to systematically assess the

effects of changes they have made in programs, policies, and practices on student performance over time. Thus, at a time when educators are expected to demonstrate stronger program accountability, most schools struggle to produce data to answer the most basic questions about the performance of specific groups of students. In short, demonstrating results and linking results to specific programs, classroom practices, and grouping polices requires integrated recordkeeping approaches and information technology that very few schools have. The current status of school-level capability to access and use information for program improvement and accountability is summarized in Figure 5.

From discussions with more than 100 school teams that included both regular and special education administrators and teachers, parents, business and community leaders, and data processing personnel, several themes emerged that captured what practitioners and stakeholders want from a school-based information system. The system should:

- Function to promote a school culture that values and uses information, in contrast to data systems that seem complicated or irrelevant to school staff.
- Function to focus school planning and improvement activities on ensuring success for all students.
- Provide teachers and administrators with the data they need to monitor student progress in formats that lend themselves to decision-making.
- Enable schools to communicate results to pertinent constituencies in formats that can easily be understood by parents, school board members, and community groups.
- Enable schools to produce data that address school accountability questions about the performance of specific students.
- Help schools conduct their own program evaluations and reduce dependence on outside evaluators.
- Be comprehensive—account for the wide range of student, outcome, and process data relevant to school-based monitoring and accountability.
- Provide methods and technology for creating an integrated school database, and for easily accessing, aggregating, and disaggregating data.
- Present data so that practitioners perceive issues systemically and not simplistically.

FIGURE 5

STATUS OF SCHOOL INFORMATION AND RECORDKEEPING SYSTEMS

- School records aren't integrated which makes the compilation of essential information burdensome. Student performance and other data are located in a variety of places. Administrative software packages create schedules, generate individual report cards, and provide limited school and grade aggregation.
- Schools can't disaggregate data to monitor the performance of specific groups of students and the effects of school programs and practices on student performance over time.
- Current systems don't have the capability to compile performance-based assessment data at multiple levels—classroom, grade, and school levels or for specific student groups.
- Teachers and administrators don't have easy access to the data they need to systematically monitor student progress.
- Schools can't produce data to answer accountability questions and to communicate the progress and success of specific groups of students to key stakeholders.

- Be sufficiently flexible to address individual school characteristics, priorities, and diverse information needs.
- Be interactive with the administrative software used by schools to avoid redundant data entry.

These information system requirements represent powerful organizational capabilities for schools. They reflect key elements for bringing schools into the information age and for empowering school practitioners with information that directly relates to a mission of ensuring higher levels of learning for all students. To help schools acquire these capabilities, in 1990 CRM began the development of a school-based management information system (MIS) that creates an integrated school-level database and provides almost unlimited capability to disaggregate student performance data. In developing the system, it was recognized that it would have multiple components, and its quality and utility would be tied to the extent to which certain practical realities were addressed. It would have to address school staff training needs, provide resource materials, provide forms and procedures for easily and efficiently accessing manual data

from school records, and utilize MIS software technology to provide adequate data analyses capability. It would have to take into account existing computerized databases, such as those used to generate report cards; the resource constraints and other realities faced by schools; and the types of report formats that facilitate interpretation and use by administrators, instructional staff, parents, school board members, and other groups.

The challenge was to make the complex possible, and to produce an information system that could realistically be integrated into school operations to support ongoing data-based planning, monitoring, accountability, and program improvement. Schools do not need, nor will they accept, a system that is another "add-on" to an already burdened organization. Utilizing relational database software, a "user friendly" learner-based accountability system was developed that interrelates student, process, and outcome data elements, and provides school staff with the ability to not only address student outcomes, but also to address questions of why outcomes appear as they do. The system enables school administrators and instructional staff to use student outcome data in combination with other information to monitor student progress and improve school programs and instructional practices. Because of its emphasis on the use of information to improve student performance, the system is called the Student Profile System.

The Student Profile System creates a central record of all pertinent information from schools' manual and computerized recordkeeping systems. Because it utilizes relational database technology, it does not displace schools' current computerized systems, but has the capability to import data already entered into these systems to eliminate duplicate data entry and to create an integrated database. The Student Profile System was designed to be as flexible as possible. Standard field names can be easily modified to allow for the use of user terminology which varies somewhat across schools for certain data elements. Based on input from hundreds of regular and special educators, customized output reports (which are called profiles) were designed to display data in formats that facilitate ease of use by school staff. While the Student Profile System includes a set of standard profiles, the profile formats are designed as "templates" that can be applied to various types of data and analyses. By having access to an integrated database, special education administrators, principals, and other school staff have extraordinary

information capability at their fingertips. The key features of the Student Profile System are summarized in Figure 6.

FIGURE 6

KEY FEATURES OF THE CRM STUDENT PROFILE SYSTEM

THE STUDENT PROFILE SYSTEM:

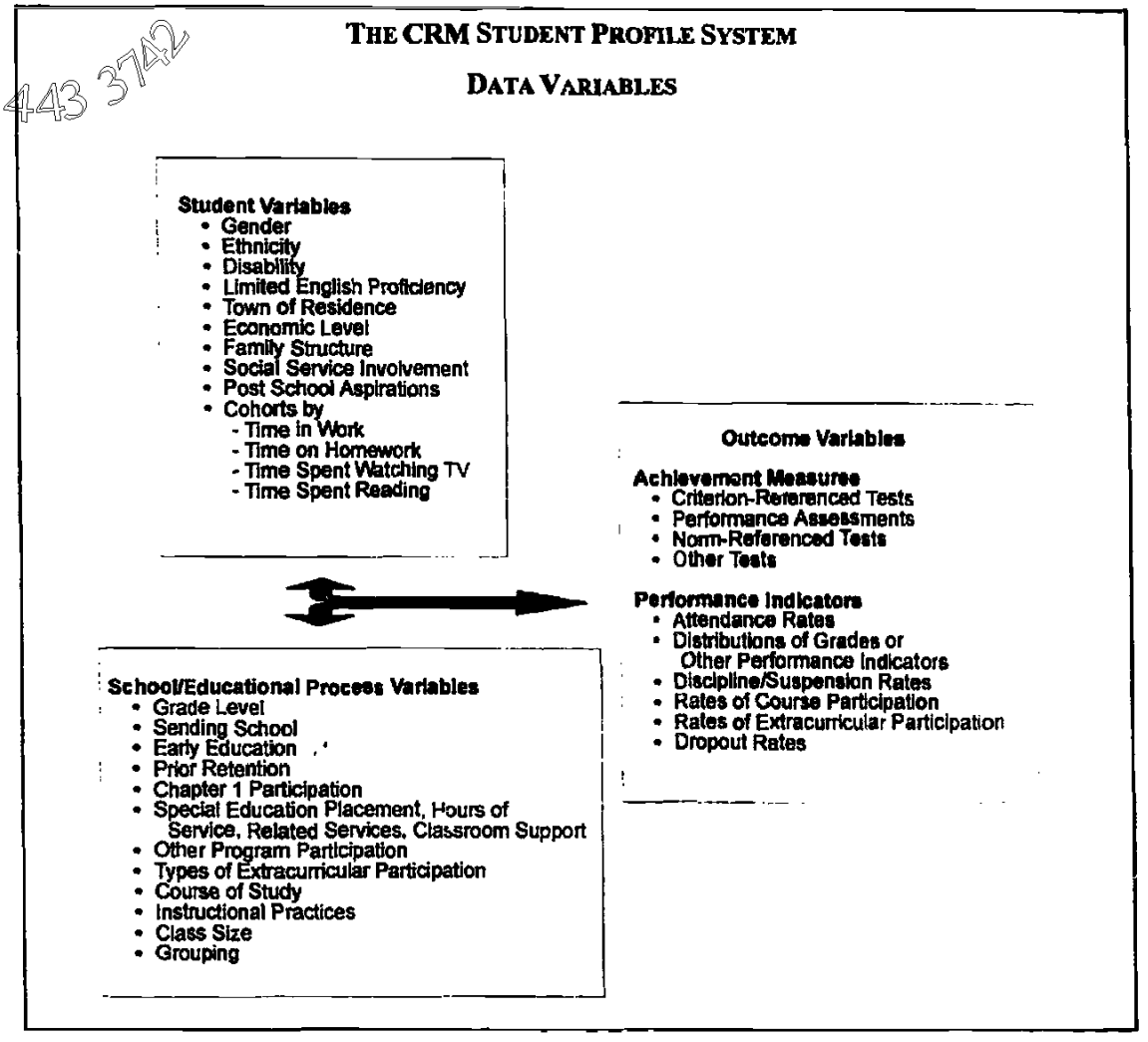
- Is a school-based information system that is customized to incorporate the characteristics, priorities, and diverse information needs of each school. Virtually any number of user-defined fields can be included to address the specific population, educational, and outcome variables the school wants to track.
- Creates an integrated database of the information needed to monitor student performance. Data includes student demographics, school and classroom processes, performance assessments, absence, discipline, and dropout rates, grade distributions, and test scores.
- Tracks the performance of special education students by school, grade level, disability, placement, specific special education services provided, number of service hours, and related services provided.
- Allows easy access to student performance data for ongoing use by teachers and administrators.
- Provides almost unlimited capability to disaggregate data so that schools can monitor the performance of specific student groups and the effects of school programs and classroom practices on student performance over time.
- Generates a wide array of reports (called profiles) on student performance in user-friendly formats for school staff and key stakeholders.
- Profiles performance-based assessment data at multiple levels—classroom, grade, and school levels—and for specific student groups.
- Is interactive with (can import data from) the administrative software used by schools.
- Allows schools to produce data that address school accountability questions about the performance of specific students.
- Helps schools develop site-based capacity to evaluate the effects of policies, programs, and practices on student performance over time.
- Focusses school improvement activities on increasing student achievement. School staff identify the factors that impact on performance, acquire performance data related to those factors, and develop the capacity to monitor progress and performance over time.

How Special Educators and Other School Staff Can Use a School-Based MIS to Support Student Learning, School Acconntability, and School Improvement

A school-based MIS designed to support learner-based accountability can be an important vehicle for helping special educators and other school staff develop shared understandings (a common language) about pertinent outcome indicators and achievement data. The installation and use of such a system should start with staff consensus about the outcome data available to them that provides information about student success. School staff quickly recognize that monitoring student progress means being able to document success and also being able to pinpoint where the trouble spots are—determining which students are not succeeding, and what factors seem to be associated with high or low achievement. It is important that school staff have opportunities to identify the factors they feel might impact on student performance. These factors become the data variables that are tracked through the MIS. They may relate to demographic characteristics of students, students' prior educational experience, and their current educational experiences, including curricular programs, specific courses, special programs, special education placement and services, instructional practices, assessment methods, and grading criteria. Monitoring student progress, therefore, means being able to relate outcome data to pertinent population and educational variables. Having this capacity is essential to linking outcome data to specific policies, programs, and practices. School teams see the value and power of this capability. Figure 7 depicts the range of information identified by school teams that have been incorporated into CRM's Student Profile System.

The student variables represent groupings of students whose outcome data school teams want to monitor. For example, schools often want to examine the school performance of boys versus girls or of students fr .n different ethnic groups. Some school teams have wanted to examine the performance of students from different economic levels or from different towns in a regional school setting. Because national studies are showing that students who read more on their own and spend more hours doing homework tend to achieve higher levels of proficiency than those who spend less time on these activities, some school teams have wanted to examine the relationship between student performance and these variables.

FIGURE 7



A relational MIS database also allows educational/process variables to be linked to student performance. School teams can then examine the outcomes of students who are in specific programs, placements, or courses of study. They can examine whether students who have been exposed to certain instructional practices or teaching styles are achieving higher levels of proficiency over time. The influence of class size or different types of grouping policies also can be systematically evaluated. An MIS is also an important tool for examining the effectiveness of inclusion for special education students. Special educators have wanted to monitor the performance of students in different types of placements and examine variations in performance

that may be linked to the amount of service hours provided. CRM is currently conducting a study under OSEP's SAFES Program that is examining the effects of various types of in-classroom support (such as special education staff co-teaching with classroom teachers, or the use of instructional aides) on the academic performance of special education students. The wide range of questions that can be answered by the data profiles generated through a school-based MIS is illustrated in Figure 8.

A school team from a regional high school participating in the NH Special Education Program Improvement Partnership wanted to explore the relationship between student success and factors such as students' long-term and short-term goals, and hours spent in work or watching television. This school provides an example of how a performance-based approach to monitoring can directly involve students in examining the factors that may be influencing their success or failure.

> An Advisor Program was established to provide students with a relationship with an adult who could assist in developing long-terms goals and to set short-term grade average goals. Working with their advisor and parents, students selected long term goals ranging from 4-year college to the "world of work", and specified the grade average they would work to achieve. To engage students in looking at factors that impact on success, the advisors administered a short survey that asked students how many hours per week they spend doing homework, watching television, and working. Students also were asked questions about their attitude toward school and self-confidence related to success in school.
>
> Because the Student Profile System was designed with student data as its base, long- and short-term goals and hours spent per week on various activities became population variables linked to each student. This allowed outcome data to be correlated and displayed for each of these variables, as well as for particular combinations (e.g., no homework or reading for pleasure), and the data profiles generated through the Student Profile System illustrated the difference in performance for each of these variables.
>
> A high school team comprised of regular and special education staff and the advisors involved students in examining the data profiles. They held discussions to help students gain a better understanding of how certain factors within their control (e.g. homework, working, reading, and television time) may impact on performance. Students also examined outcomes achieved by students according to various short- and long-term goals.

FIGURE 8

TYPES OF EVALUATION QUESTIONS ANSWERED BY A SCHOOL-BASED STUDENT PROFILE SYSTEM

Population Trends

1. What are the characteristics of the school population? Are there increases or decreases over time in the number of students with certain characteristics?
2. What are the characteristics of students-with-disabilities and what trends are occurring over time for this population?

Skill Development

3. Does the performance of the school population on various assessments indicate that students have developed adequate competencies in the skill areas assessed?
4. Are there particular skill areas where there is a high incidence of student success? Are there particular skill areas where many students are demonstrating below satisfactory performance?
5. Are there notable differences in the perfor-mance of specific groups of students?
6. Does the performance of students-with-disabilities on various assessments indicate that these students have developed adequate competencies in the skill areas assessed?
7. To what extent are classroom practices such as cooperative learning, team teaching, and heterogeneous grouping having a positive impact on skill development? What are the characteristics of students who are succeeding with these practices? Not succeeding?

Attendance, Discipline and Dropping Out

8. Which groups of students appear to be at risk of school failure based on a combination of excessive absence and discipline problems?
9. How many and what percent of the school population have been suspended or involved in disciplinary actions at least once? Three or more times?
10. Do the absence, discipline, or drop-out rates of any group of students indicate that there is problem that needs to be addressed for this group?
11. Are there trends in dropout data that indicate that particular groups of students appear to be at risk of not achieving future employment?

Course Participation

12. What is the participation rate of various groups of students in specific courses in the subject areas of Language Arts, Mathematics, Science, Social Studies, and Vocational Education?
13. What is the participation rate of students with disabilities in lower level courses? In advanced courses?

Grade Performance

14. How is the student population performing in the major subject/skill areas of Language Arts, Mathematics, Science, and Social Studies at all grade levels? What is the distribution of grades in these major subject areas?
15. Do grading patterns suggest any inconsistencies in criteria across subject areas? Classrooms? Within or across departments? At key transition points?
16. Does the grade performance of any group of students indicate they are at risk of cumulative academic failure?
17. How are students with disabilities in specific placements or programs progressing? Are students who are in integrated settings achieving satisfactory grades?

Participation in Extra-Curricular Activities

18. What is the participation rate of students in various school activities?
19. Are there notable differences in the participation rate of specific populations?

How a School-Based MIS Supports School-Level Implementation of the NCEO Framework

As discussed in a previous section, the National Center on Educational Outcomes (NCEO) developed a conceptual model of outcome domains, related outcomes, and possible indicators for each outcome. Outcome indicators are the actual data that schools can use to demonstrate the extent to which various outcomes have been achieved. For example, for the domain of Academic and Functional Literacy, the model proposes that students should demonstrate competence in the following five areas: communication; problem-solving strategies and critical thinking skills; math, reading, and writing skills; other academic and nonacademic skills; and using technology.

Schools seeking to monitor and demonstrate student progress against the above indicators must deal with measurement issues as well as accountability issues. The measurement issue is tied to the assessment methods used by schools through which students actually demonstrate competence. As discussed previously, there is widespread recognition that the use of norm-referenced tests and the narrow types of textbook-driven "end-of-unit" or "end-of-semester" assessment methods used by schools do not adequately assess student competencies, nor do they measure higher order communication, reasoning, and problem-solving skills. Thus, while standardized test data and grade performance data provide some evidence of student competencies, the evidence is insufficient. Monitoring and communicating to parents and other stakeholders the percent of students who actually demonstrate academic and functional competencies in the five areas identified in the NCEO model will require that statewide testing programs and schools become more proficient in the use of alternative forms of assessment that reveal students' real performance capacities. Current reform efforts are already showing this shift. Statewide assessment programs are rapidly shifting to the use of criterion-referenced measures. Schools are shifting toward teaching and learning practices that integrate assessment with instruction, focus on what students understand and can do, and draw upon the use of portfolios, performance demonstrations, and other observational measures to assess student proficiency.

The accountability issue is tied to the extent to which school information systems incorporate a sufficient array of student performance data that includes criterion-referenced, performance-based assessment data, and are capable of compiling and disaggregating data so that schools can monitor and demonstrate the progress of specific groups of students. Current information system technology can be designed to provide schools with these essential capabilities.

Figure 9 on the next page illustrates how a system such as the Student Profile System acts as a vehicle for helping schools implement conceptual models such as the one developed by NCEO by allowing schools to develop a longitudinal database to systematically track the percentage of students (for the total school population and designated sub-populations) who develop desired competencies over time. It enables regular and special educators to determine: the extent to which students in inclusive classroom settings are developing competencies that represent emerging visions of what students should be able to know and do; whether the special services provided to students enhance the development of desired competencies; and whether particular classroom practices have a positive impact on student success. Information system technology can effectively support an educational approach that emphasizes progress over process, and equity of opportunity and results. As such, it can support reform initiatives aimed at ensuring the success of each student.

FIGURE 9

IMPLEMENTING THE NCEO MODEL THROUGH A SCHOOL-BASED MANAGEMENT INFORMATION SYSTEM (MIS)

Excerpt from NCEO Model			School-Based MIS
ACADEMIC and FUNCTIONAL LITERACY			
Examples of Outcomes	**Outcome Indicators**		
Demonstrates competence in communication	a> Percent of students who use and comprehend language that effectively accomplishes the purpose of the communication		***For the total school population and subgroups by*** • Grade Level • Gender • Ethnicity • Socioeconomic Level • Disability • Special Placement
Demonstrates competence in problem-solving strategies and critical thinking skills	a> Percent of students who demonstrate problem-solving and critical thinking skills		
Demonstrates competence in *math, reading,* and writing skills	a> Percent of students who demonstrate competence in math necessary to function in their current home, school, work, and community environments b> Percent of students who demonstrate competence in math necessary to function in their next environment c> Percent of students who demonstrate competence in reading necessary to function in their current home, school, work, and community environment d> Percent of students who demonstrate competence in reading necessary to function in their next environment e> Percent of students who demonstrate competence in writing necessary to function in their current home, school, work, and community environments f> Percent of students who demonstrate competence in writing necessary to function in their next environment	**ARE DETERMINED**	***Through the disaggregation of*** • Criterion-Referenced Measures • Performance Assessments • Other Tests • Grade distributions in academic subjects ***Results are Profiled for School Staff and Stakeholders.*** ***Data may be further disaggregated to determine the effects of*** • Grouping Practices • Instructional Practices • Special Programs • In-Classroom Support **ON STUDENT SUCCESS**

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