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ABSTRACT

The Schools and Staffing Survey (SASS) was designed by the National Center for Education Statistics (NCES) to provide recurrent information about public and private elementary and secondary schools, teachers, and administrators. The NCES commissioned these papers to examine the SASS and to make recommendations about its future. The following papers, presented at 1996 NCES seminars, are included: (1) "Should SASS Measure Instructional Processes and Teacher Effectiveness?" (Susan Stodolsky); (2) "Toward an Organizational Database on America's Schools: A Proposal for the Future of SASS, with Comments on School Reform, Governance, and Finance" (David P. Baker); (3) "Technology for K-12 Education: Asking the Right Questions" (Kathleen Fulton); (4) "Linking Student Data to SASS: Why, When, How" (Phillip Kaufman); (5) "Making Data Relevant for Policy Discussions: Recommendations for Redesigning the School Administrator Questionnaire for the 1998-99 SASS" (Henry Zheng); (6) "Measures of Inservice Professional Development: Suggested Items for the 1998-99 Schools and Staffing Survey" (Dorothy M. Gilford); (7) "District-Level Data in the Schools and Staffing Survey" (J. Michael Ross); (8) "Use of Education Information Systems with the Schools and Staffing Survey: How Can SASS Be Linked to Schools?" (Rolf K. Blank); (9) "Collecting Representative Data on School Resources: Understanding the Linkage between Adequacy, Equity, and Opportunity To Learn through SASS" (Jay G. Chambers); (10) "The Schools and Staffing Survey for 1998-99: Design Recommendations To Inform Broad Education Policy" (Erling E. Boe); (11) "1998-99 Schools and Staffing Survey: Issues Related to Survey Depth" (Susan P. Choy); and (12) "Reflections on the Papers Prepared for the Schools and Staffing Survey Seminar Series" (John Howard Burkett). Each paper contains references. (SLD)

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PREFACE

The Schools and Staffing Survey (SASS) was first administered in 1987-88 by the National Center for Education Statistics (NCES) to provide recurrent information on public and private elementary and secondary schools, teachers, and administrators, especially data on conditions affecting supply and demand for teachers and the characteristics of the teacher force. By linking survey data from classroom teachers and individual school sites to information from local education agencies (LEAs), the survey provides recurrent information on public and private elementary and secondary schools, teachers, and administrators to inform state and federal decisions, and the educational research community. The data now collected fall into four general categories:

- Critical components of teacher supply, demand, and attrition, with attention to critical shortage areas and the policies and practices at all levels enacted to meet the demand in those areas
- The professional characteristics, preparation, and experience of teachers and administrators, plus their perceptions of school conditions, professional responsibilities, decision making, and compensation policies
- The conditions and characteristics of the school as a work place and a learning place, including characteristics of the student body, curriculum, special programs, and organizational structure
- The implementation of school programs and policies such as English as a second language, bilingual education, diagnostic and prescriptive services, and programs for the gifted and talented

The current survey design and process provide for a network of interlocking datasets from different organizational elements at the classroom, school, and district levels. The target population includes all elementary and secondary schools, teachers, and principals in the U.S. The process and instruments are as follows:

1. The **School Administrator Survey** and the **School Survey** are administered to a sample of 9,784 public and 3,360 private schools
2. The **Teacher Demand and Shortage Survey** is administered to each sampled private school (embedded in the school questionnaire) and to the 5,500 LEAs of the sampled public schools
3. The **Teacher Survey** is administered to a random sample of 56,736 public and 11,548 private school teachers in the sampled schools

This process results in a comprehensive, linked database that provides national estimates for public and private schools, districts, principals, and teachers; state-level estimates for public data and affiliation-specific estimates for private data.

SASS was administered at three-year intervals from 1987-88 through 1993-94, with a five year interval before its next administration in 1998-99. NCES is examining the direction, purposes, and uses for SASS in the twenty-first century. This includes scrutinizing the current uses of its data, its relationships with other federally sponsored data collection projects, and future national survey needs during a period of evolving policy priorities.

As part of this process, NCES commissioned twelve papers to examine SASS and make recommendations about improving the scope and utility of the surveys. Authors were selected from the ranks of experts working to understand and describe the nation's schools, and policymakers interested in instructional practice and professional development. They represent academia, the research community, and specialists in technology, teacher education, and state and local data collection. Authors were asked to examine the current SASS, address the effects of specific issues on future iterations of SASS, and make recommendations about improving, focusing, or expanding the scope and utility of the surveys. The papers were presented during seminars at NCES in the early part of 1996.

The first paper, by Susan S. Stodolsky, addresses data collection on instructional practices and teaching effectiveness. Current reform movements embody an expectation that changes in teachers' instructional practices will play an important role in improving student achievement, and that national measurement of those changes in classroom processes will track the progress of reform. Instruction and teaching effectiveness are central to the educational process and therefore, one might presume, also central to our collection of information about education. Stodolsky presents the argument for collecting data on instructional practices and teaching effectiveness; examines how teaching effectiveness is conceptualized; describes strengths and limitations of observational and survey data collection; suggests ways in which the effect of curricular reforms could be assessed; and proposes specific ways that SASS might measure instructional practice and content.

In the next paper, David P. Baker suggests that SASS become a new organizational database for the nation's K through 12th grade schools: an omnibus survey about the internal organization of elementary and secondary schools. Baker proposes that the foremost priority of SASS ought to be organizational and managerial information focusing on four main perspectives: school organization, multiple levels of governance, financial resources and flows, and school-level educational outcomes. Baker argues that if SASS were to become a central vehicle for NCES, it is essential to collect

school-level data on educational outcomes such as student achievement, promotion, dropout, disciplinary actions, and college applications. SASS data could then contribute to the policy debate linking student outcomes with schools, their organizations, and resources.

Some analysts suggest that computer use will completely transform classroom instruction in the next 20 years. In the third paper, Kathleen Fulton says that drastic changes are necessary in our data collection about technology if it is to keep pace with classroom innovations. While current data collection on classroom use of computers and related equipment may respond to public and congressional interest in defining the scope of computer use, it is primarily limited to numbers and availability of computers. Future data collection, she argues, needs to be refocused and directed toward defining the effect of state policies on access to technology in schools, how computers are actually used by teachers and students, and the effect of that use on teaching and learning.

Phillip Kaufman argues that SASS data ought to link with information on student achievement. In his paper, Kaufman presents the feasibility and benefits of linking a student sample with SASS teacher and administrative data. He proposes that a successful merger of two data collection systems should produce data that could measure students' overall academic performance, their growth in achievement, and their progress through critical transitions. A linkage between SASS and a student data component, Kaufman suggests, should also produce some administrative or respondent efficiencies and analytical benefits.

Henry Y. Zheng's paper discusses the scope and uses of the SASS School Administrator Questionnaire. He argues that current and future efforts to understand and guide educational reform will increase the importance of administrator survey data, especially such information as demographic and educational data, and information on principals' attitudes toward school management issues such as the priorities of educational goals, seriousness of school problems, and the distribution of decision-making power in schools. Zheng suggests ways in which NCES might encourage greater use of the resulting data and recommends questionnaire modifications to increase data relevance.

Dorothy M. Gilford's paper addresses data collection on teachers' inservice professional development. She proposes a framework with which to classify types of programs and discusses several current issues and their implications for professional development and data collection. Gilford recommends expanding the types of professional development items included in SASS; fielding a new computer coordinator survey; and eliminating the district survey by incorporating its essential questions into the principal survey. Gilford also notes that data collection must accommodate the current broad spectrum of professional development activities and their slow evolution from simple

awareness programs designed to inform teachers about new ideas to more complex systemic programs shaped by constructivist principles and directed toward results-driven education.

J. Michael Ross argues that the SASS sampling process ought to be redesigned to directly sample districts rather than schools. Given the importance of district-level data for systematically assessing the increased changes, complexities, and responsibilities in the organizational structures of schools and districts, Ross suggests that districts be sampled first, and then schools within the selected districts, a reversal on the current sample design. Redesigned district surveys should also de-emphasize teacher demand and supply issues to focus on district policy and reform information. Such changes, he suggests, would help NCES assemble important information that will be critical in assessing school reform.

Rolf K. Blank recommends that the current design of SASS be linked with state and local education information systems to provide direct and important data on the characteristics of American schools and how education is carried out within them. Such a linkage, Blank asserts, would add to the usability and relevance of SASS data and increase state-level data analysis and reporting. He details three possible approaches and suggests NCES consider providing incentives for cooperation in state and local data collection.

Jay G. Chambers also suggests a redesign of SASS to facilitate examination of resource allocation patterns in public and private schools. Chambers argues that such information would be valuable to researchers and other data users without unduly increasing respondent burden. Chambers' paper and recommendations focus on personnel data since 80 percent of public school district budgets are devoted to personnel costs. Implementing his suggestions, he says, would provide a foundation for addressing issues of equity, adequacy, and opportunity to learn within school systems.

In a comprehensive examination of SASS, Erling E. Boe reconsiders the goals, foci, and strategy of SASS; the content balance, extent of coverage, redundancy of coverage, and potential new areas; and recommends data collection priorities. Boe recommends collecting data on both "enduring" and "emerging" issues of policy concern. He suggests continuing to collect data in ten areas fundamental to the education process; continuing to collect data on the basic attributes of school principals, LEAs, and schools; and expanding data collection in eight areas of school governance/organization and instruction. The paper emphasizes public school data collection, and recommends that SASS data be made relevant to education policy development at all levels, since the mix of federal, state and local influences on schooling has been, and will continue to be, in flux.

Susan P. Choy examines the depth of SASS, focusing on the level at which estimates should ybe provided, the respondent pool, and the response burden. Choy suggests that the relevance and importance of the original survey purposes remain intact, and the survey is able to capture information on enduring issues, even though changing policy concerns of the early 1990s have shifted the focus of some questions. Choy suggests that SASS monitor the extent to which various types of proposed reforms are actually present in schools and classrooms, and collect more information to describe what goes on at the classroom level. Choy also recommends continuing to collect data with which to provide state- and private school affiliation-level estimates.

Finally, John Howard Burkett argues that there is a pressing public need for more state and local information on schools and that SASS must heed the public's need for data. He echoes Boe's call to focus on fundamental aspects of schooling that have been subject to major recent debates, policy action, or public concern. He suggests that the value of SASS will be realized only if it addresses education at the state and local levels.

Individually and collectively, these papers set an ambitious agenda for NCES and SASS and provide the basis on which the Center can make decisions on how best to focus or expand the future direction and emphasis of SASS.

In addition to the fine work of the authors, we also want to acknowledge the contributions of others that helped make this project a success. Within NCES, Sharon Bobbitt played a key role in conceptualizing the conference. When Sharon became Director of the Knowledge Applications Division in the Office of Educational Research and Improvement, Mary Rollefson ably guided the project to its conclusion. At Policy Studies Associates, John Mullens directed the project and was instrumental in bringing the conference and this publication to fruition. He was assisted by Eileen O'Brien, Janie Funkhouser, Amy Hightower, Ben Lagueruela, Kim Thomas, and Nancy Thornes. To each person, we extend our gratitude and appreciation.

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SHOULD SASS MEASURE INSTRUCTIONAL PROCESSES AND TEACHER EFFECTIVENESS?[1]

Susan S. Stodolsky, University of Chicago

This paper addresses issues related to the possible inclusion of items in SASS to measure instructional practices and teaching effectiveness. In order to answer the question posed, the paper explores what purposes can be served by measuring instructional practices on a national scale. It then examines how teaching effectiveness is conceptualized. Turning next to substantive and methodological concerns, a section describes some strengths and limitations of observational studies of classroom instruction and makes a similar assessment of survey studies. Some attention is then given to curricular reforms and how their impact might be assessed. The last sections of the paper suggest specific ways in which instructional practices and curricular content might be measured through SASS, including the selection of specific school subjects and grade levels for attention.

Why Collect National Data on Instruction?

We begin by briefly examining some of the main reasons to collect information about instructional practices/processes on a national scale. If we are to understand, monitor, and improve our nation's schools, accurate and timely empirical, descriptive data about how schools work must be available. The activities that take place in classrooms to engender student learning and development are the heart of any school's educational efforts. It is in the transactions between and among teachers, students, materials and tasks that deliberate efforts to educate occur.

Descriptive information about how teaching and learning occur in classrooms and about what is taught provides the basis for monitoring the status of instruction in a large number of settings. Such information can provide periodic assessments of stability and change in instruction, particularly as changes relate to deliberate efforts to reform or alter curriculum and instruction. Similarly, if collected along with knowledge of particular policy initiatives, curriculum standards, or changes in teacher preparation or staff development, information describing classroom instruction can help track the impact of various policies on what transpires in classrooms.

Descriptive information about classroom processes also can contribute to the deliberations of teachers, teacher educators, subject matter and other educational associations, and policy makers at local, state, and national levels. Basic researchers also benefit from information about what actually goes on in classrooms.

Possible Limitations

While a national picture of instruction is desirable for the reasons mentioned, it can

be argued that the SASS sampling strategy of few teachers in any school works against the utility of such information for local (school, district) policy makers. Many reform efforts are local and data on instruction collected within the current SASS sampling strategy might not be sensitive enough to detect local effects. These are cogent criticisms and suggest some alteration of the SASS sampling strategy to make data on instruction and the effects of reform even more useful. Nevertheless, instructional data that can be analyzed at national, state, and regional levels seems highly useful especially since many reform programs are conducted at these levels. We will return to sampling issues in the section on recommendations.

Many argue that classroom process information is most valuable when connected to student achievement and attainment. Data from NELS have been analyzed recently by Kupermintz, Ennis, Hamilton, Talbert, and Snow (1995) and Lee and Smith (1995). Both research groups found significant relationships between certain measures of instructional practices (e.g., emphasis on higher order thinking), teacher attitudes (e.g., willingness to alter instructional practices if students are not learning) and student performance on both math knowledge (lower mental process) and math reasoning (higher mental process) items. A similar analysis of teachers' responses to the CLAS survey by Wiley and Koon (1995) also demonstrates the potential for connections between instructional items and student attainment.

Although NCES has considered monitoring student achievement in connection with SASS, as currently structured SASS is not linked to student data on achievement or other outcomes and a considerable redesign and change in sampling strategy would be required to do so.[2] The question then is whether information on instructional practices and content coverage is still useful in the absence of data on student attainment. We argue that links to achievement can be *direct* and *empirical* as when teachers and their students are studied, or links can be *putative* and *conceptual* based on known or assumed connections between practices and achievement. Existing research and theory can be used to formulate the presumptive connections and might also inform the design of empirical studies.

For example, studies such as Kupermintz et al. (1995) and the IEA studies have shown that content coverage is related to student attainment as are certain instructional processes. While our knowledge is far from complete in this area, it seems safe to assume that content covered, particularly content that is emphasized, is more likely to be learned than topics not taught or emphasized during instruction. Thus, a description of instructional practices and content coverage would allow some inferences as to what students are likely to learn. More in-depth and direct measurement of both processes and student learning might be desirable, but including information on curriculum and instruction in SASS appears a useful first step.

How Is Teaching Effectiveness Conceptualized?

The charge for this paper includes a consideration of whether measures of

instructional practices and teaching effectiveness should be included in future SASS instruments. It must be noted here that a broad consensus on a definition of effective or good teaching does not exist. Empirical evidence, theory and values along with specified criteria for effectiveness all enter into a conception of effective teaching. In addition, considerable evidence that instructional practices need to be tailored to subject matter, developmental levels of students, and other factors is now available, suggesting that effectiveness comes in a number of varieties.

Although not all teachers and policy makers endorse one view of effective teaching in a given time period, visions of effective teaching change over time. For instance, during the late 1970s and 1980s, the process-product research program (Brophy & Good, 1986) assumed there were generic characteristics of good teaching (i.e., they apply to all school subjects and grade levels considered). By focusing primarily on features of teacher-centered instruction, this influential, empirical research program identified a number of teacher behaviors (direct instruction model) that correlated with student gains on standardized achievement tests in reading and math, primarily in elementary schools.

Critiques of the process-product view point out that the correlational method embodied the existential fallacy (Stodolsky, 1988). That is, only currently used practices could enter the model of effective teaching. The use of data on individual teacher behaviors decontextualized instruction and made it difficult to know how to put the instructional program into operation as a combination of student and teacher behaviors in an intact lesson structure. The model excluded behaviors that might be subject- or grade-level specific. The model did not examine student behaviors. The model adopted a transmission view of teaching. Effectiveness was operationalized by achievement tests that almost exclusively contained lower-mental process skill items.

Now, as evident in many standards and reform documents, a constructivist point of view of learning and teaching is holding sway. This view directs attention to students' active role in the learning process. Classroom arrangements such as group work, debate and discussion are believed integral to effective instruction. In addition, teaching and learning are assumed to be different from one school subject (or even topic) to another. No fully general model of effective teaching and learning is expected. Last, different student criteria are employed to judge effectiveness. More emphasis is placed on reasoning, problem solving, creative production and long-term products. Methods of student assessment beyond standardized achievement tests are endorsed.

The transmission and constructivist views of teaching both may have a proper place in the analysis of teaching effectiveness. Flexibility in instructional strategies may be a hallmark of effective teaching. Different instructional practices may be desirable depending on instructional goals and lesson formats. Instruments to assess effective practices must contain an appropriate range of items to tap lesson structures, content, instructional strategies and teacher and student activities. There

is a danger in only assessing popular visions of effective teaching which may not be widely implemented or universally appropriate at any given time.

Some Features of Classroom Activity and Teacher Behavior: Observational Studies

Observations of instructional activity are often thought to be the most valid method of data collection. While observational studies are generally beyond the scope of proposed SASS activities because they are very expensive, direct observation can often be used in early stages of instrument development to provide relevant categories and items for surveys and other measurement approaches. Observations also have a place in validity studies and in small-scale focussed research.

Observational studies provide accumulated knowledge from which to formulate productive questions. Useful reviews of research on curriculum and teaching are provided by Shulman (1986) and Darling-Hammond and Snyder (1992). Here we take a selective look at past observational research on teacher behavior and classroom activity.

Observational studies (e.g., Good & Brophy, 1986; Goodlad, 1984) have documented a robust picture of teacher-centered instruction primarily oriented toward lower-level cognitive goals. Recitations, variants on lecture, and seatwork are the primary instructional formats used in most classrooms. However, systematic variation occurs when subject matter is examined. Similarity of instructional practices across teachers may be greater in subjects such as mathematics, than in subjects such as social studies or English (Stodolsky, 1988). Variation is also tied to teachers' conceptions of subject matter and goals (Grossman & Stodolsky, 1994, 1995; Shulman, 1987).

A variety of contextual and situational factors produce variation in teaching and consequently limit the stability and generalizability that can be expected in studies of teacher behavior, especially at the level of the individual teacher. As noted elsewhere (Stodolsky, 1990) subject matter, grade level, lesson type, and lesson goal account for variation in teaching behaviors and instructional arrangements. In addition, the type of students and track level of courses (Oakes, 1985) along with district policies, type of school, and other institutional factors may all influence a teacher's choice of curricular content and instructional methods.

Limitations of Data from Observational Studies

Perhaps one of the most important limitations of available observational studies, a feature shared with survey studies, is that the contexts studied are limited. The preponderance of large-scale observational studies have been conducted with elementary school teachers of reading and math. A few have focused on social studies instruction at the elementary and high school levels (Stodolsky, 1988; Newmann, 1992; Newmann & Wehlage, 1995). While there are a variety of small-scale observational studies, including studies of classroom discourse, our knowledge is not deep with respect to the

state of classroom curriculum and instruction in fields such as science, social studies, English, foreign language or the arts. We also have surprisingly few observations of what actually takes place in high school classrooms.

Another limitation of available observational research is that it has focused primarily on teacher behaviors. A more ecological approach to classroom settings, such as employed by Doyle (1983), Gump (1982), and Stodolsky (1988), examines classroom activities, and incorporates knowledge of what both students and teachers do during instruction, along with knowledge of materials and tasks. However, studies of classroom ecology have been relatively rare. In most observational studies, when students are observed it is to assess their on-task behavior or involvement.

Nevertheless, observations can provide evidence of real instructional experiences unrivaled by other methods. Particularly if one wants to understand the qualities of transactions that occur in classrooms and their intellectual and social features, observations can play a possibly unique role. Observations, done properly, can reveal the connections between what is taught and how it is taught--observations can preserve classroom events as they occur together. The issue for NCES or others striving for a national picture of curriculum and instruction is under what circumstances, if any, direct observation should be used as a data gathering approach. Clearly, observations cannot be done of the large number of teachers currently surveyed by SASS. But some observational work may add to the validity and richness of the SASS enterprise. It is also important to determine the utility of information obtained with other methods such as teacher logs and surveys compared to observational data.

Studies of Curriculum and Instructional Processes: Survey Research

A number of large survey studies, often funded by NCES, NSF, and OERI, have provided valuable information about curriculum and instruction in our nation's classrooms. The main contributors to our knowledge about curriculum and instruction on a national scale are NELS:88, NAEP, Reform Up Close (RUC) and SIMS. Weiss (1993) provides some useful information on instructional practices among math and science teachers. The validity of using surveys as a measurement tool in the area of curriculum and instruction has also been examined (Burstein et al., 1995; Porter, 1995; TIMSS, 1994) and survey development is ongoing (Porter, 1995).

Useful reviews and analysis of many of these survey projects can be found in NCES working papers (Leighton et al., 1995), a report by Porter (1995), the work of Schmidt and McKnight (1995), and work by Policy Studies Associates (Leighton, 1994; Leighton & Mullens, 1994; Leighton, Turnbull, & Mullens, 1994; Mullens, Weiner, Williams, & Turnbull, 1994). A catalogue of instruments measuring the enacted curriculum in math and science at the middle and high school levels is now available (Porter & Smithson, 1995). A list of sources for major surveys can be found in the Appendix.

The surveys distinguish between plans (intended curriculum or objectives) and actions (enacted or implemented curriculum) with the latter emphasized. To varying degrees, these surveys seek to measure *plans* (instructional goals and desired outcomes), to document *what* is taught (content/topics and intellectual processes, time allocations, emphases); *how* instruction is organized (pedagogy, teacher and student activity, homework and tests); and *resource use* (e.g., technology, textbooks). The surveys are often described as measures of students' opportunity to learn (OTL), a term borrowed from the IEA studies. McDonnell (1995) provides a useful discussion of the OTL construct.

The uneven coverage of contexts found in observational studies is also characteristic of the survey research. In an interesting juxtaposition, however, most of the surveys deal with high school or eighth-grade instruction while the observation studies are mainly at the elementary level. In fact, with the exception of NAEP fourth-grade surveys, Weiss (1994), the Consortium on Chicago School Reform (1994) which borrows from NELS and RUC, and the CRC (1994) survey of elementary math teachers in California, it was difficult to locate surveys of the enacted curriculum given on a large scale at the elementary level. High school coverage is also somewhat uneven. NAEP targets twelfth grade and therefore obtains information primarily about advanced courses. There is reason to believe that the practices used in more advanced courses may differ to some extent from those in the earlier years of high school. Burstein et al. (1995) document that teachers of more advanced courses are more accurate in reporting topic/content coverage and emphases.

The surveys are also uneven with respect to subject matter coverage. Largely due to the efforts of NSF, major survey development has occurred in math and considerable attention has also been paid to science instruction. Applebee (1981, 1992) conducted national surveys on the teaching of writing and literature at the high school level which provide modest amounts of information about instructional practices; the Applebee work might be a starting point for further survey development in English along with available NELS items on English. According to Andy Porter, the CPRE School-Based Management Survey (SBM) also contains items dealing with instruction in language arts and social studies at the elementary and high school levels. The items follow the four-part scheme developed by Porter and others to assess teachers' objectives, content covered, modes of instruction and cognitive processes. The content items in the CPRE surveys are rather general and might provide only a starting point for item development in English and social studies.

It seems more than financial support has led to so much attention to curriculum and instruction measures in math. Mathematics lends itself to a systematic analysis of its content, topics, and operations because it is the best defined and probably least contentious of all school subjects. Compared to other subjects, there is considerable agreement among math teachers and teacher educators about best practice.

Mapping curriculum topics in other fields may pose a greater challenge than mapping topics in math. Our own work (Stodolsky & Grossman, 1995) on five academic subjects and an analysis of English by Grossman (1993) and Elbow (1990), suggest that there is less agreement about content and teaching methods in subjects such as English and social studies. The difficulties confronted in developing social studies and language arts curriculum standards, confirm the lack of consensus in these fields. Teachers of English and social studies expect considerable autonomy in the selection of course content, especially because they are not constrained by a perceived content sequence. Science teachers also report freedom in choice of topics, but share a commitment to the scientific method. The development of surveys with detailed topical analyses for English and social studies presents a challenge in curricular analysis and instrument development.

In sum, significant recent efforts to develop surveys of enacted curriculum and instructional practices have not been undertaken at a level of effort similar to that in math and science in the fields of English, social sciences, foreign language, and other subjects including the arts. Considerable new survey development, particularly on curriculum topics, would be required to obtain information about instruction in a range of subjects and grade levels.

Curricular Reforms

Before moving on to specific suggestions regarding future directions for SASS, the issue of curricular reforms needs some discussion. Studies of teachers in settings in which reforms are under way have found a mixed picture at best. For example, in case studies of mathematics teachers attempting to implement the California Math Frameworks, Cohen and Peterson (1990) found only modest changes from conventional practice, confirming the suggestion by Burstein et al. (1995) that new practices are "layered" on to old ones. On the other hand, certain changes in math teaching such as the introduction of calculators seem more widespread (Weiss, 1994).

Research on the Coalition for Essential Schools (Muncey & McQuillan, 1993; Little, 1995) documents great variety in the extent to which teachers adopt Coalition principles. However, many teachers report using process writing approaches such as those advocated by the National Writing Project (Freedman, 1987; NAEP Report Card on Writing).

To help understand the implementation of reforms, a first step might be to learn what teachers actually know about proposed reforms and standards. Adequate teacher knowledge and understanding of reforms is far from guaranteed just because standards are published or new frameworks drawn up. The CRC survey[3] provides excellent examples of items used to assess teacher knowledge of curriculum frameworks. It would also be desirable to obtain knowledge of organizational support and provision of resources for reform in departments and schools. In addition, it is important to determine if teachers are asked to act simultaneously on a number of policy initiatives which may not be consistent with one another.

If one of the purposes in monitoring instruction in the nation is to provide information about the progress of curricular reforms, it must be assured that the item pool used to measure curriculum and instruction is adequately tailored to the reforms advocated in each subject matter studied.

An examination of the standards for curriculum in science (NRC, 1994; Rutherford & Ahlgren, 1990), social studies (NCSS, 1995), mathematics (NCTM, 1989, 1991) and English/Language arts (NCTE, 1996) suggests different degrees of emphasis on changing pedagogy and changing content. The math standards may be most explicit with respect to the vision they embody of pedagogy consistent with the recommended standards.[4] The use of open-ended and student-generated problems and investigations which take place over a number of days are examples of a constructivist pedagogy endorsed by NCTM. Specific items have been written to address features of pedagogy in the NCTM standards; the CRC survey has some excellent examples. Porter (1995) reports making use of the NCTM standards and NSTA standards in developing opportunity to learn topic items for math and science.

Specialized terminology or language poses a possible problem in instrument development with items geared toward reforms. Burstein et al. (1995) in their validity study of math instruction items found that teachers did not always interpret terms in the same manner (e.g., "math modeling" had a number of different meanings to the teachers they studied). A term like "investigations" used in the NCTM and California math frameworks might carry a variety of connotations. Indeed, the term "reform" itself is not used equivalently by those reporting about it.

Last, in some cases the new standards are predicated on teacher mastery of subject matter and pedagogical content knowledge not currently widely held in the teaching force. The TIMSS survey and the CRC survey for math teachers, include items to reveal teachers' conceptual understanding of mathematical material along with pedagogy. It seems likely that items of this type would predict student attainment, and help us document barriers to implementation of reforms. As such, they seem important to include in any effort to measure curricular reform.

Should SASS Include Measures of Instructional Practice?

Except for NAEP, there does not appear to be any federal program in which instructional practices and opportunity to learn will be monitored in the future. SASS, with its large sample of teachers, seems an excellent vehicle for the measurement of curriculum and instructional practices. However, the inclusion of a fairly comprehensive set of items on content (e.g., as in TIMSS or the Porter OTL four-dimension scheme) would involve a lot of additional respondent time. Further, to adequately monitor pedagogy and track reforms, additional items would be needed.

Since NAEP is an ongoing program that taps into curriculum and instruction in a number of school subjects (although maybe

not very deeply), an optimal plan for SASS would complement and supplement efforts planned under NAEP. Some school subjects and grade levels not regularly covered by NAEP should be included in SASS. At the same time, more targeted efforts to link with NAEP and/or assist NAEP to enhance its curriculum and instruction measures would be highly desirable. Some links to NAEP would also provide tie-ins to student survey responses about their instructional experiences.

SASS seems ideally suited to monitor the classroom consequences of reforms such as curriculum standards. (It may be asking too much to monitor the myriad of other reforms under way.) A selection of specific school subjects and grade levels seems the best strategy here. However, in order to maximize insight into how reforms work, it would be desirable to have more teacher respondents from a given school than has been the case in previous SASS sampling, so that information about the presence of particular reform efforts in the schools could be obtained. Linking with NAEP under selected circumstances would also benefit from more clustering of teachers in schools.

Item Selection

Curriculum Content

Let us begin by examining measures of content taught. As discussed earlier, there is a substantial pool of items to use in measuring the content taught in science and mathematics, especially at the middle school and high school levels. Limited topical analysis is also available in U.S. and world history, although not the broader social studies. High school English is not mapped in much detail nor is the elementary school curriculum. (Exceptions are the three-dimensional content structure developed by Freeman, Porter and others for fourth-grade mathematics and some items from NAEP dealing with reading and writing instruction). The four-dimension topic items such as developed by Porter (1995) for his recent OTL study for math and science, seem a suitable model for item sets to be used in SASS. The four dimensions include two dimensions of topics and the degree of emphasis each receives, cognitive activities (with time distribution) and the medium (mode) of instruction (with time distribution). For school subjects other than math and science, item development analogous to the Porter model would be needed.

Pedagogy

There are quite a few items and item types dealing with pedagogy or teaching methods that seem applicable to most subjects and grade levels, although a careful analysis would be required to assure that practices found in elementary school classrooms were adequately sampled. The language in which methods are described might also require modification and field testing when applied in contexts other than those previously surveyed. In addition, specialized language from reform documents should be used with caution and fully pilot tested to assure common understandings.

As Leighton, Turnbull, and Mullens (1994) note, subject-specific questionnaires have

been the rule recently. Many common instructional items reappear in surveys for teachers of different subjects in addition to specific items for each subject. The 1994-95 SASS Follow-up Teacher Questionnaire has a number of sections dealing with teaching methods that are promising and which build on development work from other surveys we have discussed. While a good starting point, a careful review should be made for appropriateness to grade levels and school subjects selected for study. Also, there may be some overlap in constructs if four-dimension content items such as those in Porter are also in the survey.

Goals

Burstein et al. (1995) recommend against the inclusion of items measuring goals, as they did not find a good match with responses and other data sources such as the goals inferred in tests or teacher assignments. On the other hand, they did find meaningful relationships between endorsement of reform goals and reform practices, but not between endorsement of traditional goals and traditional practices. This issue would seem to require further study before eliminating goal items from national surveys. The data pattern suggests in part that most teachers believe traditional goals are worthwhile, even those who are moving their practice in the direction of reform. This finding seems another example of the tendency of teachers to add on to their practice without giving up old patterns. Thus, some tensions inherent in change may be revealed effectively through analysis of goal items. Although not the highest priority, if respondent time allows, goal items should be retained.

Items to Track Curricular Reforms

In addition to content/topic items and pedagogy items, new items should be developed that assess teachers' specific knowledge of reforms. The CRC survey provides some good examples of such items for the California Math Frameworks. Teacher's subject matter and pedagogical content knowledge required for implementing reform should also be measured.[5] A particularly promising item format has been used in TIMSS and the CRC survey, among others. The items ask teachers to envision an instructional sequence of lesson parts used to teach a specified topic. For example, the CRC survey asked questions about instruction dealing with fractions in an open-response format. The TIMMS items are more structured. These items tap lesson organization, content emphasis, pedagogical content knowledge and subject matter knowledge and may be an effective way to tie together features of instructional processes and content in a manner that approximates what actually happens in classrooms.

Teacher Attitudes, Professional Activities, and School Culture

In creating item sets for a survey, it would be desirable to include measures of teacher efficacy and willingness to adapt instruction as these scales have important predictive power in connection with other instructional items. Professional development activities and participation in subject area and other networks should also be assessed. Items that assess the extent to which the school culture and organization support reform are also useful. Basic information such as whether

a school or department has officially adopted a particular reform should be collected. Taken together, these items would reflect teachers' opportunities to learn about or deepen understanding of new approaches and to gain support in trying to implement reforms. These scales could be part of the teacher background section of the survey.

To create respondent time for the suggested content/pedagogy and teacher knowledge items, we suggest two strategies. One is to eliminate certain parts of the current SASS survey since items have been administered over many years and may be given to a subsample or less frequently. In particular, items dealing with teacher control over policies such as discipline, hiring of new teachers could be omitted. The list of perceived problems (poverty, tardiness, etc.) might also be eliminated or given to a subsample of teachers. The second strategy takes us into the realm of sampling to which we now turn.

Who Should Be Surveyed?

We believe that all SASS respondents need not answer all survey items. We recommend the use of item/person sampling in the administration of SASS. We recommend selecting teachers of certain grades and school subjects to respond to the curriculum and instruction survey. Other respondents could be used to answer more general questions from SASS. In addition, even teachers within the recommended grades and subjects could be directed (say, by use of their birthday as a sorting mechanism) to answer only certain parts of the survey.

While targeting teachers of certain subjects and grade levels to answer survey items on curriculum and instruction is the recommended approach, the decision regarding what school subjects and grades to select is not an easy one. We thus recommend a mixture of large and small studies on instruction and teaching effectiveness within the SASS program. When the state of the art is adequate in terms of prior instrument development, larger numbers of teachers should be studied. When the state of the art is less adequate, small numbers of teachers should be studied in the service of instrument development and validation.

Subject Areas and Grade Levels

Because so much investment has been made in instrument development in math, and because the NCTM standards were in the vanguard, it seems appropriate to use math as one of the target subjects. The scope of surveys about math should be expanded to include math in the upper elementary grades (4-6) along with middle school and high school. If costs permit, middle and high school science is another area in which some useful instruments are available.

In addition to math, Porter (1991) suggests English as an important understudied area. Leighton, Turnbull, and Mullens (1994) suggest history as another possibility. At the middle and high school levels, both are plausible options, with history having somewhat of an edge in terms of existing instrumentation. If history was selected as a focal subject, the elementary grades should again be included. Fifth grade is typically the year U.S. history appears in the elementary curriculum. So surveys in

grades 4-6 would make sense. However, the elementary social studies curriculum is quite diverse and content items should range well beyond history to articulate with actual practice.

Further, within social studies, there is contention about the direction the subject should take. Both history and social studies standards (NCHS, 1994; NCSS, 1995) have been formulated and there is considerable tension among adherents to each set of standards. A SASS survey aimed at charting reform in this area, would be challenged to accommodate differing points of view.

English/Language Arts standards have been released recently (NCTE, 1996) but offer little guidance with respect to content coverage as they emphasize pedagogy. In some cases, English or Language Arts consists of instruction primarily geared to developing skills in reading and/or writing; in other instances the instructional program is directed more toward literature. Based on all these factors, the choice of history/social studies for inclusion in SASS might have a slight edge. In any case, we envision smaller scale studies in subjects beyond math and science oriented primarily toward instrument development and validation.

A Caution

A cautionary note should be sounded with regard to the subject-specific focus of this discussion. Current instruments and our discussion have assumed that instruction is compartmentalized by subject. Empirical evidence suggests this is still largely true, but a number of curricular reforms call for more subject matter integration and interdisciplinary teaching. It seems important to bear this in mind in reviewing items for inclusion in SASS and in thinking about how to select teachers. One hopes that there are teachers whose instructional programs are strongly integrated for whom answering a more conventional survey could be problematic. Such teachers may be more often found in elementary schools, but high school programs emphasizing subject integration are also being implemented.

Instrument Development, Pilot Studies, Validity Studies

Support for survey instrument development seems in order as an important step to prepare for the next SASS cycle. These efforts should be directed at enhancing our capability to measure curriculum and instruction in subjects hitherto understudied--especially elementary math, and history/social studies at the elementary, middle and high school level. Work might also begin on mapping the English/language arts curriculum for future inclusion in SASS.

We have already discussed the types of items needed to assess the implementation of curricular reform. (See section on Curricular Reforms.) Item development or modification of existing items should also go forward in preparation for the next cycle of SASS.

The instrument development projects would involve multi-method investigations that could determine the validity of pilot items and other methods. Effective use of teacher logs, collection of teacher assignments, exams and other materials; textbook analyses, and classroom

observations might be incorporated in the instrument development process. If new item sets are ready for administration in SASS, we recommend smaller sample studies in the first round so that their validity can be established. We agree with Burstein et al. (1995) that validation studies should regularly accompany the introduction of new surveys. Thus continuing validity studies should be supported during SASS administration.

Additional small studies conducted through SASS (perhaps in Follow-Up surveys) might delve into topics of interest to the nation from time to time. Illustrative is the section of the SASS 1994-95 Teacher Followup Questionnaire which inquires about portfolio assessments. Inquiry into special topics such as this could be a regular part of SASS, with only a fraction of teacher respondents being asked to provide information. In this manner, not all teachers would take exactly the same set of items, but reliable information could still be obtained on a number of interesting issues.

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I have tried to cite sources as appropriate throughout the paper. However, the surveys and papers that form the core used in preparing this paper are much like an extended family. Surveys have uncharted historical connections to one another, with items borrowed and adapted freely. Many commonalities in thinking appear in papers on the topic. I apologize in advance for any omissions in citations or for mistakenly citing a source that is not the definitive one.

2. Phillip Kaufman in this series suggests linking SASS to a new NELS.

3. The CRC survey of California elementary math teachers uses some items from the National Center for Research in Teacher Education at Michigan State University.

4. Of course the NCTM standards also recommend change in what is taught in math classes.

5. Resource use, especially what textbooks and other materials are used, is beyond the scope of this paper. The omission does not reflect a lack of importance.

TOWARD AN ORGANIZATIONAL DATABASE ON AMERICA'S SCHOOLS: A PROPOSAL FOR THE FUTURE OF SASS, WITH COMMENTS ON SCHOOL REFORM, GOVERNANCE, AND FINANCE[1]

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The question before us is what could, and should, NCES's Schools and Staffing Survey (SASS) become in the future? In other words, what role should subsequent collections of SASS play in NCES's statistical program? It is recommended here that, while some continuity between past and future surveys is important, SASS should not just repeat what it has done in the last three surveys.

After three data collections and almost of decade of service to NCES, SASS is at a cross-roads in its development. One road leads on in the same direction set by the three completed surveys, with perhaps only some minor additions and slight modifications to the items. Although I see nothing wrong with doing reports similar to past ones with fresh data, it is nevertheless a limited strategy that will not maximize the use of future SASS's. To essentially repeat what has already been done retards emerging developments SASS has made over the past three surveys. The other road follows these developments towards a new SASS that presents NCES with an opportunity to provide more complex and broader information on schools as educational organizations. I, therefore, recommend taking this other road, one that leads in a new direction.

The new direction is to make SASS NCES's main vehicle for organizational information about the nation's K-12 schools. It has, in many ways, already become this, but this goal should be made more explicit as the survey's main objective. The focus of future SASS's should be broader than in the past by including a wider scope of information about how American schools are organized. It should become the baseline, fundamental survey for a host of NCES's efforts in describing elementary and secondary schooling in the country. SASS has moved in this direction and it should move further still beyond a more narrow survey on teacher supply and demand to an omnibus survey of school organization.

I recommend a renewed SASS for four reasons that are explored in some detail below. The reasons involve: (1) what SASS has become over the past decade; (2) what I perceive as some critical weak points in NCES's statistical program on K-12 schooling that need addressing; (3) what knowledge and technical capabilities about surveying schools have been accrued over the last three SASS's; and (4) what I think NCES should collect about how schools approach reform, their governance structures, and finances in the American system of formal education.

Before discussing the reasons for a new SASS, I will first describe what a broader organizational survey might look like. This description will move through the general to the more specific. Then I

outline one example of how this might be done within the current length and scale of SASS. This is followed by discussions of a new SASS in comparison to the current one; SASS and organizational theory; and the reasons why a new SASS is useful at this point in NCES's history.

The New SASS as an Organizational Database on Schools

What would an organizational database consist of and how different would this new SASS be from the last three? What basic organizational components should be added to the existing organizational information collected in the 93-94 SASS? What essential information about a school should SASS collect for NCES? To answer these questions, I see at least four main perspectives that an organizational survey of schools must take to maximize its benefit for NCES.

1. **One Main Focus of the Survey Must Be on How a School Organizes Its Main Dynamic Components**

Information should be collected on how a school organizes its four main components of: (1) faculty; (2) student body; (3) curriculum/instruction; and (4) immediate outside environment such as parent and community groups interested in education. By "dynamic" I mean more emphasis on how decisions and control move through the organization and less emphasis on static titles and fixed structures. It is better to spend limited questionnaire space on, for example, how a departmentalized system influences control over teachers than on information about the status of department heads such as part-time, full-time and so forth. The focus on each of the four components should be on how decisions are made, what decisions have recently been made and how they are reviewed and changed. The key information to capture is organizational process not just organizational structure. During the planning forum some suggested that this kind of information is too complex to capture in a survey format. It is true that this is not simple information, but neither are the types of information that SASS currently measures. There is a host of detailed research on these aspects of school organization that a survey could make use of to develop short, but accurate, indicators of these components. Examples of information needed about each component are as follows.

Teachers. SASS has certainly been a major source of information on K-12 teachers, and a lot of this should be kept in a new SASS. But, as I illustrate below, some of the teacher information will need to be scaled down to make more room for information on the other three central components of school organization. But still we need to know more about how teachers and their activities are controlled (or not) in schools, who does the controlling, and over what issues. We also need to know more about what things teachers have real decision making power over and whether or not it is used. Some of this kind of information was collected in all three SASS's, but more direct items need to be developed than the questions about general influence teachers (and others) might have on certain issues. The key here is to capture a picture of how much administrative control there is over teaching and the work conditions of teachers and how much decision-making power teachers have within the school.

For example, are teachers and their teaching observed, inspected, and assessed? By whom and with what purpose? What kinds of collegial control is there in the school versus more hierarchical control from non-teachers? Measures of teacher autonomy and school-based management are crucial to collect.

Students. As the recent NCES Fast Response Statistical Survey (FRSS) on curricular tracking and student assignment to courses shows, NCES's student-level data sets such as HS&B and NELS do not tell us many key things about how schools organize student (NCES, 1994; Baker, Ralph & Manlove, forthcoming). SASS could play a very important role in collecting information about how schools manage their students. A short list of examples include information on:

- Policies about student choice of courses at the middle and secondary school level
- Student discipline policies
- Ways in which the school organizes parental involvement in schooling
- Decisions about programs for students and policies about access to these programs
- School policies and management philosophies towards student abilities
- Pedagogical approaches to variation among students in motivation, intelligence and educational and occupational goals (i.e., tracking and ability grouping)

There are many such issues to choose from and not all can be included, but again the key here is to gain a picture of how a school makes decisions about students and programs for students. Each prior SASS has increasingly done some of this, but more explicit information on these kinds of things should become part of the new SASS.

Curriculum and instruction. A school's curriculum is a central and complex component of its educational operation. Yet, one of the weakest points within NCES's overall statistical program is information on what gets taught and how it gets taught. Most of the information on what is taught in schools is inferred from individual student course taking records or from teacher teaching loads; little is known about national estimates of school organization of the curriculum through secondary school courses or coverage time in the elementary school. In the past, NCES has collected relatively little information on curriculum, however there have been improvements. The attention that the term "Opportunity to Learn" has brought to curricular aspects of schooling will probably increase the amount of information collected on curriculum and instruction in the future (Brewer & Stasz, 1995). A new organizational SASS would be a perfect vehicle from which to gather basic OTL information on curriculum and instruction at the school level. For example, from just one item on the fore mentioned FRSS on curriculum tracking, NCES received for the first time national estimates of how public schools organize their course structure, requirements and enrollments in tenth grade mathematics and English. This kind of information should be collected for other grades. Besides course structure, information

should be collected about curriculum content, such as what is meant by an "algebra course" in the eighth grade for example. Some parallel information on how the curriculum is implemented by teachers would be equally useful. Also information on how local, state or national standards are translated into actual curriculum is important to collect, as well as information about grading policies and how decisions in these areas are made at the school level. Some information of this type exists in SASS, but it is oriented towards representing a teacher's teaching load, not the school's organization of its full curriculum. NCES should know the basic dimensions of the K-12 grade curriculum in the nation's schools and a new SASS is a good way to do this. Because of the complexity of curriculum, a new SASS should not attempt to do an in-depth collection on this area of schooling, but some basic information would go a long way toward improving NCES's reporting on curricular and instructional information.

Immediate outside environment. Schools are linked to the community they serve through a series of semi-formal organizations such as parent organizations, business councils and other community groups. Schools interact with these and have varying roles in their creation and influence on education in the local community. Although these kinds of organizations may not be as fundamental to the day-to-day operation of a school as teachers, students and curriculum, they do play a significant role in school organization. A new organizational SASS should learn more about how schools connect with these kinds of organizations.

Other components. Certainly there are other parts to a school that make up its total organizational picture. The most obvious one without its own section above is the school's administration. In part this is because the administration plays a role in organizing and managing each of the four main components of the school, so it is included in this way. Additionally, other information about the structure and function of the administration would be essential to complete the organizational description of a school. There may be other organizational components that a new SASS could include, but I have tried to provide the essential minimum.

2. **A Second Main Focus of the Survey Should Be on How Much of the School's Organization is Influenced by District, State and Federal Educational Agencies**

One of the unique features of the American educational system is its local administration of schools. From the beginning of American formal education, communities organized and controlled their own schools. This arrangement carried over into the period during which an extensive public school system was constructed by local governments. The American public school then is a local entity. However, over the past century different levels of government have taken a larger role in the regulation and control of schooling. Local education agencies (LEAs) are influenced by other government agencies at the state and federal levels. Added to this is the variation across the country as to which different levels of government have control over which specific areas of schooling. There is also a sizable private school sector at both the elementary and secondary levels which, compared to private schooling in many other developed

nations, is relatively un-regulated by government.

Taken together these features make the American school system local, varied across place, and multi-governed. And this has direct and important consequences. For example, it may be far more difficult to standardize education within the U.S. than elsewhere. This feature is often put forth as one reason why the width of the distribution of academic performance among American students is large compared to that found among students in other countries. Also it is not necessarily easy to determine what is occurring within schools in this kind of a system. Indeed one of the reasons for why NCES gathers most of its information through surveys instead of central administrative records, as is commonly done in more centralized education systems of other countries, is because the unique governance structure of American schooling.

The suspicion, at least, is that there could be large variation in schooling across the nation. Some assume this and hold it as a positive in the form of high potential for innovation in this kind of a system; hence, for example, the reform notion of further decentralization of an already relatively decentralized system. Others present this more negatively and suggest that parochialism and incompetence in school administration can often go unnoticed and unchanged in this kind of a system. Regardless of which view is more accurate, this unique governance structure is a fundamental feature of American schooling and NCES needs to provide as much information on this feature's impact on schooling nation-wide as is possible.

It is important, then, for a survey of school organization to be able to gain some information on the influence that a multi-governance structure has on schools and what they do on day-to-day basis. Currently SASS includes some questions about influence from the district in some broad areas, but as stated above, these are not very specific and do not help to really distinguish between different kinds of governance environments found around the country and across public and private sectors. The new SASS should include information about how much influence various levels of educational governance have on the way a school organizes the four main components described above.

This is particularly true of the district for public schools and other similar supra-administration of some private schools such as the diocese for the Catholic schools. M. Ross' paper in this collection focuses on school districts. Many of the managerial issues that I outline above have their origins in district offices even though implementation and control are at the building level. Some information on policy setting and school control by the district is essential to complete the picture of the organizational nature of a school. But even having said this, I still recommend that the primary unit of survey focus be the school for the reasons that I list below.

Although this is a complicated area, NCES should at least know some of the basic levels of influence that district, state, and federal agencies have on schools. And this needs to be more specific than the general impression of the principal in terms of global influence, as is now asked in SASS. For example, which kinds of schools are bound by district rules and

procedures for the hiring of teachers, assessments of instruction, creation of student programs, curricular issues and so forth? How much state control and regulation reaches the school in these areas? How much federal regulation reaches the school and what form does it take?

3. **SASS Must Gather More Information on Financial Resources and Their Flows to the Point of Instruction**

Resources available to schools, broadly defined, will increasingly be a topic of policy debate as funds for education meet with stiffer competition for other activities. Although a new SASS can not and should not replicate the detailed school finance work already being done by NCES, it should include enough information on costs and resources to make some estimates of how schools manage resources. The current information on teacher salary schedules is important to retain since it helps to generate cost estimates.[2]

Since for the public sector at least, most finance and its controls are set beyond the school, both NCES's F33 at the local district and LEA level and the NPEF survey at the state level capture basic national financial information. What is missing is how much financial resources are transmitted into school level resources and how this is done. How much of the overall resources flow to the point of instruction? Besides teacher salaries and quality, one additional way SASS could add organizational information on this is to examine what instructional resources teachers have access to within sampled schools. For example, in more affluent districts, teachers can be assisted by an array of other instruction personnel, such as curriculum specialist, resource teachers and other classroom level specialists, which adds to the total instructional resources reaching the students. Optimally NCES should know what portion of students and teachers have access to these resources and how many of these actually make use of them. Additionally it would be useful to know the degree to which resources are devoted to developing curriculum and instruction in the school and to parent and community organizations connected to the school. Even information on very basic instructional resources, such as supplies and simple technologies, could be useful information about overall resources and school organization.

4. **A New SASS Must Include Measures of School-level Educational Outcomes**

The utility of what is proposed here for a new organizational SASS would be greatly compromised if it did not somehow include information on educational outcomes. Even though the details of this are explored elsewhere in this planning process, I wanted to make my separate recommendation known. For numerous reasons, NCES needs to incorporate into SASS school-level information on student achievement, promotion, dropout, disciplinary actions, college application and so forth. Currently SASS does a small amount of this in characterizing a school's student body, but more should be done in the next SASS. The central issue that reoccurs within the American educational policy arena is what outcomes are associated with what organizational features. From macro "school effects" research to work on the micro improvement of instruction, the assumption is made that schools and

outcomes of students are linked. Some take a more explicit organizational view of this assumption, others are more skeptical, but nevertheless this idea is the backbone of most education policy. So for NCES to maximize its impact on the public discourse on education, it should maximize its ability to provide information related to this most basic of policy assumptions. Certainly both the NAEP and HS&B/NELS surveys yield important outcome information for NCES, but neither has the perspective that a new SASS could provide. NAEP was not originally designed to examine any inputs to achievement beyond technical controls for assessment estimates. And the HS&B/NELS surveys contain some school organizational data and student outcomes, neither is as extensive as what is proposed here. Also, the main focus of these longitudinal surveys on the student's progression through school and into the labor market shapes the survey to answering more questions about what influences individual achievement and attainment than what types of school organization yield what types of outcomes for their students.

This is perhaps a fine distinction, but one that I think is worth considering. We actually do not know much about how various differences in school organization influence student outcomes in the aggregate. This was, for example, the original intent of the first Coleman report (1966), but the study used what would now be considered a very simplistic notion of school resources and almost completely ignored the organizational dimension of schools. Thus when family and student background effects were found to "swamp" most school level effects, this line of research went in another direction. With an omnibus, organizational SASS that included educational outcomes, NCES could make a major contribution to the debate about what kinds of schools produce what kinds of outcomes and perhaps add insight on how this comes about.

I am not necessarily arguing for a full assessment of students in each surveyed school in SASS. Perhaps some sub-sampling could be done; or some form of linking with NAEP; or even some use of extant student assessments within schools could be made. But the point is that for SASS to become a central vehicle for NCES, along with NAEP and NELS, it must include information on school outcomes.

How Could a New Organizational SASS Be Implemented?

What is proposed below is just one example, a sketch really, of what might be done to incorporate the ideas above to make SASS an omnibus, organizational survey of K-12 schools. In doing this I make several assumptions.

First, I assume that the next round of SASS will have to be designed within roughly the same length and response burden parameters as was in the 1993-94 survey. This makes planning additions and changes more or less a zero sum operation. For something to be added, something of equal size needs to be deleted. It also makes the job of designing a new approach of SASS difficult. This is particularly so for me since I find many of the current SASS items useful and I do not easily part with them.

Second, I assume that the school will be the main unit of focus of a new organizational SASS. Information from supra-units such as districts and other LEAs (private or public) would be mostly focused on the sampled school. The same would be true for teachers in that the focus would be on their experience with this school, as is currently the case with some parts of the teacher questionnaire. The logic here is the same as in HS&B or NELS with one primary unit of analysis with supporting information from others, but unlike these student level surveys, the focus of a new SASS is explicitly on the school.[3]

Third, I assume that most of the basic questions about schools such as enrollments, location, school types and so forth (i.e., many of things collected in section A of the School Questionnaire) would remain. Although the SASS staff might want to consider more efficient and less burdensome ways to generate this from principals. For example, would it be more efficient if principals were given a listing of their school's basic information from CCD that were used to create the sample and be asked to verify the accuracy of these?

Fourth, let us assume that approximately four to five items per revised questionnaire about each of the four components described above would provide enough information to draw an effective picture of the organization of the school.

Fifth, I assume that what is proposed here can be adapted for schools in the private sector and Indian schools. Also, there will need to be some specific adaptations for elementary and secondary schools.

Finally, for this exercise, I assume that the libraries component stays as a separate component and the Teacher Listing Form stays as a way to generate any teacher sample. The question then is what might be done with the Teacher Demand and Shortage/District, Principal, School, and School Teacher questionnaires to make room from items that capture the ideas above?

Teacher Demand and Shortage/District Questionnaire

The Teacher Demand/District questionnaire should be less oriented towards general district programs and more towards whether or not the district sets policy and procedures on issues that correspond to the management of teachers, students, curriculum, and other parts of the school. These items should be geared toward the district's school in the SASS sample, not just in general terms about all schools in the district. Some new items will need to be developed. For new items and for many items currently on this questionnaire what needs to be added is some clear indication of the relative control the district (or appropriate LEA) has over the target school vis-a-vis selected areas of school operations. The items should indicate where the relationship between the district and a school is on a range of control from one of "district set enforced policy" to "policy as a guideline with considerable school-level discretion." Also, this should be the place where some information is gathered about the influence of state policies and federal policy impact.

Specifically, I would recommend that section A, B, and C of this questionnaire remain basically the same with the addition

of some indication in section B about the control of teacher hiring policies at the school level by the district or LEA. Sections D and E should be changed the most. Section D gathers information on several federal programs and one local program of "choice." This section is a mini-survey of districts since none of this is tied to the target school. Also, some of these same federal programs are asked about in the school questionnaire. Does NCES need both estimates? Section D needs to be redone; it should provide a picture of how district, state, and federal programs have an impact on the target school. As it cannot necessarily include all such programs, a sampling is enough, but the key is to capture something about if and how federal, state, and district programs have an impact on the target school. Section E should be the place where district policies and governance about each of the main school components are examined as suggested above. I recommend that what is currently in this section E be deleted to make room for new items.

Principal and School Questionnaires

Most of what I have proposed about a more organizationally orientated SASS falls on these two questionnaires. The current Principal Survey asks a number of questions about the principal's background. I would like to see the general area kept, but greatly reduced. Items 1 through 23 and 26 through 30 should be cut down by at least two-thirds. I think just some of the basics about principal background is sufficient. In their place new items should be developed that examine how the administration of this school manages faculty, students, curriculum, and outside influence on the school. The decision-making items 24 and 25 should be made more specific along the focus described above; right now they are far too general to be of much help. If there is space left after this, here is the place where some information on the principal's management philosophies and approaches should be collected.

The School Questionnaire has four sections. Section A on school characteristics should be kept, but perhaps it could be collected in a less burdensome fashion (see CCD suggestion above). Section B is the basic staffing of the school, which is important to keep, even though it does not tell us much about the direct management of the school's faculty and staff. Section C is on programs and services. I would suggest that this section be redone and be the section where most of the way the school organizes students and their programs is collected. Some of the programs here are the same ones asked at the district level and if the district items are removed, these will have to stay. My problem here is that most of the programs here are entitlement types for special student populations which may be a small part of what the "average school" does with most of its students. This is the place where some of more extensive information on the curriculum and student flows across courses should be collected. Section D is a mixture of items. Item 33a is important and is the kind that I recommend in general on decision-making. I would give up the other items in the section in favor of a more systematic view of how the school organizes its main components.

School Teacher Questionnaire

This section of SASS is the hardest to change, but fortunately not much needs

change to bring it into line with what I have proposed. The information collected here provides much of the data for the national profiles of teaching as a profession from a number of perspectives. It has proved very important to NCES as a way to monitor the nation's K-12 faculty in a way not available from any of its other surveys. There are nine sections to this questionnaire; I would suggest keeping most of the items in all sections. Sections A, B, G, and H provide the basic dimensions of the teacher and her/his job. Section I is a small single item on LEP and section J is a technical item. Section C is a long section on training. Much of this captures information on instructional support for the teacher from the target school, so it's very useful. Section D is on teaching load. If a new SASS included more school level questions on course structure, some of this might replace the teacher level items in this section. Section E is very important and most of the items are exactly in line with how teachers perceive and experience the school as an organization. While one could quibble with some of the items in this section, in the main, it is very useful to an organizational view of the school from the teacher's point of view.

This example of a way to implement a new organizational SASS does not mean an extensive overhaul of the full survey. The Teacher/Demand District questionnaire is the most changed followed by the Principal and School questionnaires. Most of the School Teacher questionnaire should remain the same with some change in emphasis of some items. Without constructing the actual new items and re-working current items it is hard to tell how naive this implementation plan is, but it is an approximation of what would have to be done to a new SASS. This plan does not include what needs to be done to SASS to incorporate more school level outcomes such as achievement, promotion, and so forth (see point IV above).

How Different in Focus Would a New Organizational SASS Be from the Current SASS?

SASS has evolved to have three main foci: (1) teacher demand and shortage; (2) condition of teachers and teaching as a profession; (3) basic organizational structure of schools. And the importance of the foci in terms of initial questionnaire construction corresponds to the above order. What I am suggesting here is a reversal of that order. Make the organizational focus more prominent with a correspondingly larger share of space on certain questionnaires; keep the focus on teaching and its profession as the second focus and move the issue of teacher demand and shortage to be the third focus.

I suggest lowering the emphasis of SASS on teacher demand and shortage for several reasons. Although I think that the general area of supply and demand is useful and there has been some valuable work done on this for NCES, it might be that too much of SASS is used for this purpose. From past work we now know how to estimate basic supply and demand models efficiently from relatively few variables, the real question is how detailed and nuanced do we need to make the estimates by adding further variables (Boe & Gilford, 1992). Given that the issue of supply and demand for teachers has not proved to be the large policy issue that it was once thought to be, perhaps NCES should only provide the most basic

estimate of teacher supply and demand. For example, does NCES currently need estimates of teacher supply and demand from both a district and school perspective. I understand that aggregated estimates are built up from the unit below (Barro, 1992), but if we have good state estimates constructed from district data would not that be enough to provide information about the general issue? And if this basic data indicated a large problem or other related issues arose, perhaps supplemental surveys could be used for a more detailed assessment.

Organizational Theory and the New SASS

Perhaps the most useful of NCES surveys are those that correspond to strong research literatures and theories which in turn have a major impact on educational research and policy. This kind of a connection links a NCES survey to a research field and related policy domains. This is helpful in both the development of the survey and in maximizing the influence the gathered information has on the education establishment. The link between assessment and psychometric theory and NAEP, and the link between theory on both adolescent development and educational attainment and HS&B/NELS are two examples of NCES surveys that are strengthened by this kind of a connection. An advantage of shifting the focus of SASS to a broader organizational one is the ability to have SASS correspond to the large literature on organizational theory.

The proposed approach is in line with what research and theory on organizations in general, as well as on schools as organizations in specific, would suggest about planning an organizational database on schools. Needless to say, the literature on formal, complex organizations and the parallel one on schools as formal, complex organizations is too voluminous to review here. But there are several important lessons from this literature that are helpful in designing a new organizational SASS.[4]

Although Formal Organizations Have Far More "Sloppiness" in Their Boundaries Than Originally Assumed, They Are Observable and Can Be Studied as Organizations

Where an organization stops and starts is not as easily determined as what was once thought. Research on all kinds of organizations in both the public and private sectors shows that formal organizations have a certain fuzziness to their boundaries. A school may be a school, but it is also part of a district or a set of private schools. Or a PTA is a part of a school but it is also an organization within a school that also has connections outside of the school and so forth. Nevertheless organizational research has coped with these characteristics of formal organizations and has shown that, by in large, organizations such as schools can be assumed to have enough of a traceable boundary to make them a suitable entity for study. So it is possible to consider organizations such as schools as discrete units that can be the focus of a survey. Past SASS's have already shown this to be operational. The new SASS proposed here would increase the focus on the school as the main unit of the survey with, as is now the case, supporting data collected from teachers and districts or LEAs.

Organizational Actors Can Provide Reliable and Accurate Assessments of Collective Processes that Make Up an Organization

This is a basic tenet of organizational research. Surveying people holding an organizational role is often used as a method of collecting information about organizations. There are, of course, some problems with having individual actors represent whole organizations, but these problems turn out to be no greater and not very dissimilar from problems with surveying individuals about themselves. Additionally, surveying actors about organizations has the advantage of providing multiple views through multiple actors, as has been used in SASS reports on schools and teaching conditions derived from aggregated information from teachers at the same school (e.g., Ingersoll & Bobbitt, 1995). Organizations offer the additional advantage of generating other useable sources of information about themselves such as administrative records and financial records (e.g., Scheuren, 1995).

Technical Processes within Organizations That Connect an Organization's Goals to Its Output Are Far Less Tightly Coupled Than Was Once Assumed, Making Information on Social Organization More Informative Than Information on Organizational Structure

The way many organizations work, or how they move from goals to means to ends, is best characterized by an image of "loosely coupled" connections (Weick, 1979; Orton & Weick, 1990). This is particularly true of schools. The outcomes of achievement and socialization of students are not easily connected to many of the processes within the school. In other words, a mechanical view of schools as organizations is too simplistic to understand how schools really work. Observing the process of management and the social organization of schools instead of just the structure of schools leads to a more accurate understanding of schools (Barr & Dreeben, 1983; Weick, 1982). Expanding the organizational scope of SASS to examine organizational processes is consistent with the widely accepted "loosely coupled" perspective on the way organizations work.

Organizations Are Less Rational Than They Were Once Thought to Be

This central observation about organizations suggests that they are not infinitely rational, rather organizations use a form of "bounded rationality" (Simon, 1955). This idea is related to point 3 directly above, but adds to it the notion that decision-making in organizations is the key operation to observe to determine their basic essence (March & Olsen, 1976). And further, decision-making is also not mechanical but a very compromised process. The point then for SASS is to collect information on how the workings of an administrative system in a school makes decisions, exerts control, and how that same administration can ignore other areas (Hannaway, 1989). This kind of information will yield a more accurate description of schools for policy-makers interested in school reform.

Why a Database on Schools as Organizations?

As mentioned, there are four main reasons why I recommend that SASS be renewed. Let me briefly describe each one.

Reason 1: What SASS Has Become

A recent NCES working paper noted that "SASS is an unusual education survey" (Ingersoll, 1995). Meaning perhaps, that the reason behind the original design of SASS and its intended statistical contribution are very different from other NCES surveys. SASS was not designed to measure the academic progress of K-12 students, nor was it designed to measure the impact of schools on academic learning, nor was it designed to weigh the costs and benefits of federal educational entitlement programs. SASS was originally designed to provide information on K-12 teachers, with special emphasis on teacher supply, demand, and quality. But in the course of doing that, SASS has also provided information on schools. It is the only NCES data set in which large portions of the survey were designed around the school as a unit of analysis. The teacher sample is representative of teachers, but even here a significant portion of the information gathered refers to the teacher's school. Without maybe initially intending to do so, SASS has evolved in the direction proposed here.

Reason 2: A New SASS Strengthens NCES's Overall Statistical Program

When I consider the full array of NCES's K-12 statistical program, I am always struck by several weaknesses among what is otherwise a strong program. In general, I think that too much of the K-12 program is focused on student level information. In part this was historically determined by earlier concern over the effects of federal programs on individual students, such as in the original motivation behind the design of HS&B to assess federal programs and college attendance. But it is also a function of the importance of measuring student achievement and the role that the Department of Education has come to play in education. The federal role in funding programs for special populations and undertaking summary evaluations of national achievement give NCES a powerful motivation for NCES to examine what students learn and how are they progressing in school. To some degree, what has been pushed out of the way by this strong agenda is information on how schools are organized.

The lack of a survey chiefly dedicated to schools as organizations, instead of the schooling of students or the achievement of students, is a weak point that leads to some peculiar holes in NCES's reporting. For example, as I mentioned above, NCES should be able to report much more about the K-12 curriculum and how it is implemented in schools. It is a salient gap when NCES can not provide more information on such a central component of schooling. A related example is that NCES lacks information on how schools react to various policy changes and reforms over time. Federal policymakers are often interested in precisely this question, and increasingly state educational agencies are too. Without a survey dedicated to schools, this becomes very difficult to do. (I take up the issue of school reform and a new SASS below.)

Reason 3: SASS Has Accrued an Impressive Set of Technical Capabilities about Surveying Schools

Faced with the task of developing nationally representative samples of the wide variety of K-12 schools in the country, the SASS project over the past decade has generated significant and sophisticated techniques in surveying schools. Representative surveying of any

population of organizations can be difficult given the complexities of population dynamics of organizations (e.g., Hannan & Freeman, 1989). Births and deaths of organizations can be rapid, transformations of organizational boundaries often occur, and these, plus other similar phenomena, are not necessarily spread randomly throughout a population of organizations--in short a survey design nightmare. A survey of schools faces the same problems. For example, significant private sector of schooling in the United States, which accounts for about one-fourth of all secondary schools, offers a particular challenge to a survey. Similarly, the local administration of public schools in terms of mergers, births, and deaths makes surveying organizations just within the public sector difficult. In addition to sampling challenges, developing reliable and valid questionnaires for actors within organizations is also a major undertaking. As is evident from substantive SASS reports and the project's own technical assessments, the SASS team has the ability to generate representative samples of schools and collect useful organizational information beyond a survey of teachers or staffing needs. This is a major capability that should be enhanced further. It has the potential for NCES equal to that of the assessment capabilities accrued from NAEP. NCES should recognize this and build upon it.

Reason 4: A New SASS Would Be an Important Vehicle to Add to NCES's Capability to Provide Information on School Governance, Finance, and Reform

Because these three areas are the focus of much discussion throughout the American education establishment, they will remain as important topics for NCES for some time. Most of what I have already proposed is directly related to school governance, which is essentially another term for school management (Raywid, 1991), so not much more needs to be said about this as a reason to undertake a new organizational SASS. Similarly the importance of SASS's contribution to reporting how financial resources are turned into classroom resources has been described above (section 3 of study perspectives). So far I have said little about school reform and a new SASS even though it is a prime example of why an organizational SASS should be done. This is explored in the next section.

A New SASS and Information about School Reform

Even though school reform is central to the SASS planning process, I have waited to discuss it until after establishing the idea of an omnibus organizational survey of schools that does not necessarily focus on any particular reform or restructuring trend. I did this for two reasons; first, because of what I see as the nature of reform in the American system and second, because of what I will recommend NCES do to capture relevant reform information.

There is a paradox about school reform in the United States: the country provides a large amount of school reform movements but the content of these reforms is mostly cyclical. Over the past century there has at any one point in time been ample, sustained and serious interest in reform schools. And these reforms have had consequences; the development of the age-graded school, the Carnegie unit and the core academic curriculum, school racial desegregation, and ability grouping are

some examples of defining educational reforms (e.g., Mirel, 1994). But while there is the image when the system needs fixing a suitable reform is fashioned, it is rarely this simple. Reforms at any point in time represent political positions about schools that can extend beyond to larger political orientations. Shifts in the content of reform are shifts in political power. Deciding the content of educational reform often pits a host of local concerns, resources and political orientations against often competing educational professions and loosely linked national business and national political parties (Manlove & Baker, 1994). The ups and downs of political movements have much to do with what is important educational reform at any point in time.

This makes it difficult for a statistical agency like NCES to plan long range surveys about particular school reforms. Although reform in general is a constant topic of deep interest within the American education establishment, it is difficult to decide what exactly should be addressed within an ongoing statistics program. What is "hot" today is not tomorrow, but it may be back in ten years. If a project like SASS, which plans to be a long term series of surveys, is initially too oriented toward a particular trend in education it runs the risk of eventually becoming irrelevant with the rise and fall of specific reform issues. And irrelevancy is the worse of all possible fates for any statistical program. Therefore I would recommend that no matter how fundamental, how trendy, how earth-shattering any single issue seems for the country's educational establishment at any point in time, NCES should not establish major, long-term surveys around such issues. Rather the key is to think of ways to capture information about reform without being tied to any one particular trend over a lengthy time.

An omnibus survey proposed here offers a flexible way to collect information about reform without falling into the trap of reform cycles. This kind of a SASS offers a reasonable organizational baseline from which to undertake supplemental surveys of particular reform issues aimed at schools. In the year or so after the main data collection, a Fast Response Survey System (FRSS) or similar means to collect information on a sub-sample of SASS schools could be used for specific reform issues. Then this information can be merged with the larger organizational database for a powerful set of information. The curricular tracking FRSS, using this design, has shown that this is technically feasible, reasonable efficient, tolerable on school response burdens, and analytically profitable. A variation on this idea would be separate modules of questions about specific reform issues given to sub-samples within the overall SASS sample during the major data collection. Maintaining a basic survey of school organization at regular intervals with the option to combine this smaller, focused data collections on passing issues of concern to the American education establishment is an efficient and flexible way for NCES to stay current.

Finally, it should be pointed out that the current school reform movement happens to be heavily oriented towards some of the school management issues that I recommended a new SASS collect (e.g., Elmore, 1992). This, in the short term, is one additional advantage to what is proposed here. But given what the history of educational reform movements in the United States shows, I would not predict

this particular focus will last. The content and focus of reform will surely change, but a flexible combination of a omnibus survey of school organization and other supplemental collections will continue to be the best way for NCES to provide a wide range of information about the nation's elementary and secondary schools and any reform issues.

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1. As is evident from the title, I have taken some liberty with my assignment to prepare a statement on what the next Schools and Staffing Survey (SASS) should include in terms of school reform, governance and finances. Although I address each of these, I do so by proposing that the next SASS be made into an omnibus survey about the internal organization of K-12 schools. The main focus of SASS should be on how schools manage faculty, students, curriculum, and resources; how decisions are made about these; and what kinds of administrative controls are in place to implement decisions. The objective is to collect information that would provide NCES with a basic picture of how schools work as organizations. Then, if need be, supplemental information could be added to address specific trends in education as they occur. A re-design of SASS presents NCES with a major opportunity to capture school-level information that will increasingly be of importance to its statistical program.

   I propose reversing the original order of priorities of SASS to one of first, organizational and managerial information, then second, teacher and teaching information, and lastly, teacher supply and shortages. The past SASS's steadily collected more school organization and managerial information over the course of the last three surveys, so while what I propose would be a renewed SASS, it would not be a radical shift for the SASS project. Additionally I recommend that much of the current SASS remain the same, but with some key modifications to crucial questionnaires. As instructed, I have not written actual new items, but I have tried to describe what new items should be constructed, where they should be placed in the survey and what their informational intent must be.

   Also, as instructed, I have written this for the "insider" reader who is familiar with NCES and SASS. For those readers who are not "insiders," two publications make good companions to this document: the most recent Programs and Plans of the *National Center for Education Statistics* and *SASS and PSS Questionnaires, 1993-1994.*

   Much of what is written here originates from an internal memorandum Tom Smith, Nabeel Alsalam, and I prepared while I was an AERA Senior Fellow at NCES (Baker et al., 1994). Although I assume complete responsibility for any still-half-baked ideas, I owe my two colleagues much for their help in thinking about an organizational survey of schools for NCES. I also would like to thank Joel Sherman, Tom Parish, and Jay Chambers at AIR for their helpful comments about SASS and finance issues. And thanks to Maryellen Schaub for her comments on an early draft. Lastly, thanks goes to John Mullens at PSA for his kindly monitoring of my progress during work on this document.

   I have made a few changes to this draft after the January 25, 1996, presentation to NCES. I would like to thank Susan Fuhrman for her helpful comments. The revisions here were made in light of the comments in other papers made at the half-dozen sessions that I attended and from my reading of all the other planning papers.

   The ideas and recommendations herein are those solely of the author acting as a private consultant to NCES and do not necessarily represent the positions of any organization with which the author is affiliated.

2. SASS could prove a vehicle to fill the gap on private school finance, although this is a separate issue from what is recommended here (see Garrett, 1996).

3. Some might ask, why not focus on classrooms? Classrooms are the key point of instruction and are arguably the most basic organizational unit in the formal education process. This is true, but equally true is that inputs made to classrooms and decisions about what occurs there are made at the school-level (or above). Schools are organizations controlling sets of classrooms. Some information from a subset of a school's classrooms might be useful, but the main focus of SASS should be kept on the school as the primary organizational unit of survey.

4. Just a few citations are offered in the following sections as examples on the larger literature on each point; they do not represent a full review.

TECHNOLOGY FOR K-12 EDUCATION: ASKING THE RIGHT QUESTIONS

Kathleen Fulton, University of Maryland

Overview

Since the introduction of microcomputers into schools in the early 1980s, there has been widespread fascination with the role technology can play in education. The promise of computers[1] raises a wide range of policy questions: Do they improve education? Are they worth the cost? Are they being used appropriately?

To answer these and other questions, policy makers and educators need solid data about how technology is used in the classroom, how it affects teaching and learning, and the benefits it provides to students and to teachers. However, much of the available data to date has focused on the number of computers and related equipment in schools. While an important piece of the puzzle, this data has limited value for answering most policy questions because it gives little insight as to how computers are actually being used by teachers and students. Similarly, surveys of state policies regarding technology are not clear predictors of how much, how often, and in what ways various technologies are used in K-12 classrooms.

As we conceptualize the data that would adequately address key pedagogical and policy concerns regarding educational technology, we should consider several important points:

(1) The location of computer equipment and other technologies within schools affects its usage and impact on teaching and learning. To assess this impact, we need to know not only what equipment is available, but also how and where it is available, to whom it is available and how easily it can be accessed.

(2) Effective adoption of computers in schools is not a one-time event; it requires ongoing exploration and experimentation by teachers and students alike. Teacher training is critical to the effective use of classroom technologies, but the kind of training computer technologies demand must be accompanied by continuing just-in-time support as needed. Without considering the stages of adoption of new technologies, and how that adoption is supported, data about computer usage will continue to be very difficult to interpret.

(3) How computers are used in schools is heavily influenced by teachers' conceptions and past experiences. For teachers to use technology, they must see its value for teaching and learning in ways that make sense to them. Because the definition of what constitutes "best" use of technology continues to evolve and change, the process of technology adoption has been

further complicated. Educators need opportunities to develop visions of how technologies can be used to support those aspects of teaching and learning that are central to them in their classrooms today, and opportunities to grow in facility and comfort with technologies as they evolve.

(4) Computers and other technologies can be adapted to traditional models of education, or they can support entirely new ways of teaching and learning. To formulate and interpret data on the impacts of educational technologies, we must consider the instructional models that underlie their design, implementation, and use. If the use supports new approaches to instruction, it is appropriate to consider measures and outcomes that go beyond traditional student scores on standardized tests. In addition to alternative measures of student learning, teacher productivity, empowerment, and professional growth are also important factors that should be better understood and appreciated.

These issues raise important implications for NCES in its mission to collect information of value to policymakers. If educators are to understand the role of technology in schools, they need better ways to collect, compare, and evaluate data that address these issues. While this kind of data is not the sort commonly collected in the School and Staffing Survey, it may be appropriate for NCES to consider supporting other forms of data collection, including in-depth studies, cross-sectional and longitudinal surveys, and combinations of survey and targeted comparative case studies, to help provide important and currently unavailable information needed by educational policymakers and the public as they seek to make sense of the complex relationships between data on technology and impacts on student learning.

Good Numbers Are Hard to Find

Computer and communication technologies pose many opportunities for improving our education system. To explore and evaluate that promise, we need data on how computers are currently being used and on the impacts of that usage. So far, there have been only a handful of systematic, representative, consistent data-collection efforts relating to the uses of computers in schools. It has proven difficult to interpret the results in order to answer important pedagogical, budgetary, and policy-related questions.

The U.S. Congress was among the first to seek a better understanding of the use of technologies in public and private elementary and secondary schools. As early as 1982, the Congressional Office of Technology Assessment (OTA) published a report on "Information Technology and Its Impact on American Education". Three years later Congress asked the OTA to provide an overview of the use of computers in Chapter I and for limited English proficient students; this study was followed by the more comprehensive 1988 report, *Power On! New Tools for Teaching and Learning*, a review of computer usage and issues in K-12 schools. Other educational technology studies followed,

on distance learning technologies for K-12 education, on technology for adult literacy, and most recently, the April 1995 report on teachers and technology.

In each of these studies, the first question asked by the Congress, not to mention the press and the general public, is one that NCES could appreciate--"What are the numbers?" As a member of the OTA staff for several of these projects, I soon learned that exact numbers were difficult to pinpoint. Much of our early data came from three sources: (1) the 1985 National Survey of Instructional Uses of School Computers, conducted by the Center for the Social Organization of Schools at Johns Hopkins University, under the direction of Henry Jay Becker, and summary newsletters from that source; (2) databases from the Curriculum Information Center of Market Data Retrieval, Inc.; and (3) databases from Quality Education Data, Inc.

The data were difficult to compare due to different survey and sampling techniques, but we reported the numbers as we found them: somewhere between 1.2 to 1.7 million computers for instructional use in K-12 public schools in 1988, growing to almost 5 million computers for instructional use in K-12 schools in 1995; 10 states promoting distance learning in 1987 but virtually every state using some form of distance learning by the fall of 1989.

The quality of current data is improving because commercial providers have found it valuable to those marketing technology to the K-12 sector. Several other firms and consulting groups make it their business to collect data on a regular basis on specific applications such as distance learning technologies and programs. Clearly, the market forces require accurate data for projections and purchases and for the planning of initiatives.

However, as the data improve, they will continue to illustrate a fundamental point: information on the numbers of machines--computers, CD-ROMs, videodiscs, satellite dishes, telecommunications networks--while important, is not the key element. As the numbers grow, they are also taking on new meanings as the technology changes. These changes add new factors that help determine the impact that a computer may have in an educational setting:

- The power and capabilities of the computers themselves are changing constantly. One cannot simply compare the numbers of older 8 bit machines with those that are 32 bit machines--the implications of power and speed are of magnitudes of difference. However, it is encouraging to note that recent surveys (e.g., Quality Education Data, 1996) also report on the numbers of computers capable of running multimedia applications.

- Computers are being configured in new ways, with technologies that were once stand-alone now being incorporated into a single unit. We are no longer just counting separate PCs, separate hard drives, videodiscs, or projection devices; increasingly, the components are built in ways that confound counts but increase capabilities.

- Networking further confounds the situation, as one machine can support dozens of students or applications at the same time.

- The variety of software applications in use in the education setting is exploding; the nature and power of the applications is as significant as the numbers of machines themselves.

Thus, unlike the relatively constant numbers collected on teachers and administrators in the SASS, and the well understood assumptions about what these numbers mean, numbers of pieces of technology are subject to far more complex interpretations.

But Even Numbers Are Not Enough

From a policy perspective, however, it was the information we could not find that became the most intriguing, and the most educationally significant, piece of the puzzle. In the Teachers and Technology report, for example, there were many questions Congress asked OTA to consider. How do state policies affect access to technology in schools? How do teachers use the technology that is available to them? What impacts do the technologies have? We contracted with experts in educational technology data analysis to help us find answers to some of these questions. Ronald Anderson of the University of Minnesota conducted a review of state technology activities related to teachers. This investigation, a telephone survey and review of state planning documents and guidelines, was helpful in providing at least a basic understanding of how various state policies affect access to technology, but it was not able to provide greater insights into the actual use of the technology. The survey looked at the following questions:

(1) Does the state require or recommend that public schools integrate computer or information technology in the curriculum? (All but six states did.)

(2) Does the state require public schools to offer computer-related courses such as keyboarding or computer literacy for students? (Twelve reported the requirement for students.)

(3) Does the state have a mandate for computer competency or performance standards for students related to information technology? (Twenty reported mandating student computer competency.)

(4) Does teacher certification in the state include a requirement for pre-service computer or technology training? (Nineteen states said yes.)

(5) Does the state have a requirement for inservice computer or technology training? (Only two states reported such a requirement.)

To assess whether the state requirements were in any way related to the numbers of computers in classrooms, Anderson looked at the survey data in relation to the state microdensity data reported by QED's 1994 report on Technology in Public Schools. We were surprised and frustrated to find

that greater state technology requirements did not necessarily mean more computers in the classroom (or vice versa). Anderson found a low of 8.1 students per computer in Wyoming (a state that only requires one of these factors (computer training for teacher certification); to a high of 22 students per computer in New Hampshire, a state in which three of the five policies are in effect (promoting technology integration in the curriculum, requiring computer course for students, and requiring computer training for teacher certification). This leads us to suggest that the relative amount of computer technology in a state should be used with great caution as an indicator of that state's commitment to technology in instruction.

What Do We Know about How Computers Are Used in Schools?

The compelling questions still evade us: how much are educational technologies used, for what applications, by what kinds of teachers, under what conditions, and with what results? For the OTA study, we drew from a number of sources: case studies and site visits, conversations with teachers and administrators on site, by telephone, and at conferences; and traditional research reviews and Internet searches. We also commissioned a contractor report that reviewed existing surveys to see how their results might shed light on the questions of how much, how often, and in what ways teachers use technology. This was particularly challenging; as the author, Henry Becker of the University of California at Irvine, noted, "Unfortunately, much of the data needed for a complete picture of technology presence and use is simply not available".

Becker found the best data in the 1992 Computers in Education Study of the IEA (International Association for the Evaluation of Educational Achievement). Although their sample of schools was small (571 schools, with responses from computer coordinators) the IEA study asked questions about utilization, processes of decision making, and attitudes. Students reported their own computer experiences. Interestingly, the time reported for computer use was much higher when reported by computer coordinators (who reported that computers are used about 1 3/4 hours per student per week at the elementary level; two hours per student per week at middle schools, and approximately 3 hours per student per week at high schools) than when students themselves gave the estimates of computer usage (students reported using computers 24 minutes per week in grade 5; 38 minutes per week in grade 8; and 61 minutes per week in grade 11). These discrepancies point out the need for greater sophistication in data collection methods.

Regardless of the time spent using computers, the data suggested that the kinds of use are traditional. Indeed, the most common activities on computers for elementary students were drills in basic skills and instructional games. Also popular at all levels were general computer literacy activities and word-processing. In secondary schools, the data suggested that computers are used relatively infrequently for teaching and learning in traditional academic subjects, far less than in classes focused on teaching students about computers. It would be very useful to

have more current data in this area to assess curricular impacts.

NCES data are beginning to look at the role of technology within subject areas, as in the 1994 report, *How School Mathematics Functions* and in the data compendium for the NAEP 1992 mathematics assessment of the nation and the states. One measure of barriers can be seen in teachers' responses to the question regarding confidence in their preparation to teach: while 85 percent of grade 4 students and 93 percent of grade 8 students had teachers who reported being "very well prepared" in mathematics concepts, only 15 percent of grade 4 students and 21 percent of grade 8 students had teachers who reported that they felt very well prepared in computers. This kind of data should provide a red warning flag to policymakers if they expect to see greater computer usage in curricular applications.

Four Issues Affecting the Use of Educational Technology

While much of the information cited above is limited in scope, difficult to compare, and often anecdotal, its educational significance warrants further analysis. Despite the admitted limitations of this data, there are clear implications from this information that suggest issues that may provide a better basis for understanding technology use in the classroom. These issues include: the placement of technology in the school, the kinds of training and support teachers receive, and the value of technology for teachers in terms of the instructional goals and models the technology supports, as well as its role in increasing teacher productivity and professional development.

1. Location of Technology Affects Use

The location of technology within a school has a significant impact on use. It seems a basic point, but it still comes as a surprise to many educators: when computers are placed outside the classroom, it is less likely that they will be a part of the regular instructional day. In the past, schools typically aggregated computers in labs, in part to assure equal (if limited) access for all students and teachers. But lab time is time that must be scheduled, and it can create logistical nightmares that discourage use. Furthermore, a trip to a lab can be a "mini-field trip" requiring time to get to the lab, time to get settled, and time to close down and return to the "real class" on the other end, all eating into valuable instructional time. Nonetheless, the Becker study reported that most schools place a majority of their computers in computer labs--70 percent of all middle and junior highs had a majority of their computers in computer labs in 1992. Only 35 percent of all school computers were in the classroom. Some schools are finding a way to offer more flexibility through use of laptop computers, kept recharged and placed on carts that can be rolled from room to room, moving the technology to the students rather than vice versa. But again, necessary scheduling and coordination create barriers to spontaneous or continuous usage. It's a bit like having to share books, or schedule the use of pencils, if you are a regular computer user.

This same difficulty lies with telecommunications networks. Although the recent NCES study for the Department of Education reported substantial growth in the number of schools that have Internet access (growing from 35 percent to 50 percent of all schools in one year), the number of instructional rooms with that access, while also improving, still remains low (increasing from 3 percent to 9 percent in the same period.) When one realizes that "instructional rooms" includes libraries and media centers, it becomes clear that classroom access is even more limited. However, in considering deployment models for telecommunications systems in schools, cost factors are likely to lead policymakers to be tempted to continue to opt for the lab model. The recently released "Kickstart" report estimates that it could cost $11 billion for the one-time purchase and installation costs for a lab model (single room with 25 computers, an Ethernet LAN in the lab, and 10 telephone lines); $22 billion for this configuration plus one computer and modem for each teacher; and $47 billion for a classroom model in which all classrooms have one computer for every five students, an Ethernet LAN across and within all classrooms, and a T-1 connection.

How much more are computers used when they are located in the classroom and are present in sufficient numbers for regular usage by a good portion of students? More research is needed to answer this question; however, data collected by high intensity programs like the Apple Classrooms of Tomorrow, the Buddy Project in Indiana, and the Christopher Columbus School in Union City, New Jersey, suggest that usage is much higher. However, other factors are also at play in these instances, notably substantial teacher training and support, new approaches to curriculum that support technology use, and greater flexibility of overall class organization and scheduling. It may be difficult to separate out the location factor, but it clearly plays a role that should be considered.

2. **Training for Technology Requires New Approaches and New Definitions**

Although most teachers have had some training *about* technology, far fewer have had suitable training to prepare them to use it in their teaching. For teachers to use technology effectively, they have to see the value it has for them. Technology use has to fit with their teaching style, and it has to work with the specific content and skills they guide their students to use. Furthermore, effective use must be based on visions of valuable applications, and be supported by training to develop skill and comfort with these applications. It also takes time and experimentation to adapt the technology into one's routine. Only over a number of years do most teachers become "fearless" with technology.

Timing. Timing of training is particularly important: when training is provided before the hardware or software arrives, or before teachers know what equipment they will be using, there is little opportunity to practice and apply that training back in the classroom. Classes are too often general, not focused on the level of expertise of the individual teacher or the teacher's needs. It is ironic that we repeat the same mistakes in professional development as in the classroom: lecturing as if all learners are starting from the same point, rather

than realizing that teachers have unique experiences, understandings and needs which they bring to the class.

Technical support. Finally, technical support is crucial: without assistance and trouble shooting for the inevitable problems that occur, teachers may be overwhelmed by frustration that can negate all their prior positive enthusiasm and desire to apply new technological skills.

Teacher preparation. We also need better understanding of how *new* teachers are prepared to teach with technology. Finding little data in this area, OTA contracted for a review on this topic for the Teachers and Technology report. Although this was a limited survey with some methodological problems, it reinforced the message heard in case studies, interviews, and conversations with new teachers: technology is not central to the teacher preparation experience in most colleges of education. Although most teacher education students take some form of computer literacy course, they typically graduate without a clear vision of the ways technology can be used in their professional practice. Clearly this is an area of concern, especially when considering that 3.3 million teachers will be needed for K-12 schools by the year 2003, 1.4 million more than are in the profession today.

It is important to follow trends that affect teacher preparation, specifically state certification standards, and the accreditation for institutions of teacher education. For example, the National Council for Accreditation of Teacher Education Guidelines, developed by the International Society for Technology in Education in 1992, offer guidelines for the accreditation of educational computing and technology programs. These suggest that prospective teachers need to demonstrate knowledge and use of computers for a number of teaching activities.

The ultimate criteria is, however, the marketplace; if districts and states will not hire new teachers who cannot demonstrate proficiency with technology in their fields, or, as is the case in Michigan, require that teacher candidates demonstrate knowledge of computer applications to the satisfaction of the school or district before that individual may engage in student teaching, education schools will no longer be able to avoid this responsibility. To date, however, only a limited number of states or districts have made this a requirement.

As noted above, the Anderson study indicated that fewer than half the states (19) require training in computers or technology for all teachers seeking certification. Furthermore, this can vary from a semester course to a demonstration of the use of technology in teaching. More detailed data in this area would have a major impact on policy related to the preparation of new teachers. Instead of just asking, "How much training are they getting?" we should also be asking, "What kind of training is it, under what circumstances, and with what kinds of support?"

3. Technology Should Be of Value to Teachers

What has most often been missing in discussions of technology for education is a view of technology use that empowers

teachers by giving them reasons to use the technology to accomplish valued tasks. Few teachers have been encouraged to view new technologies as professional tools that can help them do their jobs better, more efficiently, or in new ways. Very rarely are teachers asked why they want to use the technology, much less given models that could guide this vision. Although most teachers believe in the value of students learning about computers and other technologies, many teachers are not aware of the resources technology can provide to them personally, as professionals, in carrying out the many aspects of their jobs.

Our lack of attention to teachers' needs is apparent in our almost total lack of data about the types of technology available to teachers. Little data have been collected at the national, state, or local level on the numbers of teachers (not just classrooms or students) who have a computer of their own at their desk, or a telephone, or a link to others via local area or wide area networks, or to the outside world via Internet access. Why is this figure not as important as the overall number of computers or telecommunications links within a school? I suggest that the fact that this question is not asked from the teacher's perspective speaks volumes about the way teachers are treated as professionals within the educational establishment.

Data from one study in Indiana, "A Computer for Every Teacher," give one window on possible outcomes. In this project participating teachers were given a computer and printer for their use at home or school, along with training and software. Teachers reported greater productivity (spending the same amount of time in class preparation and administration, but accomplishing more); professionalism (taking on the role of experts in certain areas, and sharing their successes with colleagues); and empowerment (pride in the school and their personal proficiency and accomplishments in an area that is valued in society). While job satisfaction and professional growth are difficult to quantify, they are areas of importance to staffing issues related to teacher turnover and continuing expertise.

Indeed, one of the most powerful findings of the OTA study was the importance of technology for teachers for a variety of reasons. These include enhancing instruction that supports new models of learning, simplifying administrative tasks, and fostering professional growth. I will discuss each of these briefly.

4. **Enhancing Instruction: New Ways of Teaching**

Teachers are becoming aware of the growing body of evidence on the value of technology for student achievement as measured by test scores, as well as its positive effects on student attitudes toward learning on students' self confidence. Nevertheless, more contextualized research on the broad variety of educational effects of technology is necessary, in order to gain a clearer picture of the value added to instruction when technology is used. What is needed is research that gives a clearer picture of when, why, and how technologies impact student learning.

We also need richer studies and better tools for measuring growth in skills

important for the information age if we are to develop better understanding of student growth in inquiry learning skills; in independent problem solving and collaboration skills; in written, spoken, and multimedia communication skills; and the ability to find, manage, and evaluate information from a number of sources. Other questions are equally important: How can we evaluate students' confidence in themselves as learners? Can we get better measures of students' appreciation of the outlook and traditions of other cultures or their development of moral values and the ability to empathize with others? How do we measure students' love of learning and developing "habits of the mind?"

There is also limited--but growing--evidence suggesting that technology use can create positive changes in teaching style. One important study looked at how "accomplished" computer-using teachers believe their teaching changed as they became more comfortable using computers. Teachers in this study reported that they spend more time with individual students, expect more from them, are able to present more complex material, are better able to tailor instruction to individual student needs, are more comfortable with allowing students to work independently and in small group activities, and spend less time lecturing or practicing or reviewing material with the whole class. We hear of computers making the teacher more the "guide on the side" rather than "sage on the stage", more a coach or facilitator than all-knowing expert, but we need solid studies to confirm this realignment of teaching style. As school reform literature calls for greater attention to student inquiry, authentic challenging tasks, collaborative learning, and multidisciplinary curriculum, it will be important to understand if the use of technology does indeed support these goals, and if so, how and why?

For example, technology offers valuable assistance to teachers struggling with demands created by performance assessment. Keeping track of rich but extensive histories of student performance over time can be a real challenge. Teachers are finding ways to use video to record performance, personal digital assistants to keep track of their observations of student activities, and electronic portfolios to collect and maintain student work on disk. These technologies allow records to be retrieved and updated to demonstrate cumulative student progress. Technological applications like these make it easier for teachers to adapt to some of the new student-centered assessment approaches that educational reformers are requiring.

Much is needed in the form of additional surveys and in-depth case studies and analyses to develop a better understanding of the dynamics of technology's part in changing teaching style in these and other areas.

Tools for greater teacher productivity. One of the most obvious benefits of computers for teachers is the streamlining of the myriad administrative tasks that take up so much of teachers' time. Attendance records, grades, book lists, classroom inventories--these and hundreds of other time-consuming tasks can be streamlined or automated with a personal computer. To use the tools effectively, however,

teachers must be given the release time to learn the appropriate software in order to set up and maintain files.

Teachers also report they can access more resources for preparing and updating lessons through telecommunications networks, using materials that are more current and more compelling than what is found in standard textbooks. They can also add their own materials to share with others. Curriculum development is a tedious process; however, using collaborative software teachers can work together in creating new materials, drawing from the resources each can provide. Data from sources like the Eisenhower Clearinghouse electronic catalogue of instructional plans written by teachers in mathematics and science can give an idea of the popularity of this activity among teachers.

Perhaps one of technology's greatest selling points is the way it offers opportunities for greater communication with parents, whether the technology is a simple phone in the classroom supplied with a voicemail account, or more sophisticated school/home telecommunications links that allow exchange of e-mail messages. With research showing parental involvement as one of the greatest indicators of student success in schools, any tool that helps teachers encourage that involvement also becomes a productivity tool for the teacher.

Tools to support teachers' learning. As states encourage new forms of instruction, changes in content, and new ways to measure success, it is important to develop a better understanding of how technologies can serve teachers in meeting these new challenges. Certainly the new curricular standards are going to have a major impact on the training needs of teachers. Just as the subject matter content and pedagogy recommended by the National Council of Teachers of Mathematics has created a huge need for helping teachers learn to adapt their teaching according to these standards, similar national standards in science, history, and English will create training demands in these curricular areas. And, as cross-curricular learning is emphasized, teachers will have to become more comfortable with content and activities outside their specialty field.

Education can take lessons from business in this regard. Industry has found it much less expensive, and more effective, to use a "training on demand" model, in which education and information is brought directly to the worker at his or her workstation. For example, by using an interactive satellite network rather than bringing a "dog and pony show" of courses to 12 different cities for 4-5 weeks per quarter, Hewlett Packard has cut its sales training costs from $2 million to $200,000 per year. The sessions now take two days, require no travel, and provide training the employee can use immediately, to improve retention, recall, and application.

Applications like this could change in-service training for teachers and greatly enhance options and flexibility. For example, video tapes of teaching based on NCTM math standards form the basis for the PBS-sponsored Mathline series; the tapes are shown over the local PBS station and can be reviewed as needed by participants as they study the concepts and

content within them. They are supplemented by online group discussions of the tapes in which teachers share their experiences in trying the approaches and exercises back in the classroom, reflecting on what works, what doesn't, and why in a supportive, collaborative forum.

This blend of formal training and informal support could be the professional development model of the future, giving more individualized, just-in-time training when and where teachers need it. With teachers adding their own content and experiences, they become supporters and mentors to their colleagues near and far. The informal support of peers, as well as the access to resources and experts anywhere in the world, is likely to have a profound effect on teachers and teaching, not to mention student learning.

Although the benefits seem obvious, there has also been little research on how networking is used by teachers, the value of the informal training it provides, the cost savings it offers, or how much teachers value this form of support. Does teacher collaboration increase? In what ways is this of value to teachers? How does this affect their image of themselves as teachers, as learners, as professionals; and what impact does this have on motivation and aspirations?

Final Recommendations for NCES

As noted earlier in this paper, the expenditures in technology at the K-12 level, some $2.4 billion a year, warrant policymakers taking a closer look at how much and how well that technology is used. While these measures may not fit classic cost/benefit models, they should be set in terms that resonate with policymakers. Do teachers use their time in ways that are more efficient? Do students have more time for learning, and is the kind of learning that goes on important learning? Can expenditures in other areas that consume large portions of education budgets--such as materials and textbooks--be cut back as technology expenditures increase? Are staffing costs affected when technology resources substitute distance teachers for some courses, when more teacher development is done informally rather than in formal courses, or when support is provided by student technology aides or local businesses models like the US Tech. Corps? Are the continuing costs of technology expenditures (for hardware, software, networking, training, and support) worth the drain on otherwise strapped budgets?

While these questions are beyond the scope of the SASS, they are areas of policy concern at all levels and should be the basis for comprehensive surveys, fast response surveys, and longitudinal studies that can inform these decisions. As one reviewer suggested, "A useful plan for the School and Staffing Survey would be to link the descriptive data collected in that survey with simultaneously funded research that more directly addresses the causal factors that account for variation in teacher practices and student outcomes. This coordinated two-pronged approach will help us to understand how to realize the potential of educational technology to assist in improving teaching practice."

One can be encouraged by the other papers in this series, suggesting how the ability to

collect and share data electronically make more complex surveys perhaps more feasible today. I hope that the planning done by NCES for future studies will take these important issues into account and that valuable NCES resources can be leveraged to the greater benefit of educational improvement.

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1. Note: For the purposes of this paper, the term "computers" is often used interchangeably with the word "technologies," since many of the technologies used in schools are, in fact, computer-based (e.g., CD-ROMs, printers, disk drives, personal digital assistants and other hand-held devices, and networks offering telecommunications linkages).

LINKING STUDENT DATA TO SASS: WHY, WHEN, HOW

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This paper considers the feasibility of linking a student data sample with the SASS teacher and administrative data. NCES has from time to time considered linking their student-based elementary and secondary surveys to the school- and teacher-based surveys. These thoughts have usually been centered on the analytical power that such a student/teacher data set would hold. Budgetary concerns—in terms of both fiscal program budgets and burden budgets—have also been important, but the analytical justification of linking student data to teacher data has generally taken precedence. However, speculation on the feasibility of linking datasets is of particular importance now in the current climate of budgetary constraints and distrust of federal data collection among segments of the public.

NCES (and indeed all of the governmental statistics community) is entering an era when hard choices need to be made concerning data collection and reporting. In an era when we face increasing demands for more and better data from a wide variety of educational policymakers and researchers, we are also being asked to do more with fewer resources in terms of both program money and personnel. Thus it may no longer be feasible to collect data on schools, teachers, and programs through the Common Core of Data and the Schools and Staffing Survey, conduct another National Assessment, continue to track the early childhood cohort of students (in ECLS), and launch a new longitudinal study of high school students. If it is not feasible to collect all of these data as they have been collected in the past (regardless of their analytical merit), it seems to me that ways must be found to collect all of these data with new methods or systems. Unless we think hard about these issues, opportunities may be lost and we will create gaps in our knowledge about American schools and the impact of the last few decades of reform. Old ways of conducting the business of data collection may have to be modified in light of the increased budgetary constraints imposed by Congress and the President and the simultaneous increase in analytical demands of the public.

Some Ground Rules

In this paper I discuss the rationale for linking a student data collection in SASS and then explore several options for collecting these data. However, before launching into the main body of the paper, I would like to lay out a few principles to organize my discussion of these issues. These guidelines have to do with (1) what dimensions of student data should be collected, and (2) what criteria should be used to judge the merit of the proposed new data collection system.

Dimensions of student data. As I will try and develop further in this paper, it seems to me that at least three aspects of students are important to track and should be a part of any system of student data. While

perhaps not necessary elements of a SASS student component, these elements should be (and are) part of the overall data strategy for NCES and should be considered when thinking about what kind of student data should be attached to SASS. These elements are: overall academic performance, growth in achievement, and successful transition into and through the increasing demands of schooling and work.

Among these three, measuring overall academic achievement is perhaps most important (for why else can we justify public and private investment in schools) and has traditionally had the most attention. Both NAEP and the longitudinal studies have made estimates of overall achievement levels of various groups of students over time. Accurately measuring growth in achievement (especially in observational/survey data) is perhaps the most challenging. This has been done by analysts using both HS&B and NELS:88. Examining critical transitions has historically received the least attention, but has come under increasing scrutiny as the educational community has realized the importance of studying the life-course and its impact on education (Pallas, 1993, p. 20). It seems to me that three main transition periods are important to keep in mind while considering student data within SASS: (1) the passage from middle school to high school, (2) the path through high school to graduation, and (3) the transition from graduation to school or work.

Evaluative criteria. While keeping these three elements of student data in mind, I need to set up a few criteria to judge the worthiness of any proposal to linking individual data with SASS. It seems to me that for such a merger to make sense, it must pass at least one of two tests. First, it must make sense in terms of efficiencies of administration or respondent burden. That is, it must prove to save budgetary resources (either program budget or burden budget). Secondly, it should make analytical sense. That is, the merger should result in a data system that allows more comprehensive and sensible inferences to be drawn.

To summarize, I start this discussion considering three main elements of student data and two principles of an adequate argument for linking student data within SASS:

Elements of a student data system:

- Overall academic performance,
- Growth in achievement, and
- Successful transition through the increasing demands of schooling and work

Criteria for judging the adequacy of including a student component in SASS:

- The merger should produce some cost benefit, and
- The merger should engender an analytical payoff

All of the above must also be considered in the context of the mission of NCES (as I paraphrase it): (1) providing to the public accurate information on the "Condition of Education," (2) producing policy-relevant but policy-neutral research reports on current and/or enduring issues in educational policy, and (3) providing databases that other analysts can use as research tools in their own policy work.

The data needs differ for these three functions—ranging from fairly descriptive data for function 1 to data for function 3 with the potential for multivariate analysis and "cautious causal" analysis.

Why Collect Individual Student Data through SASS?

Much of the data that NCES collects are not on individual students, but are on characteristics of schools and other educational institutions. For example, SASS now collects data on school districts, schools, principals, and individual teachers. Detailed information is available on characteristics of the curriculum, qualifications of teachers, school and district level policies and practices. Traditionally, what student data have existed in SASS were generally aggregated to the school level before being captured. For example, percent of students receiving free lunch, percent of students of various racial-ethnic groups, etc., have been attached to the school files since the first cycle of SASS.

However, while it is important to be able to accurately measure and track schools, teachers, and curriculum practices, these data provide the context for measuring the main component of education—student achievement, growth, and progress. As the nation tries to assess and track the implementation of school reform, the data on schools and teachers do provide valuable indicators of the extent of reform—and these data have been used effectively over the last decade for this purpose. However, these data are much more policy relevant when used in the context of seeing how they are related to individual student achievement, growth, and experiences.

It is possible to attach to SASS additional aggregate measures of student characteristics and outcomes. In fact, this is the approach advocated by Don McLaughlin in his response to an earlier version of this paper. McLaughlin makes the case for aggregate data based on the tremendous improvements in the assessment practices of many state departments of education. He advocates using these state assessment data (presumably available for each school in SASS) by linking them to the state NAEP assessment. Dave Thissen has conducted such equating for the North Carolina state assessment.

I appreciate McLaughlin's contribution to this discussion and his comments on using state assessments are well reasoned. However, as he acknowledges, cross-sectional data on student outcomes are less interesting than longitudinal data (and, in my opinion may not be worth the effort of collecting at all). Collecting longitudinal aggregate data on student achievement within schools is of more interest, but (again in my opinion) not as useful as collecting individual student data. That is, aggregate test scores or mean outcomes do not capture the individual variation in achievement that traditionally has been of such interest.

For example, the variance of test scores *within* schools has been used as an outcome measure in assessing the effectiveness of schools. High mean test scores may be due to the school's efforts at increasing the learning of students already achieving at a high level or may be

due to the school's successful attempts at raising the scores of students at the bottom of the ability ladder. Mean scores mask these important differences in the impact of school policies and practices. Furthermore, the transitional experiences and out-of-school experiences are so important to those educational outcomes. Therefore, while it may be worthwhile for SASS to explore the possibility of attaching aggregate and longitudinal assessment data to their regular data collection, it seems to me that still accurate estimates of the associations of teacher and school characteristics on student outcomes necessitates the linking in some way of individual students (or similar groups of students) with individual schools, teachers, or policies (or similar groups thereof).

Of course, an expansion of the current SASS student survey (based on administrative records of students of sampled teachers) could add immeasurably to the analytical power of SASS. This option would build on the current efforts to include student data in SASS. While current student samples would have to be increased to be representative of the school, it still seems reasonable that this would be the most cost effective choice. However, it is perhaps the least effective analytically. Only limited kinds of data could be collected by administrative records—race-ethnicity, sex, absences, maybe grades. Test score data that would be comparable across schools would not be available. Furthermore, while data on dropout status may be available from administrative records, we have known for a long time that these data are unreliable as indicators of student status. They may be reliable indicators of what that school thinks is the status of the student, but that student may have enrolled in another school (perhaps an alternative school) or may have taken the GED and received an alternative credential. Student data would also be cross-sectional and vulnerable to all of the weaknesses of cross-sectional data.

Thus, attaching only individual administrative student statistics to school and teacher data would miss invaluable insights that are derived from observing student outcomes and transitions in the context of student's prior experiences, aptitudes, and ability levels in school—data that can only be measured through individual student surveys. Administrative data also would fail to capture or measure the impact of the transitions that students make through different schools and classrooms to the world of work and family life. Clearly, while collecting student data through administrative records may be cost effective, they do not provide the kind of data that add as much to the analytical power of SASS—only individual student data can do this.

Over the years, NCES has relied primarily on two vehicles for collecting data on individual students—the National Assessment of Educational Progress (NAEP) and the system of longitudinal studies including the National Longitudinal Study of 1972 (NLS:72), the High School and Beyond study (HS&B), and the National Education Longitudinal Study of 1988 (NELS:88). As an integral part of these data collections, individual student data have been directly linked to data about the student's teacher, classroom, and school. NAEP and the longitudinal studies accomplish this by including school and

teacher questionnaires along with student background and assessment data. Data on student outcomes can therefore be linked with data on educational context.

However, much of the school, teacher, and classroom data collected by the student-based surveys are collected in more breadth and depth in SASS, or in any case is redundant with data collected by SASS. Furthermore, SASS collects data about schools, teachers, and, most importantly, *school districts* that are not collected by NAEP or the typical longitudinal study. In a time of tight budgets (that may become even leaner) a reasonable question is why not borrow the strengths of both types of surveys and link the more detailed student data NAEP or a NELS to the richer teacher, school, and district level data in SASS? In this manner each may provide contextual data to better interpret the other and possibly reduce the overall respondent burden (although perhaps increasing the burden on those sampled)—thus fulfilling the requirement I set for myself in the introductory section of this paper. This is the topic to which I will turn next.

Linking NAEP to SASS

Advantages of a Linkage with SASS

NAEP has several distinct advantages over a NELS in such a linkage. The primary advantage is in the content detail that is provided in the assessment and the age or grade coverage available in NAEP. Due to an adaptation of matrix sampling called balanced incomplete block (BIB) spiraling, the design of NAEP allows for broad coverage of curriculum content while minimizing the burden to individual students. For example, while no student takes all test items, the 1992 NAEP mathematics assessment contained 178 items at grade 4, 205 items at grade 8, and 201 items at grade 12. This allows reliable estimates across five content areas in mathematics as well as three ability areas. (The mathematics assessment in NELS:88 in contrast, contains only 40 items and five proficiency levels.)

NAEP also includes a student questionnaire that solicits background information on each student. NAEP is built to obtain good estimates of proficiencies in a variety of areas for groups of students. One of the primary strengths of NAEP is its ability to track the overall achievement levels of U.S. students over decades of time. From the early 1970s NAEP has reported on the mathematics and reading achievement of elementary, middle school, and high school students. This has provided educational policymakers and the general public with an immeasurably valuable tool in monitoring the health of our educational system.

Weaknesses of a Linkage with SASS

While NAEP has some obvious strengths as a candidate for merger with SASS, it also has several weaknesses. Those aspects of NAEP that do not lend themselves to a merger with SASS are analytical more than procedural. For example, the main weakness of NAEP is that it is not longitudinal. Merging a cross-sectional SASS and a cross-sectional NAEP would still result in a cross-sectional survey. While the cross-sectional design of NAEP allows for rich data for

descriptive indicator work, the merged dataset with its rich contextual data and assessment data would still be of little use in producing valid analysis of the association of school policies and practices. In fact, the existence of such a dataset may actually encourage "invalid but potentially influential studies of schools effects that could seriously distort policy."[1] That is, secondary analysts (or, with due apologies to William Raspberry, a columnist looking at published NAEP reports) could make erroneous conclusions about school policy based on the real but misleading associations in the data.

Another analytical weakness of NAEP is that it does not contain good measures of student socioeconomic status[2] (and may never contain such measures). Without a measure of this kind, it is difficult to accurately describe the contribution of school process and policy variables on student outcomes. Most of these process variables are related to student socioeconomic status and/or student body socioeconomic status. Again, invalid but persuasive inferences could be drawn from these data.

However, while socioeconomic status is a prominent gap in the student background variables provided by NAEP, it is only one of several variables that one would want to collect and measure in order to make satisfactory inferences from associations found in the data between achievement levels and school characteristics and practices. These variables include, but are not limited to, self-concept, attitudes toward school, and peer group attitudes and opinions.

As mentioned above, one of the major contributions of NAEP is the trend data that it provides on student achievement in the United States. This strength of NAEP, however, proves to be one of the greatest arguments for *not linking it to SASS.* It seems unreasonable to expect that such a linkage could be done without some modification of the design of NAEP—either in its sampling design or its administration design. Such changes in the design of NAEP could result in changes in the estimated proficiency levels in the United States.[3] In addition, SASS is a fairly new and dynamic dataset. Again, given the importance of the NAEP time series, one would want to be very cautious in any changes to the design of SASS that would effect the design of NAEP, in either content or sampling design. Therefore, locking the design (and administration) of SASS to NAEP would make future changes in SASS very difficult. For example, currently NCES data collections poorly measure the classroom experiences of students. That is, while being able to describe educational inputs—students, teachers, schools--they do not measure educational processes well—what actually goes on inside the classroom. There would be many issues in incorporating a sample of classrooms within the design of SASS—including preserving the trend data of schools and teachers from earlier rounds of SASS. Adding the encumbrance of ensuring that the trend data from NAEP is also preserved would make this task even more difficult.

Furthermore, while merging the two surveys could produce savings in total respondent burden to the educational system, it almost certainly would *increase* respondent burden for individual schools

and teachers that are sampled in the merged survey system. This could result in lower response rates and threaten the data quality for both surveys. NAEP has traditionally relied on high response rates to ensure the quality of the trend data. Again, in my opinion the integrity of these data is too important to jeopardize in a SASS/NAEP merger.

The NAEP emphasizes the production of reliable estimates of national and state achievement levels. Consequently, NAEP does a good, but not perfect, job of estimating the first element of student data I outlined above—measuring overall student achievement. However, the strength of NAEP is in measuring aggregate-level measures of proficiency and not individual or school-level measures of proficiency. The capture of individual proficiencies or achievement levels has never been the main goal of NAEP. Given the complex nature of the plausible value methodology, individual or small group proficiencies are measured with a good deal of measurement error.

NAEP is also a survey that emphasizes content depth over breadth of background variables. The burden budget of NAEP goes into accurately measuring content. Student background coverage is not ignored, but certainly has less emphasis than in the longitudinal studies. The longitudinal studies, on the other hand, have had somewhat different goals. For example, while NELS:88 also aspired to provide accurate estimates of group proficiencies, it had the added burden of obtaining accurate estimates of school and individual level proficiencies and individual growth. There was also the emphasis in NELS:88 on the measurement of a variety of student educational outcomes and not just academic achievement. To control respondent burden, the academic assessment tools in NELS:88 had to be much shorter in scope and content than the NAEP assessment. NAEP puts its burden dollars in the depth of the content while NELS:88 put its burden dollars in breadth of outcomes and background information.

Furthermore, because NAEP does not measure students longitudinally, it does not do a good job of measuring (and does not attempt to measure) the other two elements of my list of student data above—growth in achievement, and successful transitions through the increasing demands of schooling and work. Longitudinal studies are needed to track these types of outcomes. For these reasons a new NELS (or some modification of NELS) may be a better candidate for merger with SASS. It is to this topic that I turn next.

Linking a New NELS with SASS

While it is important to measure and track overall achievement levels, it is also important to be able to associate differences in school policies and practices with student achievement. It is almost impossible to make valid inferences about the impact of school policies with cross-sectional data—regardless of how rich the individual data may be. Of course, making clear inferences about these kinds of associations is done best by experiments in which students are assigned to educational treatment conditions and subsequent growth in achievement is measured (Metcalf, 1995).

However, true experiments in education are difficult to conduct and maintain under the best of circumstances. Many educational researchers have therefore relied on observational survey data to make cautious inferences about policy effects on achievement gains. While these studies have many well known inherent flaws, most educational researchers and policymakers have been determined to not let the "perfect be the enemy of the good" and have conducted well thought out and executed policy studies with the longitudinal studies data systems provided by NCES (Heyns & Hilton, 1982, pp. 89-102).

Three Options to Consider

It seems to me that there are at least three options to attaching a longitudinal student component to SASS. These are outlined below.

(1) ***Attach student administrative data to SASS and return to those schools to pick up longitudinal data.*** This option would be substantially more expensive than simply attaching student administrative record data to SASS since one would have to return to the SASS schools to follow up on the students sampled in the first year. SASS is currently on a five-year cycle. Presumably one would want to go back to recapture student data on a more frequent follow-up schedule--perhaps every two years. Re-surveying schools every five years to follow up on students is perhaps too long a periodicity to make timely estimates of student outcomes. One could of course go back to the SASS schools (or sample of SASS schools) to capture just those administrative records that one needs. However, even this would increase the administrative and respondent burden of the survey system without providing much in the way of analytical payoff. Student test data would still not be available and consequently measures of growth in achievement would also not be available. In terms of measuring transitions, one would know if students were still enrolled in that school, but would know precious little else about the students' transitions to other school or work. Furthermore, some portion of the students would have moved, making follow-up of their status difficult and expensive.

In addition, learning takes place in an interaction of school, home, and family. A student data collection based solely on school records obviously records only one aspect of this learning system. The longitudinal studies have long recognized this and have tried to measure the other aspects of the student's learning environment. Measuring only one component does not allow one to fully examine the totality of the students' learning experience and how the different components interact with one another.

(2) ***Create a new longitudinal survey and "link" several items to SASS items.*** NCES could field a new NELS with either an eighth-grade or

tenth-grade cohort and use identical items from SASS in its school and teacher questionnaires. Linking these data would provide some analytical payoff in terms of generalizabilty of the data provided. It would also decrease the burden to individual sampled schools, which would presumably not have to respond to the both the SASS and NELS survey instruments. However, it would increase overall response burden and would likely increase overall administrative costs. The analytical payoff would also be somewhat weak, since the linked data to SASS would not include all of the contextual data provided by the new NELS.

(3) *Merge a new NELS with SASS.* NCES could field a new NELS in a sample of SASS schools. For example, the 1998 SASS could become the base year of NELS:98. The overall analytical reward of such a merger could be substantial. This class of students will be on schedule to graduate in 2002, thus leading to clean comparisons among the high school classes of 1972 (NLS-72), 1982 (HS&B), and 1992 (NELS:88). The longitudinal studies have traditionally have had teacher and school data, but have *not* have had district-level data to attach to student data. Furthermore, the richness of the SASS teacher and administrator data would enhance the student and parent data from NELS. Student assessment data (perhaps both cognitive and affective) could be attached to the SASS data to enable analyses of the association of outcomes data with school and district policy information. Data would also be collected with several follow-ups and would thus be able to measure growth in outcomes. Information would also be available to track the success of students in making critical transitions through school and work—for example, transitions from middle school to high school, through high school to high school completion, and from high school completion to postsecondary education and/or the world of work.

While a new NELS attached to SASS makes sense analytically, it also makes a great deal of sense in terms of cost savings. The SASS data collector will have already contacted the schools and collected data from districts, schools, and teachers. A new NELS would only have to supplement these data with a student and parent questionnaire—the teacher and school data would be collected within the normal SASS administration. Using the 1998 SASS survey as the base year of a new NELS has been shown to indicate a substantial cost savings over a separate sample design (J. Owings, internal memo, 1995, National Center for Education Statistics).

While total response burden would presumably be decreased by a NELS/SASS merger, the burden to individual schools will almost surely increase. However, this increase in response burden would have the potential to effect the response rates of the NELS data collection effort rather than SASS. SASS should not have to pay any

part of the response rate price associated with the merger.

Thus, a new NELS attached to SASS would meet the requirement that I set forth in the introduction to this paper. It would collect all three types of data that I think are important—overall achievement data, data on cognitive and affective growth, and data on critical transitions. It would also meet the two criteria for a reasonable merger—it would make sense analytically, and it would make sense economically.

However, a new NELS attached to SASS would still have to overcome several obstacles and several issues will need to be addressed in designing a new NELS. In fact, fleshing out a design for a new longitudinal study attached to SASS deserves its own design conference. However, short of this, I briefly outline two areas of concern in the next section.

The Design of the National Longitudinal Study of 1998

What age cohort should NELS:98 begin with? To track the transitions I outlined above, NELS:98 could start with either an eighth-grade cohort (to follow the transition from middle school to high school and allow trend comparisons with NELS:88), with a tenth-grade cohort (to follow the transition from high school to graduation and allow trend comparisons with HS&B and NELS:88), twelfth-grade cohort (to track the transition from high school to postsecondary education or work), or some combination of the above.

Starting with another eighth-grade cohort has a lot of analytical appeal. The transition from eighth grade to high school is a significant passage. Meaningful research has been done with the NELS:88 cohort on this issue. Furthermore, data from NAEP and from NELS:88 indicate that a significant amount of cognitive and academic growth occurs during this period. Larger gains are realized, on average, between the eighth and tenth grades than between the tenth and twelfth grades (Crouse & Ralph, 1996).

However, despite the intuitive appeal of starting with an eighth-grade cohort, for a variety of reasons a tenth-grade cohort may be more feasible at this time. The primary reason for this is the ease with which tenth-grade students can be followed and therefore the lower cost involved. While younger cohorts are perhaps always more desirable analytically than older cohorts, following younger cohorts is always more expensive than following older cohorts. For example, almost 90 percent of NELS:88 eighth graders changed schools between the eighth and tenth grades, while less than 20 percent of NELS:88 tenth graders changed schools between the tenth and twelfth grades. Tracking students from the eighth to the tenth grade proved to be much more expensive than originally estimated with the NELS:88 first follow-up study.

Furthermore, while there was great analytical payoff to estimating the growth in achievement of an eighth grade in NELS:88, the complexities of the psychometrics involved in this effort were severe. Because the NELS:88 test battery was used to measure overall achievement levels and growth between the eighth and twelfth grades, floor and ceiling effects were much more worrisome that in HS&B,

where growth was measured between the tenth and twelfth grades only. The resulting adaptive nature of the NELS:88 assessment created analytical problems with researchers not sophisticated with psychometrics. For example, measuring gains in mathematics proficiency was much more complicated than merely looking at IRT gains scores, as had been done in HS&B. Since different kids took different tests, gains had to examined in terms of gains in proficiency functioning rather than raw or IRT estimated gains. Again, this complication was due to the fact that the assessment instruments had to have a multilevel design to guard against the floor and ceiling effects that could occur when testing spanned the eighth through twelfth grades.

It is also interesting to speculate whether a twelfth-grade cohort (either selected on their own or an "aged" tenth-grade cohort) could be attached to SASS in the high school years and then attached or merged in a new Beginning Postsecondary Student (BPS) survey when the year after they are scheduled to leave high school. I realize that the sampling issues here may be enormously complicated and can only speculate about the complexities of such an overlapping or multiple frame design. However, by designing the three surveys in this manner, one would have the merged power (and savings?) of a SASS, a NELS, and a BPS.

Periodicity of SASS

To parallel the structure of the HS&B and NELS:88, the new longitudinal study should be on a two-year cycle. That is, if NCES starts with a tenth-grade sample, they would want to go back and re-interview the sampled students two years later when most of them will be in the twelfth grade. In this manner, trend analyses could be run with the HS&B and the NELS:88 tenth- to twelfth-grade cohorts. Since SASS is currently on a five-year cycle, the two-year follow-up would have to be done separately from the normal SASS cycle. These independent follow-up interviews could be done either as a CATI or as in-school interviews. In-school interviews would probably be more costly, but would be more efficient if cognitive assessments were conducted during this follow-up. (Unless someone develops a way to efficiently do a NELS:88 comparable assessment through CATI.)

Furthermore, in many ways HS&B and NELS:88 were multiple-cross-sectional datasets. Data were collected on the same people for two years apart. What went on in between those two data points is often hard to determine. For example, detailed information on school enrollment has been difficult to obtain from HS&B and NELS:88. One knows from the various follow-ups if sampled members were attending school at the time of the follow-up, but do not know much about their enrollment status in between the follow-up survey dates. One could use CATI to efficiently go back to these students more frequently than a two-year cycle and collect such time-sensitive data. These intermediate interviews would be limited to just a few items (dropout status, pregnancy status, employment status) with fewer time dependent variables reserved for the more in-depth two-year follow-up survey.

Summary

The argument for attaching a longitudinal component to SASS rests on several premises. First, attaching a longitudinal study to SASS seems to satisfy most of the criteria I have set out for myself. It could measure all three of the types of student data deemed most worthwhile, while also satisfying the two criteria for sensible merger—producing some cost benefit, and engendering an analytical payoff. The payoff, however, is to the overall data collection effort of NCES and not necessarily to SASS data collection in particular. In fact, attaching a longitudinal study to SASS may have no payoff whatsoever for SASS but may indeed provide more burden to the already overworked SASS staff. Attaching aggregate longitudinal student data to SASS may be of more benefit to SASS itself—merging a new NELS and SASS provides the most benefit to NCES and indeed, to the whole educational policy community.

Conclusion

The years 1983–84 saw the release of two publications that would forever change the way that Americans looked at their elementary and secondary schools. Ernest Boyer's *High School: A Report on Secondary Education in America, 1983* focused public attention on American high schools, a "troubled institution" with a confused mission and low standards. At about the same time the U.S. Department of Education released *A Nation at Risk*, which called attention to what was termed a "rising tide of mediocrity" in American schools. Due in part to the publicity these reports engendered, a decade of educational reform took hold in the American educational system. This "reform" was actually many reforms and debate over the consequences of these reforms continues today. NCES data help frame and focus this debate.

In 1984, a cohort of students had just graduated (in 1982) from high school. Their experiences in the pre-reform era would serve as a base line to judge the impact of the coming reforms. The High School and Beyond study would record the experiences of this cohort of students. In 1984, another cohort of students was in the fourth grade. These students would feel some of the immediate consequences of these reforms. Their experiences in high school, in postsecondary education, and in the transition to the world of work were captured in the experiences of the students in the National Educational Longitudinal Study of 1988. In 1984 (the year in which *A Nation At Risk* made its first impact), yet another cohort of children were born who are right now experiencing the full impact of the reforms of the last two decades. Most of this cohort are on track to graduate from high school in 2002.

Unfortunately, current budget concerns cast doubt on whether NCES will be able to field an independent longitudinal study of this class of high school students. The cohort of students who will be included in the Early Childhood Longitudinal Study will not be graduating from high school until 2012. Missing the class of 2002 will result in a data gap of almost 20 years and will weaken our ability to measure the impact of the changes introduced into our elementary and secondary schools. Failing to capture the experiences of the high

school class born at the very beginning of reform will be a serious gap in the nation's knowledge about education. Linking a new longitudinal study with SASS may be the only way of effectively filling this data gap.

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1. This quote is attributed to Dan Koretz (and similar sentiments attributed to Richard Murnane and Marshall Smith) in L. Burstein and P. Aschbacher (1987).

2. A weak measure of SES has been used in several analyses using the NAEP data. See C. Arnold and P. Kaufman for an example.

3. This happened in the mid-1980s with the NAEP reading assessment, resulting in the so-called "reading anomaly."

MAKING DATA RELEVANT FOR POLICY DISCUSSIONS: RECOMMENDATIONS FOR REDESIGNING THE SCHOOL ADMINISTRATOR QUESTIONNAIRE FOR THE 1998-99 SASS[1]

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Introduction

As an integral part of the Schools and Staffing Survey (SASS) conducted by the National Center for Education Statistics (NCES), the School Administrator Questionnaire has been used to collect information from both public and private school administrators regarding their demographic characteristics, academic background, professional training, and attitudes toward school management issues (Davis & Sonnenberg, 1995). Thus far, three surveys were conducted separately in 1987-1988, 1990-1991, and 1993-1994. These efforts have resulted in a large integrative database that can be used to present a comprehensive national profile of school administrators as a professional work-force. Research products based on this data source have already provided valuable information to education decision-makers on a number of important policy issues.

For example, in their report to the National Leadership Network, Moorman and associates (1992) argue that there is a pervasive bias favoring white male principals over female and minority principals in America's schools. They question whether female or minority principals may "inhabit a school different from their majority counterparts" and whether this difference may "hold significant implications for their tracking and on-the-job performance (p. 166)." Moorman and associates' observation touches upon a sensitive issue that has long been debated within the education administration community. However, without the support of authoritative evidence, such an observation remains subjective and inconclusive. Fortunately, with the implementation of SASS, policy issues such as this can now be fully explored by tapping into the data resources collected through the school administrator survey. Within NCES, both Hammer and Rohr's report (1994) on the disproportional distribution of male and female principals in America's public and private schools and Rossi and Daugherty's report (1995) on the types and locations of schools at which America's minority principals work have rendered strong statistical evidence to support some of the arguments made by Moorman and associates (1992).

The school administrator survey, together with other components of SASS, not only provides data for mapping the basic demographic and educational background of school administrators, it also offers opportunities for assessing principals' attitudes toward school management issues such as the priorities of educational goals, seriousness of school problems, and the distribution of decision-making power in schools. As education reform continues to demand improvements and greater

accountability from our educational system to better prepare students for future challenges, it becomes evident that information regarding school principals will continue to be of great interest to education researchers and policymakers. As Odden (1995) points out, the decentralization of decision-making power from school boards to individual schools has placed school principals at the forefront of the current reform movement. It is therefore important that we have reliable and comprehensive information on the principalship in order to make sound judgments on school administrators' roles and contributions to school improvement and student outcomes.

NCES is currently in the process of reviewing the direction, purposes, and uses of SASS for the planned 1998-99 survey. This includes examining the current uses of its data, its relationships with other federally sponsored data collection efforts, and future national survey needs in accordance to changing policy priorities. As part of the review efforts, this paper will discuss the scope, uses, and possible changes of the school administrator component of SASS from a user's perspective. In the following chapters, I will first present an overview of the school administrator questionnaire across three separate surveys. Next, an assessment of the current uses of the school administrator data will be given. Lastly, comments and suggestions for possible changes to the school administrator questionnaire will be offered.

An Overview of the School Administrator Questionnaire of SASS

The school administrator survey of SASS is the most comprehensive and the largest national study of school principals in this country, perhaps even in the world. The only study outside of NCES that can competently approach the depth and extensiveness of SASS is the survey of school administrators by Feistritzer and associates in 1987 for the National Center for Education Information. Feistritzer and associates' study (1988) surveyed the basic demographic background of school administrators and their attitudes toward a number of school management issues. The study has a sample of more than five thousand elementary and secondary school administrators, including superintendents, public and private school principals and assistant principals. Compared to the school administrator survey of SASS, Feistritzer and associates' study has a number of disadvantages. It is a one-shot study, hence it is limited by its inability to provide a longitudinal perspective on changes occurring within the school administrator workforce. It also lacks the broad scope that SASS has. Feistritzer and associates' study only provide basic demographic information such as gender, age, education, and work experience. It does not have other equally important information such as principals' professional training and the contextual environment of schools in which principals conduct their daily business. Moreover,

Feistritzer and associates' survey did not offer user-friendly data resources to other researchers for further exploring the policy issues related to the principalship.

Compared to Feistritzer and associates' and other similar studies, data collected from the school administrator surveys of SASS have several distinct advantages. First of all, it has a large and comprehensive sample of principals from all varieties of schools. It includes not only principals from public schools of different sizes, locations, and levels, but also private schools of different group types and religious affiliations. The 1987-88 SASS has a sample size of 9,317 public schools and 3,513 private schools (NCES, 1994) while the 1990-91 SASS has a sample size of 9,330 public schools and 3,270 private schools (Kaufman & Huang, 1993). Such a high degree of representation affords researchers the opportunity to conduct analysis down to the basic level of the stratification sampling structure. For example, there are even enough cases for comparing three different types of Jewish schools in the private school sample (McLaughlin et al., 1995). Secondly, the school administrator survey is structurally integrated with other components of SASS. For every school included in the survey, its principal and a number of teachers within the same school would also be surveyed. The school's file is also linked with the school district's file. These inter-file linkages provide a high degree of flexibility to data users for incorporating relevant variables from other databases. For example, while the school survey provides contextual information regarding the schools in which principals fulfill their leadership roles, the teacher survey supplements additional information on how well principals perform such leadership roles (from teachers' perspective). Moreover, the school administrator questionnaire has maintained a high level of consistency over the past three surveys that many of the core items remain unaltered. Such a consistency allows researchers to evaluate the changes over time in many areas of the principalship. Policymakers may use such data to assess the changes and progresses of the school administration workforce.

Table One
An Overview of Questionnaire Items of School Administrator Component of The Schools and Staffing Surveys at NCES

Categories of Questions	Specific Types of Questions Asked	Number of Items[1]		
		1987-88	1990-91	1993-94
Education and Training	Degrees achieved and major fields of study	25	18	29[2]
	Professional Training	4	7	6
Professional Experience	Teaching experience: years and assignment fields	6	4	4
	Administrative experience: years and positions	5	5	24[3]
	Other job experience	6	6	17[4]
Career plan	Plan to remain as principal	-	2	6
Compensation	Salary	2	2	2
	Benefits	10	10	10
Demographics	Gender, age, race	4	5	5
Job-related Activities	Activities and hours spent	11	-	-
Perceptions	Perceptions of school problems	13	22	24
	Perceptions of influence on school matters	9	15	39[5]
	Perceptions on school educational goals	-	3	3
Questions about school's	Teacher evaluation	1	3	-
Teaching staff	Teacher training	1	-	-
	Teacher recruitment	8	-	-
Miscellaneous	Data & telephone number	3	3	4
Total		108	105	173

1 Refers to total number of response items. A question may have multiple response items.
2 BA/BS degree granting university and location were added.
3 Grade level of previous principal positions and breaks in principal career were added.
4 New position categories and years of experience were added.
5 Private school version has 27 items.

In Table One, an overview of all survey items is presented for the school administrator questionnaires. While the total number of survey items for the first two surveys is about the same (108 and 105 respectively), the number of items for the 1993-94 survey increases substantially to 173. Given the busy schedule of school administrators, it is reasonable to believe that this total number of question items has reached the critical length. Any increase in length will very likely cause a decline in survey return rate. Across the three questionnaires, there are eight general categories of questions: questions about the education and training of principals, their professional experience, their plan to retire or to remain as principals, their salary and benefits, their perceptions on a variety of school matters, their basic demographic background, their job-related activities, and their opinions of their teaching staff.

Among these eight general categories of questions, items inquiring about principals' education and training, professional experience, compensation, and basic demographic background remain consistent throughout all three surveys. These questions are the core items of the questionnaires. They are essential in tabulating the gender, age, and racial distributions of school principals and in presenting a basic profile of their educational background and professional preparation (including pre-service, in-service training and work experience). The availability of these data items enables the tracking of the dynamic changes in the basic characteristics of our nation's education administration workforce. It also helps answer some of the fundamental questions about the reform of the principal workforce itself. For example, in an extensive study of the gender factor on principals' career decisions, their job performance, their compensations, and their job satisfaction, Gross and Trask (1975) documented significant differences between male and female principals through personal interviews and mail surveys. Twenty years after Gross and Trask's study, one wonders how our education system has been changed to achieve gender equity. To answer this or other related policy questions, these core data items from the school administrator surveys are particularly useful.

Principals' perceptions of school matters are another general category of question items. The school administrator questionnaires ask principals to indicate their perceptions regarding the seriousness of a variety of problems facing their schools, their perceptions over the distribution of decision-making influence at the school, and their ranking of important educational goals.[2] Over the years, these items regarding principals' perceptions have proliferated. The items for mapping principals' perceptions on school problems increased from 13 items in 1987-88 to 24 items in 1993-94. Items regarding principals' perceptions on the distribution of decision influence for school matters (also called "locus of control" items) increased from nine items in 1987-88 to 39 items in 1993-94.[3] To a certain extent, such increases reflect efforts committed by the staff at NCES to make the SASS surveys more relevant to the policy debates over reform and restructuring in education administration. If we are to put more power into the hands of school principals and teachers to decide what is good for their schools and their students, we ought to know what they think about the merit of

the reform and the impacts of its implementation. Understandably, most of these perceptual items could also be found in the teachers' questionnaires.

Question items about principals' career plans, such as decisions to retire or to remain as principals, grow from none in 1987-88 to six items in 1993-94. These items help shed light on the supply and demand situation of the school administrator workforce. Together with information about principals' ages and career breaks, these data items can be used to assist the projection of demands for new principals. Judging by the fact that information regarding principals' supply and demand situation is seriously lacking, the availability of these items can be quite valuable to those who have stakes in training and recruiting new school administrators.

While most categories of questions in the school administrator questionnaires have experienced increases in question items over time, two categories of questions have been down-sized. Questions about principals' job-related activities and questions about the recruitment and evaluation of teachers were actually eliminated from the 1993-94 survey. These changes may have been justified at the time the 1993-94 survey was planned. However, it is my opinion that these items should be restored but in different formats. Details will be discussed in Section IV of this paper.

School Administrator Research Using SASS – An Assessment

The three waves of SASS school administrator surveys have accumulated a large amount of data about school principals in the United States. Modern decision-support theory believes that data can be transformed into information only when it is used to assist decision-making (Rohrbaugh, 1986; Hammond & Arkes, 1986). According to this view, the effectiveness of data-collection efforts is ultimately judged by the quality of the data and how the data are used to inform policy decisions. In a report prepared by the Research Triangle Institute, Curtin and Fiore (1995) clearly indicate that the school administrator database from SASS is a very useful source of information for education decision-makers. In a sequence of topics, Curtin and Fiore demonstrate how the school administrator data can be used to inform policymakers and education researchers about the pluralistic transformation of the principalship in America's schools, the changing qualifications and professional preparation of school principals, the new roles required for principals in managing schools, and the status of principal retention and turnover.

Table Two
Samples of School Administrator Research Using NCES Data

Research Based on SASS		Research Based on HS&B	
Author, Year, Title	**Type of Publication**	**Author, Year, Title**	**Type of Publication**
Hammer, C. and Rohr, C. (1993) Teaching, Administrative, and Other Work Experience of Public School Principals	Issue brief NCES Publication	Chubb, J. and Moe, T. (1985) Politics, Market, and the Organization of Schools	Conference paper American Political Science Association
Hammer, C. and Rohr, C. (1994) Public and Private School Principals? Are There Too Few Women?	Issue brief NCES Publication	Eberts, R. and Stone, J. (1988) Student Achievement in Public Schools: Do Principals Make a Difference?	Journal article Economics of Education Review
Rossi, R. and Daugherty, S. (1995) At Which Types of Schools Do Minority Principals Work?	Issue brief NCES Publication	Hannaway, J. and Talbert, J. (1991) Bringing Context into Effective Schools Research: Urban-Suburban Differences	Research Paper OERI Publication
Ingersoll, R. and Rossi, R. (1995) Who Influence Decision-making About School Curriculum: What Do Principals Say?	Issue brief NCES Publication	Goldring, E. and Rallis, S. (1993) Principals of Dynamic Schools: Taking Charge of Change	Book Corwin Press
Anderson, J. (1993) Who's Runs the Schools? The Principal's View	Research Report OERI Publication	Lee, V. et al. (1993) Teachers and Principals: Gender-related Perceptions of Leadership and Power in Secondary Schools	Journal article Educational Evaluation and Policy Analysis
Fowler, W. (1991) What Are the Characteristics of Principals Identified as Effective by Teachers?	Conference paper AERA	Brewer, D. (1993) Principals and Student Outcomes: Evidence from U.S. High Schools	Journal article Economics of Education Review
Haller, E. et al. (1994) Does Graduate Education in Educational Administration Improve America's Schools? Another Look at Some National Data	Conference paper AERA		
Ballou, D. and Podgursky, M. (1995) What Makes A Good Principal? How Teachers Assess the Performance of Principals	Journal article Economics of Education Review		

In Table Two, research products using the SASS principal database are listed together with research products using the High School and Beyond (HSB) principal database. HSB is a national longitudinal survey of high school sophomores and seniors conducted also by NCES. Students selected to participate in the study were administered a series of cognitive tests measuring their verbal and quantitative skills in 1980. Several follow-up surveys were conducted with sub-samples of the original sample population to determine changes in their test scores. In 1984, an "Administrator and Teacher Survey" (ATS) was added to the HSB study, with questionnaires administered to principals, guidance counselors, and teachers in about 500 schools, or about half of the original number of sample schools (Chubb & Moe, 1985). The added ATS was intended to study the organizational aspects of schools --schools' relationships with parents and school boards, teachers' perceptions of principals' leadership roles, and principals' perceptions of school environments and management practices. Many of the question items used in ATS were later incorporated into the teacher and principal components of SASS. It is therefore useful that in discussing the use of SASS data to study the principalship that we also discuss research products that are based on HSB data.

Overall, it appears that research endeavors based on HSB data had enjoyed greater success in getting their products accepted by external publications (see Table Two). Research works using HSB data were accepted not only by academic journals and conferences, but also by a major book publisher that specializes in education-related topics. In contrast, only one of the principal-related research products based on SASS data was accepted for external publication. The relative success of HSB-based research products is partly due to the early inception of the HSB database. The fact that HSB data were collected almost four years earlier than SASS data gave HSB data-users much more time to get familiarized and to work with the data. Another reason that may explain the relative success of HSB-based studies is that principal and teacher questionnaires were added to the original HSB survey of students' cognitive abilities with a clear intention of linking principals' performance to student outcomes. This addition enabled the merging of the demographic background and personal perceptions of principals and teachers with students' test scores. This merging provides the convenience and opportunities for exploring the connections between principal-related variables and student outcomes.

In a study of principals' influence on student outcomes based on HSB data, Brewer (1993) used the change in student test scores between sophomore year (1980) and senior year (1982) as a dependent variable to measure the influence of principals on student outcomes. His study reveals that principals can influence student outcomes through the setting of academic goals for students, through the screening of new teachers, and through their decisions on instructional methods. This study, together with the study by Eberts and Stone (1988), is one of the very small number of empirical studies on principals' influences on student outcomes that were reportedly backed by direct statistical evidence. Brewer claims that his findings render supports to the "effective

schools" argument that principals can make a difference in student's outcomes (Brewer, 1993).

Despite the optimism, research findings based on the linking of ATS data with HSB data are not without their perils. First of all, the connection between principal behaviors and student performance is indirect at best (Glasman & Heck, 1992; Kleine-Kracht, 1993). Principals do not interact with students directly and their influences on student achievements are muted by other more powerful factors, such as the quality of teachers, the degree of parental involvement, and students' own motivations, just to name a few. It is difficult to imagine that these variables can be controlled in the analysis. Therefore, caution needs to be exercised in making direct inference from principals' performance to student outcomes. Furthermore, the use of students' cognitive test scores as the sole basis for assessing student outcome is too simplistic. Student outcome is a multi-dimensional construct. To reduce such a broad concept into a single dimension solely based on test scores undermines the moral and social values of education, not to mention that test-based criteria can also be quite complicated. The way Brewer (1993) used the data also led to some unsettling questions about the reliability of his findings. For example, the dependent variable he used is the change in student test scores between 1980 and 1982, but the independent variables are from principal and teacher surveys conducted in 1984. In light of the time differences, we need to ask: Are those principals surveyed in 1984 the same principals in those schools between 1980 to 1982? Did teachers and principals have the same perceptions in 1984 as in 1980 or 1982? Moreover, there were drop-outs in the test population between 1980 and 1982. It may be reasonable to speculate that these drop-outs are probably among the students who did not perform well in the first cognitive test. Did this selection bias have influence on the internal validity of the research findings?

In comparing the ATS of HSB and the principal and teacher components of SASS, Ingersoll (1995) points out quite clearly the differences between the two databases. ATS was developed specifically to facilitate the investigation of relationships between school staffing characteristics and student outcomes (Chubb & Moe, 1985) while SASS is intended to provide a comprehensive assessment of schools and staffing conditions in the United States. ATS has a usable sample of about 350 secondary schools while SASS has more than 12,000 sample schools of different levels. ATS has a limited generalizability of schools due to its small sample size while SASS supports national estimates by any number of different school characteristics, including sector, level, state, urbanicity, and school size. SASS is also more accurate in distinguishing different types of private schools. For example, SASS separates private schools into sub-types grouped by their religious orientations and group affiliations.

The comprehensiveness of the SASS data and the availability of three waves of surveys have provided ample opportunities for conducting in-depth analysis on a number of key education policy issues. With direct relevance to education administration research, we may use the data to study the changing demographic

characteristics of the education administration workforce and how these demographic changes are associated with changes in salary and compensations. Policy studies such as these can answer questions on whether economic equity for women and minority principals has been improved as their shares in the administration workforce expanded. We may also pursue studies to understand the perceptual differences between principals and teachers regarding the decision-making structures in schools and how such differences in perceptions are conditioned by their educational and demographic background. Such studies may help explain the trends and patterns of decentralization and the locus of control in school management. Or, we may want to find out whether the effectiveness of principal leadership is constrained by the organizational settings or the socio-economic conditions of schools. The study of principal leadership using SASS data, even without the direct linkage to student outcomes, can still shed light on how schools can be more effectively governed and improved.

Over the past several years, there has been a number of principal-related research papers that based their findings on the analysis of the SASS data. In addition to the issue briefs and research reports published by the National Center for Education Statistics, there are two academic conference papers and one published journal article that employed the SASS data to address issues surrounding the principalship and school administration. For example, Fowler (1991) used teachers' perceptions of principals' leadership behaviors to create an index of perceived principal effectiveness. His findings indicate that principal effectiveness is a complex and multi-dimensional construct and a principal's ability in leading the school effectively is influenced by a number of factors, including the principal's age, gender, teaching experience or the school's location, size, and level. Similarly, the study conducted by Haller, Brent, McNamara, and Rufus (1994) also used teachers' perceptions of principals to create indices of school leadership, but Haller and associates' interest is to find out how graduate training in educational administration would help improve principals' leadership effectiveness. The findings from Haller and associates' study lead to a disturbing yet tantalizing conclusion: graduate training in education administration does not have significant influence on the attributes that characterize effective principals. Judging by the fact that most states require a master's degree or even a doctoral degree in Education Administration as a prerequisite for principal licensure, this finding posts serious questions on the validity of such a requirement to education policymakers. Recently, the Los Angeles Unified School District decided to waive this and other mandated requirements for hiring new principals,[4] hence setting an example for challenging the status quo of school administration licensing practices. This bold reform effort is clearly supported by what Haller and associates discovered from analyzing the SASS data.

In the only externally published research paper that employed SASS data to address principalship issues, Ballou and Podgursky (1995) used the 1987-88 SASS data to evaluate the influence of principals' educational credentials and professional

experience on teachers' assessment of principals' leadership practices. Ballou and Podgursky find little statistical evidence to support the recent proposals for enhancing the "professionalism" of the principal workforce by requiring more advanced degrees and additional administrative training. They argue that principal licensing requirements in the states may undervalue those attributes that characterize good school leaders. For example, principals with more teaching experience are generally rated higher by teachers. However, most states only require new principals to have a few years of teaching experience. Ballou and Podgursky's study obviously raise serious questions for policymakers to ponder.

Despite the relatively small number of studies using SASS to examine the roles and practices of school principals, those that had been completed have provided many interesting and fresh insights on policy issues related to school administration. Given the great potential of SASS as a comprehensive national database on schools and their staffing patterns, it is imperative that more studies be done to take advantage of the depth and richness of the database. In order to encourage more researchers to use the SASS data to study education policy issues, NCES must play a more active role in facilitating the awareness of and access to the dataset. For example, a brochure describing the database together with suggested research questions can be distributed to directors of graduate studies at universities to encourage doctoral students to utilize the database for writing their dissertations. The electronic codebook system now available with the SASS CD-ROMs should be transformed into a Windows-based system to enhance its user-friendliness.[5] This change is imperative now given the fact that new Windows operating systems such as Windows 95 or Windows NT are phasing out DOS-based software. Alternatively, SASS can create its own world-wide web (WWW) home-page to provide online, 24-hour access to the database.[6]

Efforts to promote the awareness and access of the SASS database will provide the necessary conditions for wider use of the data resources for education research. However, in order to facilitate the use of the data to conduct policy analysis, modifications must be made to the content of the questionnaire so that it is more relevant to current policy debates. In the following section, I will discuss my personal view on how to improve the principal questionnaire.

Improving the School Administrator Questionnaire: Some Suggestions

In a discussion of methods for assessing the effectiveness of public funded research organizations, Altschuld and Zheng (1995) believe that a stakeholder-based approach is more useful than a goal-based approach in assessing the performance of research organizations. This is because research organizations usually have broad and general goals and their organizational outputs are mostly intellectual products and services that cannot be measured meaningfully in tangible monetary or numeric terms. Performance of research organizations thus are better gauged from their customers' perspective. In the case of SASS, its customers would include

education researchers, planners and policymakers at federal, state, and local governments, and individuals and organizations who have interest in schools and school staffing issues.

In order to improve the relevance and usefulness of the data products of SASS, it is logical that we find out what the customers' current and future needs are. To this end, I decided to obtain some first-hand knowledge by conducting a small survey via the Internet discussion group "AERA-A[7]" hosted by Arizona State University.[8] In my e-mail survey, I asked, "what is the most important policy research issue for education administration in the next 10-15 years?" Of the 18 answers with direct relevance to the principalship, 28 percent of the answers (n=5) indicated that principals' roles and contributions in school decentralization and restructuring should be the most important research issue; 33 percent of the answers (n=6) stated that principals' accountability to school outcomes should be the key issue. Specifically, one respondent wanted to know how principals can be evaluated fairly through demonstrated added value to the learning process of students; 22 percent of the answers (n=4) identified the working conditions and career decisions of principals as the major research concern. Lastly, 16 percent of the responses (n=3) rated principals' attitudes and handling of new information technologies in classroom teaching and learning as the most important issue.

This survey may be too small to collect the opinions of the broad research community of education administration; however, a review of the literature shows that the research issues raised by these respondents actually echo with some of the community's prevalent views. Murphy and Beck (1994) believe that principals' roles and responsibilities must be clarified at a time when schools are forced to transform and restructure. Despite the increased importance of their jobs, principals themselves have been silent and passive in defining their roles in school leadership. The clear definition of principals' roles will help principals understand how to meet the demands for accountability, how to adapt to the changing social fabric of schools, and how to make schools meet the needs of a post-industrial world. In a widely cited paper, *Re-Thinking School Leadership: An Agenda for Research and Reform*, Bolman, Johnson, Murphy, and Weiss (1990) of the Harvard Graduate School of Education make similar observations. They believe that school leaders, under the constraints of changing student demographics, fiscal difficulties, and greater societal expectations, must learn to cultivate constituent supports, including support from parents, teachers, and school boards. School leaders should adapt to new management reality and to establish mutually dependent and cooperative relationships with teachers. School leaders should also understand how the technology of instruction can facilitate the delivery of knowledge from teachers to students.

Most of the recent studies on principals' roles in school restructuring and reform are built on the framework of the "effective school" movement (Murphy & Louis, 1994; Hallingert & Leithwood, 1994). Despite the marginal variations in their views, these studies in general agree with Murphy's (1994) argument that school restructuring produced a nearly

overwhelming workload for principals, demanded that they work both harder and smarter, and created considerable work-related stress. In order to survive these new challenges, principals must adapt to roles changes in several important areas: delegating more decision-making power to teachers and other support staff and promoting a collaborative relationship with them; enabling and supporting teacher success through more constructive approaches in professional developments; managing a constellation of change efforts, including the direct involvement in instructional practice improvement; and extending the school boundary through active community marketing efforts to cultivate parental and public support (Bookbinder, 1991; Elmore, 1995; Odden, 1995).

Judging from the above discussions on the important policy research issues for education administration in the years to come, it is quite clear that principals' new roles in leading schools at a time of change and uncertainty is of major concern to education researchers and policymakers. If SASS is to contribute more to these policy discussions, its survey questionnaires must be updated from its current format to become more relevant to the needs of the educational policy research and decision-making communities. In light of these discussions and the objectives of SASS, I would like to make the following suggestions for bringing the current SASS school administrator questionnaire (1993-94 version) to tie more closely to the current policy debates:

Core Items

The core items of the questionnaire, that is, questions about principals' education and professional training, work experience, compensations, and demographic background should be retained for all surveys. These items are deemed essential, for they provide the necessary conditions for constructing the basic profile of the school administrator workforce. Policy issues may change and research emphases may shift over time, but the need for understanding the basic characteristics and working conditions of school principals is continuous. Researchers, policymakers, and other concerned parties need these core data items to track the dynamic changes in our nation's education administration workforce. Policy research based on the analysis of perceptions, school outcomes, or community opinions also need to consider the contextual constraints of the principalship. Therefore, it is imperative that these items be retained for all surveys.

Nevertheless, some of the questions in the core items are too elaborate and some of them are too simple. Changes should be made to balance the two extremes. Specifically, questions about principals' education background may be too elaborate. For example, it may not be necessary to ask whether a principal has an associate's degree and in what field. Given the fact that the majority of principals has at least a master's degree and nearly everyone has a bachelor's degree, what is the value of knowing whether one has an associate's degree?[9] It is also not necessary to ask about the location and name of the college from which they earned their college degrees. There is no

written rule that a principal must graduate from an Ivy League school or a top-tier public university. Knowing the schools from which they graduated will not contribute significantly to the understanding of the policy issues surrounding the principalship.

Question #16, "were you the principal of this school in the Spring of 1991?" is redundant since the question right after it asks the respondents, "prior to this school year, how many years were you employed as the principal in this school?" If the answer is greater than two, by logic, the respondent would most probably be the principal of this school in the Spring of 1991. Question #18b asks, "in what grade levels were the students in the school in which you last served as principal?" There are 15 choices, ranging from pre-kindergarten to grade 12. Each choice takes up one data space. In order to increase the efficiency of the answer format, it would be better that a smaller range of choices was used in this case. For example, instead of listing all possible grade levels, the question can simply have several general categories of answers (i.e., elementary, secondary, elementary and secondary combined, and others).

In addition to formal education, principals usually receive other types of training to prepare themselves for the job as a school leader. Exactly what kinds of training did they receive and how effective was that training in helping them prepare for the challenges ahead? We have no way to know, for the questions on professional training are simply too vague (only "yes" or "no" answers are available). Since pre-service and in-service training are very important parts of the principal certification and preparation process, it is therefore necessary that we ask more questions about them. In a recent article on principal training programs, Bjork and Ginsberg (1995) criticize the conventional approach to principal training as too abstract from reality to be of real-life use in practice. They believe that principal training programs in the United States are in need of a paradigm realignment, that is, fundamental changes that will force the entire field to shift from academic-oriented to practice-oriented training. These changes may include sending university faculty members to schools to gain clinical experience or release principals from school-level duties to pursue full-time training that will integrate their school administrative experience with theories.

Observations made by researchers (Bjork & Ginsberg, 1995; Ballou & Podgursky, 1995; Haller et al., 1994) regarding principal training programs clearly indicate that much needs to be learned about the content and impact of these programs. In order to facilitate the policy changes for improving these training programs, the principal survey of SASS should expand the number of questions in this area. In addition to asking whether a respondent had participated in a training program, we should also ask how long the training lasted, how frequently he/she received the training, and how satisfied was he/she with the outcome of the training. For example, we can ask:

Have you participated in any in-service training in evaluation and supervision?
___ Yes ___ No

If yes, how many times have you had this type of training during your entire principal career?
___ Times (give a number)

To what extent did this training help you become a more effective principal?
___ Extremely helpful ___ Very helpful
___ Somewhat helpful ___ Not helpful
___ Waste of time

Another area that should be modified is the questions about service breaks in a principal's career. Instead of asking whether the breaks were due to layoff or a reduction-in-force, multiple choices should be offered. For example, reasons for breaks in services could be: layoff, organizational restructuring, educational leave, personal/sick leave, military leave, and others. Through multiple choices, we may be able to know more about the reasons why principals have to leave their jobs. Additionally, we should ask how long it took them to find a new principal position if they were unable to return to their original positions. This information would shed light on the demand and supply situation for school principals.

Principals' Jobs and Responsibilities

In the 1987-88 SASS survey, principals were asked to give their best estimates of the number of hours they spent on several categories of school-related activities, i.e., teacher supervision or curriculum management. In the two SASS surveys that followed, this entire set of questions was eliminated. Through my conversations with the staff at NCES, I got the impression that it was eliminated due to questions about the reliability of principals' self-reported numbers and a significantly high percentage of missing answers (one possibility is that principals did not keep good track of exactly how they spent their time and were unwilling to venture a guess). If these problems are real, they would definitely create problems to the reliability of these data items, hence their elimination is the sensible thing to do.

However, the elimination of these items created a regrettable void in the principal questionnaire of those items about the jobs and responsibilities that principals performed. It is regrettable because modern principalship is such a complex enterprise that most outsiders really cannot comprehend the extent to which these jobs and responsibilities burden school principals.[10] If we don't ask these questions in our surveys, we miss the best opportunity to understand how school principals perceive and perform their responsibilities. The need to know more about the jobs principals perform is greater than ever. As my previous discussions on the key policy research issues indicate, principals presently are given more responsibilities as education reform, political changes and technological improvements have shifted more decision-making power from districts to schools. With the increase in responsibilities, calls are heard with increasing frequency for greater accountability and more extensive performance review for principals (Kirst, 1990).

Paradoxically, the increase of responsibilities does not come with better understanding of principals' jobs and their abilities to perform those jobs. Gottfredson and Hybl (1987) provide a very good observation on this paradoxical

situation. They believe that much of the demands for principals' increasing accountability to school effectiveness are "based on very limited knowledge of what principals actually do and which aspects of the job are most important and most burdensome. Furthermore, although much writing and advice on the principalship is generic, the role of the principal may differ according to the kind of school the principal leads. Most principals must learn the ropes on the job with limited support and guidance. Many schools do not have a clear written job description to spell out what is expected of the principal (p. 1)." Clearly, to know more about the jobs and responsibilities of principals should be an important goal of a national survey of school principals. If data are collected for making informed policy decisions, then, data about principals' roles and responsibilities are obviously the type of data that have a very high degree of policy relevance to decision-making. A major study of school administrators such as SASS simply cannot ignore this critical aspect of the principalship.

In order to include question items on principals' jobs and responsibilities in the questionnaire and not to repeat the pitfalls of the 1987-88 SASS survey, the questions must be framed differently. Instead of asking principals to provide estimates on time usage, we may ask them to rank the importance of a number of jobs related to their management responsibilities and how they actually allocate time to accomplish those jobs. For example, we can ask principals questions in the following format:

Among the following school-related activities, please provide us your ratings of their importance to your job as a school leader and the time you spent on them given your current workload:

Activities	Importance	Time Spent
Sit in a classroom to observe teachers' instruction	0-Not a part of my job 1-Not important 2-Somewhat important 3-Moderately important 4-Very important	0-None 1-Little 2-Occasionally 3-Frequently 4-Extensively (a major part of my job)
Talk to parents about their children's school problems	0-Not a part of my job 1-Not important 2-Somewhat important 3-Moderately important 4-Very important	0-None 1-Little 2-Occasionally 3-Frequently 4-Extensively (a major part of my job)
Take actions to ensure enough computer & telecommunication equipment for students[11]	0-Not a part of my job 1-Not important 2-Somewhat important 3-Moderately important 4-Very important	0-None 1-Little 2-Occasionally 3-Frequently 4-Extensively (a major part of my job)

By presenting questions in this format, we can avoid asking principals to pinpoint the exact number of hours they spent on each activity and to preserve the opportunity to obtain valuable information about their jobs and responsibilities. The scales for the answers can be fine-tuned to better capture the importance and the time spent on each activity. Further studies are also needed to find out what activities should

be included in the list. But it is certain that these activities should represent those jobs and roles typically performed by principals in their capacities as the cultural, managerial, instructional, moral, and strategic leaders (Leithwood & Duke, 1993). Not all jobs and responsibilities are viewed as equally important to principals. Some responsibilities may be viewed as less important but would consume more of their time. And some responsibilities may be viewed as important but they are unable to devote more time to do. If we need to know how principals can effectively improve their schools, we at least should know something about how they perceive their roles and responsibilities and how much time they have to spend on each activity.

Principals' Perceptions of Their Teaching Staff

In the 1987-88 SASS survey, principals were asked about the availability of formal evaluation systems for teachers. In the 1990-91 SASS survey, this set of questions was changed to solicit principals' perceptions on the quality of their teaching staff. However, in the 1993-94 SASS, these questions were removed completely. Given the usefulness of these items and the fact that there are only 2-3 items for this set of questions, its removal is also quite regrettable. Slater and Teddlie (1992) believes that an effective school must possess three key components: teacher preparedness, student readiness, and administrative appropriateness. These three components must be integrated into an unbroken chain of actions in order to generate better school outcomes. Principals may have influence on improving students' achievements, but such influence to a great extent have to rely on teachers' performance as a medium to deliver the effects.

Although the teacher component of SASS has already provided large amount of data on teachers' quality, they are from teachers' own perspective. The addition of a few items in the principals' questionnaire will give us an additional perspective on teachers' quality. Since we have asked teachers to evaluate the performance of their principals, we should also ask principals to tell us how they feel about their teachers. Current efforts to reform our schools call for principals to work more closely with their teaching staff to improve student outcomes. In order to assess how the collaborative relationship between principals and teachers can flourish and how such a collaboration affect the overall effectiveness of the school, it is useful that we gain an understanding of both principals' and teachers' perceptions of the other party.

Principals' Perceptions on School Matters

In all three waves of SASS surveys, principals and teachers were asked to reveal their perceptions on the seriousness of a range of school problems, issues related to decision influence (locus of control) on school matters, and the importance of a number of educational goals. In the 1993-94 survey, the total number of items for the perception of school problems is 24 for both principal and teacher questionnaires. In addition, the public school principal questionnaire has 39 "locus of control" items while the private school principal questionnaire has 27. Since SASS already has three surveys, in retrospect, judging by the frequency of

the items being used and the consideration for reducing some questions in order to make room for new items, I would like to suggest that the entire section on principals' perceptions of school problems be removed from the next survey and the items regarding "locus of control" be retained.

I believe that the central objective for knowing principals' and teachers' perceptions on school problems such as student tardiness and student drug use is to provide policymakers and researchers data on how school administrators and teachers feel about the problems facing schools. Information about these perceptions can alert the public and decision-makers to give higher priorities to support principals and teachers to solve these problems. Since teachers interact directly with students and have first-hand knowledge of students' conditions inside and outside of the classroom, we would assume that they at least have equally valuable comments on school problems. Teachers' perceptions may be different from principals'. But for the purpose of understanding school problems facing students inside and outside of classrooms, teachers' perceptions should be sufficient to help inform us of the seriousness of those problems.

The "locus of control" items are a different matter, for the central objective here is to find out the perceptions on the distribution of decision influence among a number of people. Knowing the differences between principals' and teachers' perceptions help researchers and policymakers understand the decision-making and organizational structures in schools. Such an understanding in turn can help evaluate current efforts in restructuring the organizational arrangements for school governance. Since teachers and principals are increasingly charged with more authority in determining the curriculum, personnel, and discipline policies of schools, it is naturally necessary that both parties' perspectives be considered.

Issues regarding the organizational arrangements for power sharing in schools are sensitive yet important. Despite the obvious reasons for principals to work closely with teachers to achieve school outcomes, there are many problems that may lead this collaborative relationship to falter. Wooster (1991) believed that part of the problem could be attributed to each party's perception of their domain of influence. For example, teachers may feel that they should have the most say in instructional matters. Therefore, when a principal visits a teacher's classroom to observe instructional practice and make comments on possible improvements, the teacher may have the impression that the principal is interfering with his/her right to teach and is imposing an administrator's view on the teacher who may be a better expert on the subject. Other issues that can be explored with these "locus of control" items are the differences between private and public school principals and between private and public school teachers. In a survey of Catholic teachers, Kushner and Helbling (1995) point out that private school teachers tend to agree more with their principals on school management issues and that such agreements are mostly based on mutual trust, while such trust and agreement are much weaker among public school teachers toward their principals. How true is this observation? Does this difference

contribute to the cultural differences between public and private schools? We can find out some answers by comparing the perceptions between public and private school principals and teachers.

Principal Preparation and Licensure

As I mentioned earlier in this paper, information regarding principals' pre-service and in-service training and preparation are not detailed enough to provide good estimates on the impacts of these training and preparation programs on principals' leadership effectiveness. In addition to my previous suggestions for expanding these questions, I would also like to see the inclusion of several questions regarding principals' licensure in the next SASS survey. Almost all states require principals to possess a legitimate school administration license and to renew the license after a period of time in service. Reading through the job advertisements for principals, one cannot help but notice that a principal's license is always one of the most important prerequisites for the job. Given such an emphasis on principal licensure, one has to wonder whether such a requirement has been helpful in keeping the principal workforce to a higher standard; or did the licensing process keep some of the brightest minds from the teacher workforce or other professions away from this important and challenging field of leadership?

Despite the relevance of principal licensure practice to the formation of the principal workforce, information regarding this practice is scarcely available. It is therefore useful that in at least one of the principal surveys of SASS that we can devote some attention to this issue. In the questionnaire, we may ask principals when they obtained their first principal license and at what level, how many renewals did they have after the first license, whether they needed to apply for a new license when they transferred from an out-of-state administrative position, or whether the licensing process helped them become more effective school leaders.

Conclusion

In conclusion, I would like to reiterate the importance and usefulness of the principal surveys of SASS in contributing to the understanding of the characteristics and conditions of the school administrator workforce in America. As the most comprehensive study of school principals currently available, the principal survey of SASS has provided valuable data for exploring various important policy issues regarding the basic characteristics of school principals in the United States, including their education background, professional training, work experience, salary and compensation, and their perceptions on a range of school management matters.

In order to further extend the principal survey's utility in educational policy debates, I have suggested above a number of changes to the principal survey questionnaire. These suggestions include: keep the core items consistent throughout all survey efforts but simplify those items that are overly elaborate; expand the items on principals' in-service and pre-service training programs and solicit principals' level of satisfaction with those programs; request that principals rank the relative

importance of a number of school activities as related to their role as school leaders and ask how they allocate their time for those activities; remove principals' perceptions of school problems to make room for new items; retain the "locus of control" items; and include some questions in the next survey regarding principal licensure procedures.

These suggestions are based on my understanding of the major policy research issues for education administration in the near future. The changes I suggested do not include possible items to evaluate how principals can create "added value" directly to student achievement as suggested by some scholars in my e-mail survey. It is not the objective of the Schools and Staffing Survey to assess the immediate impact of principals on student outcomes. It is also my contention that principals' influence on students' learning are indirect as long as teachers are the ones who teach in the classroom. Given these constraints, it is natural that principals' demographic characteristics, their educational and professional backgrounds, their perceptions of school management issues, their perceptions of their teaching staff, and their economic status should be the major concerns of a national survey of school principals.

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2. The 1987-88 survey did not include the item for ranking educational goals.

3. Thirty-nine items for public school questionnaire; 27 items for private school questionnaire.

4. "Matter of Principal," Editorial, *Los Angeles Times*, page 8, November 2, 1995.

5. In my opinion, the DOS-based electronic codebook system is somewhat difficult to install and this initial problem may discourage many new users from exploring the data CDs.

6. NCES is currently in the process of putting the SASS data on the World Wide Web site at http://www.ed.gov/NCES. The Electronic Codebook for SASS 1987-88 is currently available.

7. AERA-A is a group organized by the Education Administration section of the American Educational Research Association and has members from the research, practice, and policymaking communities of education administration.

8. Records of the survey are archived at Internet site "magnus.acs.ohio-state.edu". Electronic copies are available upon request by sending an e-mail to yzheng@magnus.acs.ohio-state.edu.

9. In the 1993-94 SASS, only 4.9 percent of principals indicated that they had an associate's degree.

10. One of the reasons that the principal questionnaire is much shorter than the teacher questionnaire is the consideration that principals are under greater time and work pressures.

11. This question partially addresses one of the policy issues raised by several respondents in my e-mail survey about principals' support for new technologies in schools.

MEASURES OF INSERVICE PROFESSIONAL DEVELOPMENT: SUGGESTED ITEMS FOR THE 1998-1999 SCHOOLS AND STAFFING SURVEY

Dorothy M. Gilford

PART I

Inservice Professional Development in the United States

What information do we need about inservice professional development? Without attempting to be comprehensive, a number of questions immediately come to mind:

(1) How is inservice professional development (IPD) planned and coordinated?

(2) Is the school environment supportive of IPD?

(3) What is the range of programmatic approaches?

(4) What are teachers doing to strengthen their practice--what is the format, location, length, and content of their IPD programs?[1]

(5) What are the teachers' perceptions of the effectiveness of the IPD programs in which they participate?

(6) How effective are the IPD programs in improving teaching and in enhancing students' learning?

(7) How much effort are teachers expending on IPD in terms of time and their own money?

(8) How much support/encouragement are they receiving for IPD in the form of incentives, financial support, and time for IPD?

(9) How prevalent are induction programs for beginning teachers, what areas are addressed in these programs, who provides support, how effective are the programs?

(10) What is the level of public sector investment for IPD and what is it purchasing?

(11) Are there better ways to invest these resources?

(12) How are the characteristics of IPD changing over time?

(13) What can we learn from IPD in other countries (especially those whose students do well in international assessments) that might help improve IPD in the United States?

(14) What changes are needed in inservice professional development to meet the challenges of the current systemic reform movement in the United States?

Information relevant to most of these questions can be obtained from the 1998-1999 SASS. Exceptions are questions 6 and 10. Smaller, sharply focused studies would be more appropriate for studying the effectiveness of IPD programs in improving teaching and in enhancing students' learning. Nor is it feasible to estimate the level of public sector investment for IPD from a survey of schools and staff, since information would be needed from many sources other than the schools, e.g., federal, state, and district agencies. The subject of question 10, induction programs, is not addressed in this paper, but will be the subject of a later paper.

To respond to the other questions, it seems appropriate at this early stage of the development of the 1998-1999 SASS to suggest some possible items for SASS that would provide information related to the questions. The items will not be defined in great detail, since the purpose is to stimulate discussion about the value and feasibility of including the items in SASS--an approach that is consistent with the purpose of this paper which is to recommend items about IPD for possible inclusion in the 1998-1999 SASS. Throughout the paper, when an item is suggested that would provide information related to the questions, a footnote indicates the related questions.

The first part of the paper is limited to IPD in the United States, while Part II discusses the value of international comparisons of IPD generally and in particular for use of computers and advanced telecommunications equipment. The focus on IPD for computers in this paper is to provide ample time for consideration of a large potential addition to SASS on this topic in 1998-1999.

Part I starts by considering various definitions of IPD and its evolution--which is reflected in the definitions and the many types of IPD programs they encompass. Turning to the design of SASS items, it is noted that the large number of types of IPD programs calls for a framework to organize information collection and compilation. Such a framework is proposed and is used in the development of items related to the prevalence of IPD types. Since data from the 1998-1999 SASS will become available in the year 2000, the target year for measuring the effects of reform in meeting the goals of the Goals 2000 program, the national and state reform initiatives and their implications for IPD are discussed. A set of reform-oriented approaches for IPD is then presented, as are some characteristics of effective programs. Part I then considers the principles of high-quality IPD programs and uses these principles to develop a number of items related to quality. The final section of Part I addresses several data needs for the *Year 2000 National Education Goals Report*.

What Is IPD?

We first consider several different definitions of IPD followed by a brief description of the evolution of IPD, concluding with the type of IPD needed for successful reform.

Definitions of IPD

The Department of Education defines professional development as including "the

rigorous and relevant strategies and organizational supports that insure the career-long development of teachers and other educators."

It includes preservice preparation and training of teachers as well as inservice professional development. This paper is limited to inservice professional development, i.e., to activities designed to maintain or upgrade teachers' professional skills following certification or inception of teaching including the induction period.

The Education Information Network in the European Union and the EFTA/EEA Countries (EURYDICE) defines inservice training as "...a variety of activities and practices in which teachers become involved in order to broaden their knowledge, improve their skills and assess and develop their professional approach" (Perron, 1991).

A somewhat different definition of IPD was proposed by Orlich: "Programs or activities that are based on identified needs; that are collaboratively planned and designed for a specific group of individuals; that have a very specific set of learning objectives and activities; and that are designed to extend, add, or improve immediate job-oriented skills, competencies, or knowledge" (Orlich, 1989, p. 5)

A different view of staff development is provided by Odden and Marsh (1988, p. 598), who are concerned with reform of secondary schools: "The emerging mode of staff development addresses broader and more complex issues, is provided over longer time periods with considerable ongoing assistance, is linked to strategic directions of the district and the school, and is targeted to specific issues rather than across an array of disconnected areas." This mode of staff development is not only useful in reform efforts, but, as will be seen later in the paper, it is consistent with the current consensus of IPD experts about the principles of good IPD.

Bellanca (1995) distinguishes among inservice, staff development, and professional development from the systems point of view:

> Inservice is the scheduling of awareness programs, usually of short duration, to inform teachers about a new idea in the field of education.
>
> Staff development is the effort to correct teaching deficiencies by providing opportunities to learn new methods of classroom management and instruction.
>
> Professional development is a planned, comprehensive, and systemic program designed by the system to improve all school personnel's ability to design, implement, and assess productive change in each individual and in the school organization.

From the individual's point of view, Bellanca notes that "...professional development begins with the individual's election to expand his or her repertoire of knowledge or skills" in a program "that helps the individual understand and do higher quality teaching."

Evolution of IPD

The definitions of IPD reflect its evolution. As described by Bellanca, many years ago inservice opportunities were limited primarily to annual institutes at which teachers reviewed basic topics for annual relicensing. At a later date schools and districts introduced the workshops and conferences that are now so prevalent.

Staff development programs differ from these inservice events in that these new programs required 20 to 30 hours' study of the theory and description of the practice (e.g., some of the science and mathematics programs that were introduced after Sputnik). Many staff development programs in the 1980s and the early 1990s dealt with cooperative learning approaches or with thinking-skills.

In the early 1990s staff developers began to investigate ways to match professional development with school improvement; to move away from teaching methods that might improve learning and to move toward management systems that would ensure raised test scores. They recognized that the constructivists' insights apply to professional development as well as to students' learning. District leaders began to understand the power of systemic support systems that communicate the idea that learning as a lifelong process is as important for the teachers as it is for the students.

Today the schools and IPD are being shaped by three ideas: results-driven education, systems thinking, and constructivism (Sparks, 1995). According to Sparks these ideas are causing changes in IPD. Today IPD is moving towards individual development and organizational development; it is driven by a strategic plan for the school district, each school, and the departments that serve schools; it is school focused rather than district focused; focuses on student needs and learning outcomes; involves multiple forms of job-embedded learning; focuses on a combination of generic and content-specific skills; is a major responsibility performed by all administrators and teacher leaders; is concerned with continuous improvement in performance for everyone who affects student learning; and is an indispensable process for preparing students for citizenship and productive employment.

Although some districts are moving in these directions, most districts are continuing past practice. In the schools today we can find all three types of IPD defined by Bellanca (inservice, staff development, and professional development) including programs that are mixtures of the types. Therefore SASS questionnaires need to cover all of them. To avoid confusion, this paper uses the term IPD as comprising the three types. Although there is no consensus about the best type of professional development, the view of staff development described by Odden and March, Bellanca's description of professional development, and the changed IPD described by Sparks correspond to the type of IPD experts consider to be essential for successful reform.

A Framework for Classifying Types of IPD Programs

As the number of approaches to IPD proliferates, it becomes increasingly important to have a systematic way of classifying the approaches in order to collect and collate information about IPD systematically. A framework for classifying IPD types will be useful in developing survey items about teachers' staff development activities and in analyzing the resulting data. The framework should be sufficiently general to cover the IPD activities of teachers during their induction period as well as those of experienced teachers, although some of the specific types of activities within the framework categories might differ for the two groups of teachers. For example, during the induction period teachers might have a mentor, a program of visiting and observing experienced teachers, a lighter work load, or regular meetings with senior staff and other beginning teachers. Experienced teachers might take college courses to update their knowledge of their subject matter field or recent research on pedagogy.

Before proposing the framework, three different approaches will be considered: building on the categories used in the 1993-94 SASS, using the five models of staff development proposed by Sparks and Loucks-Horsley (1990); or using the six research-based models proposed by Gall and Vojtek (1994).

IPD Categories Used in the 1993-94 SASS

The SASS Teacher Questionnaire included the following two questions on types of staff development: one concerning participation in any of eight activities related to teaching and the other concerning participation in programs that focused on each of five topics and the duration (in hours) of the program:

> 30. Participation in types of inservice activities. Since the end of last school year, in which of these activities related to teaching have you participated? (1) SCHOOL DISTRICT sponsored workshops or inservice programs, (2) SCHOOL sponsored workshops or inservice programs, (3) University extension or adult education courses, (4) College courses in your subject field, (5) Professional growth activities sponsored by professional associations, (6) Committee to integrate academic skills into vocational education, (7) Other curriculum committee, (8) Committee on selecting textbooks or materials, (9) None of the above.
>
> 31. Participation in programs with a specific focus. Since the end of last school year, have you participated in any inservice or professional development programs that focused on the following topics? (a) Uses of educational technology for instruction (e.g., use of computer, satellite learning), (b) Methods of teaching your subject field, (c) In-depth study in your subject field, (d) Student assessment (e.g., methods of testing, evaluation, performance assessment), (e) Cooperative learning in the classroom. For

each yes answer there is a question "How many hours did the program last?" with three options: 8 hours or less, 9-32 hours, or more than 32 hours.

Sparks and Loucks-Horsley Models

Sparks and Loucks-Horsley (1990) proposed five models of staff development. The five models were based on their analysis of strategies that share similar assumptions about "where knowledge about teaching practice comes from" and "how teachers acquire or extend their knowledge". Loucks-Horsley and her colleagues (1987) assert that staff development programs that are effective in changing teachers' behavior have common characteristics. They combine theory and application, they provide time for reflection and practice and involve self study and cooperative learning. The five models are described by Loucks-Horsley and her colleagues (1989) and Darling-Hammond and Cobb (1995):

Training: e.g., workshops sponsored by schools or districts where an expert makes a presentation focusing on knowledge and skills teachers are lacking. This is the most common model. It includes (1) development of the theory and rationale behind the new behaviors to be learned, (2) demonstration or modeling, (3) practice in the training setting, and (4) guided practice in the field with feedback on performance (Loucks-Horsley et al., 1989).

Individually guided professional development: the teacher judges what his/her learning needs are and establishes a goal. The teacher chooses from workshops, library research visits, courses offered by the district, or may be reimbursed for college courses he/she takes, and other forms of self study to reach the goal.

Observation/assessment: these forms of IPD include clinical supervision, peer coaching and teacher evaluation with particular attention to certain behaviors and open discussion of the results.

School development/improvement processes: (This term is used by Darling-Hammond and Cobb; Loucks-Horsley describes this as curriculum and program development.) states, districts, or schools that try to improve education implementing whole-school change recognize the importance of teachers as agents of change. Teachers participate in school improvement activities, curriculum and assessment development, and shared decision-making structures. (Little [1993] commented that teachers often learn more through school development processes than through more traditional staff development activities.)

Inquiry: includes such activities as teacher study groups, teacher research, teacher collaboratives/networks, or reflective inquiry. Such activities stem from the reform efforts that view the teacher as a guide or

facilitator of students' active learning, which forces teachers to formulate questions about teaching and learning and to inquire both into students' thinking and learning and the effects of their teaching.

Loucks-Horsley and her colleagues (1989) provide a detailed description of examples of the actual implementation of each of these five types of staff development.

Gall and Vojtek Models

Gall and Vojtek base their six models on the objectives of professional development described by Sparks and Loucks-Horsley. These models are described in terms of the different roles for staff developers, and in ascending order of their complexity:

Expert-presenter: teachers assemble to listen to an expert talk about a topic at professional conferences, school district assemblies, university courses, and how-to workshops. Although this is the most prevalent model, it is not powerful in itself; it needs to be used in conjunction with other models. Objectives: development of teachers' knowledge and understanding

Clinical-supervision: the change-process supervisor, mentor, or coach identifies a teacher's concerns and goals, collects classroom observation data, and reviews data with the teacher. Objectives: development of teachers' instructional skills and strategies; development of teachers' ability to reflect and make sound decisions

Skill-training: trainer presents theory underlying the skills, explains, and models the skills. Teacher practices skills and receives feedback, is coached to promote transfer of training to own classroom. (Consistent with the constructivist movement in education that assumes that individuals learn best when they are given responsibility for developing their own knowledge and understanding.) Objectives: development of teachers' (1) instructional skills and strategies; (2) ability to improve students' academic achievement; (3) ability to develop and implement curriculum; (4) ability to reflect and make sound decisions

Action-research: teachers do research in their own work setting to answer their questions or test a new idea. Objectives: changing teachers' attitudes; development of teachers' ability to engage in school restructuring

Organization-development: a coherent, systematically planned, sustained effort at system self-study and improvement focusing explicitly on change in formal and informal procedures, processes, norms, or structures, and using concepts of behavioral science. The goals of organizational development are to improve organizational functioning and performance. Therefore it focuses

on groups of teachers and other school staff. An organization-development specialist helps teachers and other staff diagnose strengths and weaknesses of their school or system, develop a plan of action, implement the plan, and evaluate its success. Objectives: changing teachers' attitudes; development of teachers' ability to develop and implement curriculum

Change-process: the goal is a systemic innovation requiring change at the school or district level. Staff developers help teachers make a decision to adopt a systemwide innovation, put the innovation into action, and institutionalize it. Initiation requires staff development to get teachers to buy into change; staff development required for implementation includes "concrete, teacher specific training activities, ongoing continuous assistance and support during the process of implementation, and regular meetings with peers and others." Institutionalization, the decision to continue using the systemic innovation indefinitely, requires staff development to ensure that the innovation continues to be used as intended--helpful to have teachers and other educators who are highly skilled in the innovation and who can provide training and support to new staff. According to Fullan (1991), this is by far the most complex and lengthy of the models, requiring three-to-five years for moderately complex changes and five-to-ten for major changes.

Objective: development of teachers' ability to engage in school restructuring

Proposed Framework

The types of inservice activities in the SASS questions are much more specific than the categories of types in the two sets of models and can easily be fitted into either typology. Since it is desirable to use general categories in a framework, only the Loucks-Horsley and Gall-Vojtek models were considered in the proposed framework, which consists of seven models. The models and the source of each model follow:

Expert-presenter: (Gall and Vojtek) This model was and may still be the most common form of IPD. It has been severely criticized by IPD experts as relatively useless for reform. Nonetheless it will be important to ascertain the extent to which it persists in 1998-1999. This model was not proposed by Loucks-Horsley.

Skill-training: (both typologies)

Observation/assessment: (both typologies)

Individually guided professional development: (Sparks and Loucks-Horsley). Gall and Vojtek did not include this model since they described their models in terms of the roles for staff developers.

Inquiry: (Sparks and Loucks-Horsley) This model includes action-research, which was a

separate model in the Gall and Vojtek typology, and encompasses many more types of activities, e.g., teacher collaboratives/networks,[2] and reflective inquiry.

Organization-development: (Gall and Vojtek) This model and the following "change-process" model are combined by Sparks and Loucks-Horsley. They are clearly separable, "organization-development" corresponding to efforts to improve the performance of teachers within an existing system, and "change-process" to changing the performance of teachers in a systemic innovation at the school or district level.

Change-process: (Gall and Vojtek) Because of the current emphasis on systemic reform, it is desirable to be able to measure the prevalence of "change-process" professional development.

Application of the Framework to Develop SASS Items on Prevalence of IPD

Before suggesting specific items, the recent work of others related to SASS items should be recognized. Mullens (1995) reviewed measurement approaches for classroom instructional processes. In 1996, Mullens and his colleagues undertook a comprehensive look at the theoretical linkages and current measurement of student learning, teaching quality, and professional development. They have released a preliminary draft of their work (Mullens et al., 1996) for comment. This draft describes the research base for linking student learning, teaching quality, and professional development; discusses professional development indicators; proposes a typology for the indicators; and reviews some 25 surveys for questions that correspond to the indicators. When agreement on the typology has been reached, they plan several additions to the draft: a display of the questions from the 25 surveys; identification of the elements of professional development that are important, measurable, and representative; and a prioritization of these elements.

Although the framework of models proposed in this paper can easily be fitted into Mullens' typology, it has not been done because of the typology's tentative state. Instead, suggestions are made for SASS to use the proposed framework of models to collect data on participation in professional development by type and related items about the types. Two items are suggested to replace items in the 1993-94 SASS.

Prevalence of IPD by Type, Time Teachers Spend in Each Type, and Total Dollars Teachers Spend on IPD

Question 30 in the 1993-1994 SASS can be expanded to provide time teachers spend on each type of IPD.

Item 1:[3] Prevalence of IPD by Type, Time Teachers Spend in Each Type, and Total Dollars Teachers Spend on IPD. The stem might be worded "Since the end of the last school year, how many hours have you spent in each of the following types of staff development? The item should list the various types of

professional development activities under each of the seven major models. By providing columns corresponding to time intervals in SASS question 31 and including a column for zero time, data on prevalence of participation in types of IPD as well as the time spent in the programs can be obtained. At the end of the item, add the question "How much of your own money have you spent on IPD during this school year?" (This last question was added as a reaction to Mandel's (1995) statement that "...the extent to which teachers meet their employers halfway is no less important" than the way schools invest their resources for IPD.)

Question 30 in the 1993-1994 SASS provides a list of eight types of professional development programs. These should be included as subcategories of the framework in the question for the next SASS to provide trend data.

The list should include other types that have been prevalent in the past (e.g., committees dealing with subjects other than curriculum, workshops sponsored by the school system during the summer, skill-training workshops, conference attendance, made a presentation at a conference or other professional meeting, participation in special projects, scheduled consultation with colleagues, and independent reading). The reform-oriented approaches discussed in a subsequent section should also be included. Mullens' ongoing review of IPD items in over 25 educational surveys may also produce additional types. The ultimate list will be long, but the question should not be too burdensome to teachers.

Another proposal made by Mandel (1995) is related to Item 1. He proposed that NCES undertake a set of case studies on a regular basis that would provide portraits of the range of programmatic approaches being undertaken in continuing education (also in preservice education.) He notes the messiness of measuring post-licensing education since it takes place in teacher centers, colleges and universities, school districts, seminars run by disciplinary and specialty groups, and in other informal settings such as seminars. Nonetheless he considers this an arena that is crucial to the health of the profession, one that deserves much more attention than it has received.

Although such case studies could not easily be a part of the SASS surveys, they could well be part of the development work that would help define SASS questions about the range and character of IPD.

Program Content and Length, and Teachers' Perceptions of Program Impact

It is possible to build on Question 31 in the 1993-1994 SASS to obtain information on the content of IPD programs. The SASS question obtained information on the duration of programs focused on five topics. Three of them were topics related to current types of methodological instruction important in reform: uses of educational technology for instruction, student assessment, and cooperative learning in the classroom. The other two were types of knowledge identified by Shulman (1986) as necessary for expert teaching--content knowledge and pedagogical content knowledge. (Shulman also named pedagogical knowledge as a third type of essential knowledge.). An

important topic missing from this set is "classroom management skills," described by Mullens et al. (1996) as explaining rules, monitoring behavior, using accountability systems to keep track of students' work, communicating expectations clearly, and maximizing the amount of class time available for academic work. It would also be useful for the *Year 2000 National Education Goals Report* to add the topic "teaching limited English proficient (LEP) students" to the set covered in this question. A fuller discussion of this topic is included in a later section on the goals report. It would also be useful to add topics for teaching other types of special student populations such as multicultural classes or classes that integrate special education students.

It is possible to combine Question 32 with Question 31 and obtain teachers' opinions about IPD programs in each of the seven topics proposed for Question 31. The yes/no participation question in Question 31 can be eliminated by adding a "0 hours" category on the right side of the question. This leaves space on the left for the stub of Question 32 and for three columns: agree, no opinion, and disagree. Although this sacrifices the more detailed scale in Question 32, it has the advantage of removing the ambiguity in Question 32 that was created by not being able to differentiate among IPD programs.

Item 2:[4] Program content and length, and teachers' perceptions of program impact. Modify Question 31 by adding "classroom management skills" and "teaching limited English proficient (LEP) students" to the five types of program content, deleting the yes/no participation question, and adding portions of Question 32 on impact of the programs as described above.

Teachers are not alone in judging the quality of IPD programs. A number of experts and several organizations have provided sets of principles of effective IPD programs.

Education Reform and Teacher Inservice Professional Development

National Reform Initiatives

Education reform has been pervasive in the United States since 1983 when the first wave of reform was generated by the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983). Since preservice and inservice professional development are important elements of education reform, it is important to measure the characteristics and prevalence of professional development as fully as possible to understand the extent of these elements of reform. Several reform activities are discussed to illustrate the pervasiveness of education reform in the United States.

In 1986, a second wave of reform followed the 1983 wave. This second wave was stimulated by reports from a number of organizations including the California Commission on the Teaching Profession, the National Governor's Association, the Education Commission of the States, the Carnegie Forum on Education and the Economy, and the Holmes Group. These reports emphasized the need to professionalize teaching in order to improve education and stem what was described as "a rising tide of

mediocrity." Renewal of a competent teaching force, as well as recruitment, preparation, and licensure were now recognized as central to educational reform efforts (Green, 1987; Darling-Hammond & Cobb, 1995).

These reports stimulated a number of initiatives to establish and enforce professional standards for teachers: professional organizations such as the National Science Teachers Association established standards for certifying members, the National Board for Professional Teaching Standards was established in 1987 to provide advanced professional certification of teachers, the 20 member states of the Interstate New Teachers Assessment and Support Consortium (INTASC) developed model licensing standards and assessments for beginning teachers, and the National Council for the Accreditation of Teacher Education is reexamining its standards to make them consistent with those of INTASC and the National Board (Darling-Hammond & Cobb, 1995).

In 1990, President Bush and the nation's Governors established the National Education Goals and set a target date of the year 2000 for achieving them. This constituted a commitment to a nationwide effort to reform education around the aspirations of the goals (National Education Goals Panel, 1995a). With the advent of the Goals 2000: Educate America Act and the Improving America's Schools Act of 1994, federal funds became available for improving teaching. Several provisions of the legislation support IPD activities. Under the Goals 2000 legislation, funds for professional development are made available to states, and states in turn can award subgrants to local areas. Under the Improving America Schools Act, the Eisenhower Professional Development program will support sustained long-term IPD efforts related to academic standards. In addition, provisions in ESEA for disadvantaged children and bilingual education include funds for professional development.

Although teacher development was not included in the Governors' six original goals, it was added in the Goals 2000 Act in 1994, which renumbered the goals making the goal for teacher education and professional development Goal 4. The goal states:

> *By the year 2000, the Nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.*

In 1994, Secretary Richard W. Riley established the U.S. Department of Education's Professional Development Team to examine research and exemplary practices related to professional development, to guide the Department's programs and to inform policymakers and practitioners across the country. This team agreed that "the mission of professional development is to prepare and support educators to help all students achieve to high standards of learning and development" (USED, no date).

To provide assistance in implementing the legislated activities, the U.S. Department of Education plans to publish a series of idea books to share effective practices with educators in carrying out reform efforts. The first of the series, *Implementing Schoolwide Projects: An Idea Book for Educators* was published in 1994. It includes a section on professional development that provides a number of suggestions for IPD as well as descriptions of programs in specific schools.

Other federal government agencies also initiated major programs to reform education. For example, in 1991 the National Science Foundation initiated a Statewide Systemic Initiatives Program (SSI) to reform science, mathematics, and technology education. During the first three years of the program, the Foundation signed cooperative agreements with 26 states to undertake comprehensive reform initiatives in these fields, typically over a period of five years. The SSI is complemented by analogous programs for Urban and Rural Systemic Initiatives.

The SSI programs make heavy demands on teachers. "Teachers not only need to understand the requirements of the new systems, but in many instances, they are expected to change their practice, enhance their subject-matter knowledge, develop new curricula, and serve as overseer and assessors in the new process.... They need opportunities to acquire the necessary knowledge and skills, to practice new strategies, and to interact with other teachers about what works and how to solve common problems. In short, a radically restructured and refocused system of professional development is needed. The system must be intensive, continuous, and connected to classroom practice" (CPRE, 1995a, p. 10). Professional development is one of the two strategies most frequently used by the states for changing practice based on the logic that changing practice requires changing the skills, knowledge, and beliefs of classroom teachers (CPRE, 1995b, p. 4). (The other strategy is funding local initiatives and model schools.)

As part of an ongoing effort of the NSF to increase the impact of its Teacher Enhancement Program, the Division of Elementary, Secondary, and Informal Education started a project known as the Local Systemic Change Through Teacher Enhancement Project (LSC). This project was started because NSF staff recognized the need for continuous staff development in the schools and the importance of working with whole schools instead of focusing on individuals if reform is to happen. The LSC project consists of a set of district-based projects designed to reform science, mathematics, and technology education through intensive upgrading of their K-8 teacher work force. In addition to implementing quality curriculum materials, the projects must provide at least 100 hours of professional development in content and pedagogy to all participating teachers. This program, which began in 1994, has funded 24 projects (involving 90 districts of varying sizes) for up to five years.

State Reform Initiatives

States have also initiated (and continue to initiate) reforms of teacher education in connection with their school restructuring efforts. In 1988 The Southern Regional Education Board (SREB) surveyed deans

of education and deans of arts and sciences to determine the changes in the education of teachers since 1981. The resulting report identified education of teachers as a priority in education reform (SREB, 1988).

The Education Commission of the States (ECS) was also concerned with linking teacher education to school reform. State leaders expressed dissatisfaction with current recertification requirements, noting that they were heavy on costly inservice activities with little to show for the expenditures (Frazier, 1993). In the 1990s, they expect an increase in challenges to the accumulation of random course credits that have little significance to the teacher or the district. State leaders stressed that in outcomes-based systems, teacher IPD, whenever possible, should (1) be related to making a teacher more effective in helping students meet local and state goals and (2) should be designed to benefit the school and school district in reaching organizational goals. ECS recognized the need for continuing education and recertification of teachers by recommending that states "...should require recertification programs related to individual teacher needs and advancement of school and district needs and objectives" (Frazier, 1993). The Commission also noted the potential of the new professional development schools to provide an opportunity for higher-quality IPD activities than are currently available in most districts

As of July 1995, 49 states and the District of Columbia were engaged in standards-based education reform (American Federation of Teachers, 1995). However, experts are critical of the effectiveness of current professional development. For example Little (1993b) states that "... states and districts have been relatively slow to reshape professional development in ways that respond to the complexities and ambiguities of reform." One of the conclusions of CPRE's 1990 *Reform Up Close* study of high school mathematics and science in six states was that there was "...little by way of staff development that appeared up to the challenges ahead. Most staff development we found was fragmented and piecemeal, identified and delivered by persons distant from the classroom, and with little, if any, explicit connection to strengthening academic instruction" (Porter et al., 1994). Further, in discussing the reform of professional development Sykes (1996) notes that two judgments form the contemporary concern for the professional development of teachers. The first is that teacher learning must be the heart of any effort to improve education and the second that conventional professional development is sorely inadequate. He considers that these two judgments represent the most serious unsolved problems for American education today. He notes the ineffectiveness of the "one-shot workshop" in changing what goes on in schools and classrooms and asserts that the resources for IPD "...are too meager and their deployment too ineffective to matter." Although isolated efforts are under way to promote teacher learning that will lead to improved practice, wide-scale efforts have yet to emerge. With the many reform initiatives under way and the extensive professional development that will take place between the 1993-94 SASS and the 1998-1999 SASS, it is extremely important that NCES measure change in this activity and its extent and effects as fully as possible.

Implications of Reform for IPD

Little (1993a) has noted that most current reform initiatives fit into one or more of five streams of reform, all of which present challenges to teachers:

- Reforms in subject-matter teaching (standards, curriculum, and pedagogy),
- Reforms centered on problems of equity and the increasing diversity of the student population,
- Reforms in the nature, extent, and uses of student assessment,
- Reforms in the social organization of schooling, and
- Reforms in the professionalization of teaching.

These reforms call for major improvements in students' outcomes including critical thinking (which may not be part of the teachers' current practice); identifying and altering classroom practices that contribute to student failure; authentic assessment, although teachers may not have the skills to design and implement such assessment; and school restructuring that may be based on principles rather than practices, without models to translate the principles into instructional strategies. Most of the existing resources for professional development that are limited to skills training are not ready to meet the demands of these reforms that call for expanding teachers' opportunities to learn, experiment, consult, and evaluate. This does not imply that there is no longer a role in professional development for the thoroughly tested models of skill training with opportunities for classroom practice and classroom coaching and/or consultation. Skill development models can be very effective for training related to specific transferable skills and new ideas.

Today most IPD is carried out by school districts. It consists of formal education activities such as workshops, inservice programs lasting a day or a half day at which experts lecture and that may include each teacher's choice of workshops led by trainers. The programs may provide material or suggestions that are useful to the teachers, but there is seldom follow-up to evaluate the effectiveness and utility of the programs. Typically they have little effect on practice because they lack focus, intensity, follow-up, continuity, and linkage with the district's goals for student performance. (Corcoran, 1995). Another common form of IPD is highly theoretical university coursework; half of all teachers reported earning college credits during the period 1988-91 (NEA, 1992). But these are not the types of IPD that will meet the demands of reform. In discussing the condition of teaching in America today, Darling-Hammond (1995) notes that although attempts are presently under way across the country to make a strategic investment in the professional development of teachers, they are embryonic and scattered rather than systematic. She recognizes, however, that "... the possibilities for rethinking how schools structure the use of teacher time, the opportunities for team teaching and collaboration, the development of teacher and school networks, and the responsibilities of teachers are probably greater now than they have ever been." These opportunities constitute some of the

characteristics of good professional development. The next section considers this topic more extensively.

Reform-Oriented Approaches for Professional Development

Corcoran (1995, pp. 5-6) describes seven relatively new approaches to professional development that may be effective in reform and comments (paraphrased) on their desirable characteristics:

> Joint work--shared responsibility for tasks such as team teaching, curriculum committees, or other jobs that create independence among teachers and require cooperation. (Provides opportunities for exchange among teachers and reflection about practice.)
>
> Job enrichment--expansion of teachers' work in ways that require new skills, such as the scoring of portfolios in Vermont or serving as mentors to beginning teachers. (Provides opportunities for teachers to discuss their practice and share ideas.)
>
> Teacher networks--focus on specific subject-matter and seek to deepen teachers' understanding of content and their facility with new teaching strategies. (Offer access to a "professional community" and discourse about improving practice.)
>
> Collaborations between schools and colleges--often required to fill need for professional development of sufficient intensity. (Helps teachers meet the requirements of reforms for deeper knowledge of subject matter.)
>
> Professional development (or practice schools)--although primarily used in preservice development, they could bring novice and experienced teachers together with university clinical faculty to improve their practice through observation, low-risk experimentation, reflection, and coaching.
>
> National board certification--the process of applying for certification is thought to be excellent professional development since it requires teachers to document their practice, reflect on their strengths and weaknesses, and demonstrate specific knowledge and skill.
>
> Teachers as researchers--research in classrooms and schools in cooperation with their colleagues and university faculty. Frequently directed at problems identified by teachers, or may be defined by academic interests. (Benefits: stimulate discussions, help organizations define problems, and lead to changes in practice and policy.)

These approaches are consistent with the principles of high-quality professional programs that are discussed in a later section. They also share some common characteristics:

- They respect the expertise of accomplished teachers
- They are integrated with teachers' work
- They are based on current research on teaching and learning
- They recognize teachers as a valuable source of information regarding effective professional development and include them in its design and implementation

Little (1993a, pp. 4-5) also addresses alternatives to traditional approaches. These alternatives are ones "...that engage teachers in the pursuit of learning in ways that leave a mark on their perspectives and their practice." She describes four alternative models, the first two being ones that were also listed by Corcoran:

> Teacher collaboratives and other networks--subject-specific teacher collaboratives share the view that teachers' professional development encompasses (1) teachers' knowledge of academic content, instruction, and student learning; (2) teachers' access to a broader network of professional relationships; and (3) teacher leadership in the reform of systemwide structures. Collaboratives underscore teachers' involvement in the construction of subject matter knowledge. Thus they prepare teachers to make informed responses to reforms in subject matter teaching and student assessment.

School-University collaborations targeted at school reform--on the whole, these partnerships have formed between individual activists in universities and schools or districts, or between individual consultants and schools, or between departments of education and local schools. They have not routinely incorporated faculty from subject matter departments. They hold promise as vehicles for more effective professional development, e.g., insider/outsider attached to the school to provide support, expand access to resources and to critique school progress, e.g.,The Coalition of Essential Schools. Other partnerships such as the Chicago Project on Learning and Teaching have the goal of promoting breakthroughs in conceptual understanding for the teachers and to immerse them in math experiences.

Subject matter associations--clearly they are exerting increasingly powerful influences in the design of subject curriculum and assessment standards. They are positioned to exert strong influence on teachers' dispositions toward reform proposals. Their effect may be multiplied if the association's most active members also occupy leadership roles within their school, district, or union.

Special institutes and centers--teachers say they provide a good professional development experience. They offer great depth and focus, enough time to grapple

> with ideas and materials, the sense of doing real work rather than being talked at, and an opportunity to consult with colleagues and experts. (They also cost more per participant, and are less accessible than more modest local programs.) Teachers enjoy the opportunity for sustained work with ideas, materials, and colleagues.

The approaches described above can be effective only if the structures exist to make them available to teachers and to provide them support for classroom implementation of what they have learned. The three common characteristics of good staff development structures are identified by Loucks-Horsley et al. (1989, pp. 45-48):

> Support for the practice and refinement of new behaviors in the classroom
>
> Opportunities for teachers to talk and work together to reinforce, problem solve, and encourage change
>
> A clear message that the new behaviors are important and teachers are expected to use them

They describe several types of effective staff development structures for elementary science: institutes similar to NSF-sponsored institutes of the past, teachers centers, and networks and partnerships, all of which were mentioned by either Corcoran or Little.

Principles of High-Quality Professional Development Programs

> How often do you hear statements to the effect that the continuous professional development of teachers is the key to school improvement? ...the *general* endorsement of inservice education means nothing without an accompanying understanding of *the characteristics of effective as compared with ineffective inservice education efforts*. Nothing ... has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice when the teachers returned to their classrooms (Fullan, 1991).

Although successful school reform requires many ingredients, the one essential ingredient is the classroom teacher. The Goal 4 Resource Group of the National Education Goals Panel is well aware that only recently have we fully appreciated the ways of teaching complex subject matter to diverse students and consequently many of our current teachers are under- or unprepared. They provide a compact definition of high-quality IPD: "Professional development should be continuous, sustainable, site-based, context driven, focused on student learning and designed to promote school-wide innovation and change" (NEGP, 1995c).

Corcoran (1995) states that the reform movement will require a shift from a behaviorist approach to teaching "...approaches which actively engage students in the construction of knowledge." A number of experts and organizations have discussed principles and policies for professional development programs that are consistent with the current reform efforts. Corcoran (1995) summarizes their work and provides a list that is based on the work of G. Griffin (1982), B. Joyce and B. Showers (1982), S. Loucks-Horsley, C. Harding, M. Arbuckle, L. Murray, C. Dubea, and M. Williams (1987), N. L. Zimpher and K. R. Howey (1992), J. W. Little (1993), H. Price (1993), National Staff Development Council (1994), and H. Hodges (1994). Their suggestions include programs that incorporate the following principles or policies:

> ***Stimulate and support site-based initiatives***. Professional development is likely to have greater impact on practice if it is closely linked to school initiatives to improve practice.
>
> ***Support teacher initiatives as well as school or district initiatives***. These initiatives could promote the professionalization of teaching and may be cost-effective ways to engage more teachers in serious professional development activities.
>
> ***Are grounded in knowledge about teaching***. Good professional development should encompass expectations educators hold for students, child-development theory, curriculum content and design, instructional and assessment strategies for instilling higher-order competencies, school culture and shared decision making.
>
> ***Model constructivist teaching***. Teachers need opportunities to explore, question, and debate in order to integrate new ideas into their repertoires and their classroom practice.
>
> ***Offer intellectual, social, and emotional engagement with ideas, materials and colleagues***. If teachers are to teach for deep understanding, they must be intellectually engaged in their disciplines and work regularly with others in their field.
>
> ***Demonstrate respect for teachers as professionals and as adult learners***. Professional development should draw on the expertise of teachers and take differing degrees of teacher experience into account.
>
> ***Provide for sufficient time and follow-up support*** for teachers to master new content and strategies and to integrate them into their practice.
>
> ***Are accessible and inclusive***. Professional development should be viewed as an integral part of teachers' work rather than as a privilege granted to "favorites" by administrators.

Little (1993a) also discusses principles and adds three:

- Should take explicit account of the contexts of teaching and the experience of teachers
- Should offer support for informed dissent
- Should place classroom practice in the larger contexts of school practice and the educational careers of children

The U.S. Department of Education's Professional Development Team also developed a set of principles (1995). Their principles reflect related research and exemplary practices and the review and comments on the principles by a large number of people and organizations. The team provided ten principles:

- Focuses on teachers as central to student learning, yet includes all other members of the school community
- Focuses on individual, collegial, and organizational improvement
- Respects and nurtures the intellectual and leadership capacity of teachers, principals, and others in the school community
- Reflects best available research and practice in teaching, learning, and leadership
- Enables teacher to develop further expertise in subject content, teaching strategies, uses of technologies, and other essential elements in teaching to high standards
- Promotes continuous inquiry and improvement embedded in the daily life of schools
- Is planned collaboratively by those who will participate in and facilitate that development
- Requires substantial time and other resources
- Is driven by a coherent long-term plan
- Is evaluated ultimately on the basis of its impact on teacher effectiveness and student learning; and this assessment guides subsequent professional development efforts

Although the Department's list repeats some of those suggested by Corcoran and Little, there are no inconsistencies among the principles.

More recently, Howley and Valli (1996) proposed another set of principles for effective professional development, which they named "the consensus model of professional development. The model is based on the implications of recent research on learning for professional development. They first summarize the convergence of research on learning reported in several recent syntheses of such research. Five "learner-centered principles" of learning have been identified:

- One's existing knowledge serves as a foundation of all future learning

- The ability to reflect upon and regulate one's thoughts and behaviors is essential to learning and development
- Motivational or affective factors along with the motivational characteristics of the learning tasks play a significant role in the learning process
- Learning processes through various common stages of development influenced by both inherited and experiential/environmental factors
- Learning is as much a socially shared undertaking, as it is an individually constructed enterprise

This research on learning has stimulated a number of new studies of professional development that reach remarkably consistent conclusions "...with respect to the characteristics of professional development that are most likely to lead to improvements in actions of educators that contribute to student learning." Based on these studies, Hawley and Valli propose their new consensus model of professional development with eight design principles:

- Driven, fundamentally, by analyses of the differences between (a) goals and standards for student learning and (b) student performance
- Involves learners (e.g., teachers) in the identification of their learning needs and, when possible, in the development of the learning opportunity and/or the process to be used
- Is primarily school-based and integral to school operations
- Provides learning opportunities that relate to individual needs but are, for the most part, organized around collaborative problem solving
- Is continuous and ongoing, involving follow-up and support for further learning--including support from sources external to the school
- Incorporates evaluation of multiple sources of information on (a) outcomes for students and (b) processes that are involved in implementing the lessons learned through professional development
- Provides opportunities to engage in developing a theoretical understanding of the knowledge and skills to be learned
- Is integrated with a comprehensive change process that deals with the full range of impediments to and facilitators of student learning

Hawley and Valli's list is further evidence of the consensus among researchers--all but one (the fourth) of their principles are included in the lists considered earlier. Hawley and Valli not only provide illustrative references that support each of the principles in their model, but they document the research base for this list by tabulating the relationships between the five learning principles and the design principles of the consensus model of professional development.

Use of the Principles to Develop SASS Items Related to IPD Quality

The list of principles is heterogeneous--it contains aspects of the planning and coordination of IPD; ways in which schools organize to facilitate and stimulate teacher learning; the growth opportunities being provided for teachers; school support for professional development; and school environment. Each of these topics should be explored in SASS to study the extent to which current IPD programs are consistent with the principles of high-quality professional development programs.

Information about school-based IPD programs could be obtained by adding questions to the Principal Questionnaire and Teacher Questionnaire. Teachers could also provide information about the off-site IPD in which they participate.

Planning and Coordination of Professional Development

Two items are suggested related to planning and coordination of professional development. The first pertains to elements of effective planning and coordination of IPD. The second to reasons why teachers choose not to participate in IPD. Although the second item addresses neither planning nor coordination, it provides information needed by policymakers to take appropriate corrective actions, actions that may include improvement of their planning and coordination of IPD.

Elements of planning and coordination of IPD. An item on effective elements of planning and coordination of IPD should be added to the Principal Questionnaire. The following suggestions for the item are drawn from Corcoran's framework for reviewing IPD policies and practices (Corcoran, 1995), from expressed needs of the Goal 4 Resource Group of the National Education Goals Panel (1995), and from the principles published by the U.S. Department of Education's Professional Development Team. (Questions have been added that are not in the above list of principles and some that are included in the list have been reworded.)

Item 3:[5] Planning and Coordination of IPD. Provide columns for answering yes or no to each question.

- Is there a state plan for IPD and are there state priorities?
- Does the state or district require that schools develop plans?
- Are IPD activities tied to school improvement?
- Is there coordination among providers of IPD?
- Are teachers required to develop professional improvement plans?
- Are teachers involved in the development of the learning opportunity and/or the process to be used?
- Are teacher salary increments dependent on the job relatedness of IPD activities?
- Are state initiatives to set standards and develop curriculum frameworks and new assessments supported by appropriate professional development?
- Is your school or school district engaged in partnerships that will promote community stakeholders'

support of programs for professional development of educators?

Reasons for nonparticipation IPD programs. Little (1993b) discusses the wide variation in profiles of participation in IPD by teachers with comparable experience and teaching assignments. She notes that these differences persist even in schools formally committed to reform initiatives. She illustrates this point with data from the Illinois Writing Project in which less than half the teachers in urban schools attended the after-school workshops. Understanding why teachers choose not to participate in IPD programs is important to policymakers so they can take appropriate action to increase participation. Such information could be obtained by adding an item to the Teacher Questionnaire for teachers who have not participated in IPD during the prior year. The options in this item are paraphrased from Little's specific illustration.

Item 4:[6] Reasons for Nonparticipation in IPD Programs. Select up to three reasons why you chose not to participate in IPD programs during this school year. Enter "1" for the most important reason, if you select two or three reasons enter "2" for the next most important, if you select three reasons, enter "3" for the least important reason.

Priority

_____ Unimpressed with the quality of the program
_____ Already expert in the practices of the program
_____ Pressed by the demands of too many projects
_____ Teaching load too burdensome
_____ Committed to other activities that required my time, thought, and energy
_____ Not persuaded that participation would make a difference to my students
_____ Discouraged by failures of administrative leadership
_____ Truly discouraged about teaching

School Organization for Teacher Learning and Other Growth Opportunities Provided for Teachers

An item on the ways schools organize for teacher learning by integrating teacher development into the daily activities of teaching and other growth opportunities provided for teachers should be added to the Principal Questionnaire. The questions are derived from Corcoran's framework for reviewing professional development policies and practices and the Goal 4 Resource Group. They also stem from two of the six aspects of school organization identified by Little (1996) as related to teachers' learning and professional development: (1) extent of collective focus on students and shared responsibility for student learning, and (2) teacher assignment policies and practices that satisfy criteria of fit, stretch, and community. (The questions include some not in the above list of principles and some that are reworded.)

Item 5:[7] School Organization for Teacher Learning and Other Growth Opportunities Provided for Teachers. (Provide columns for answering yes or no to each question.)

- Are growth opportunities built into teachers' workdays?

- Do teachers have regular opportunities to work together?
- Do teachers have a high level of collective responsibility for student learning?
- Do teachers engage in systematic, sustained, collective study of student work--coupled with a collective effort to figure out the roots of student work in the practice and choices of teaching?
- Does school policy support the individual and collaborative investigation of selected problems and questions that arise in teaching?
- Is it school policy to develop the organizational habit of shared student assessment?
- Are teacher assignments based on making the best use of an individual teacher's existing knowledge, experience, and interest?
- Are teacher assignments based on stretching teachers' understanding and skill as well as using their existing expertise?
- Are teaching assignments designed to configure a staff in ways that provide a basis for professional exchange, mutual support, or shared inquiry?
- Are teachers performing professional or administrative tasks requiring significant skills?
- Is support provided for beginning teachers?
- Does your school district support teachers who are seeking National Board Certification?
- How much time is set aside for professional development during the school year? (Provide three time options.)
- Do all teachers have full and equal access to high-quality IPD activities?
- Do these opportunities vary across grade levels?
- Do the state colleges and universities provide appropriate courses accessible to all teachers?
- Does your school have sustained partnerships with other organizations (e.g., professional development schools or professional associations) that provide a home for professional development options?

Support for IPD

In addition to embedding teacher learning in the daily work of teaching and providing other opportunities for IPD, schools and districts can provide several types of support for IPD. They can provide incentives, time, and support for teachers to participate in IPD programs.

Incentives to participate in IPD.
Policymakers need to balance individual and organizational interests in IPD, and to provide incentives so they are aligned. The arrangements for IPD should support schoolwide improvement and at the same time stimulate the teacher's professional growth and engagement in teaching, and support career advancement (Corcoran, (1995, p. 6). An item should be added to the Principal Questionnaire on incentives. Again, the options in the question come from Corcoran and Little.

Item 6:[8] Incentives to Participate in IPD. What incentives are provided for teachers to participate in professional development and to improve their practice? (Provide

columns to answer yes or no to each question.)

- Is professional development linked to personnel evaluation and recertification?
- Do districts reimburse college tuition for graduate study?
- Are salary increments linked to professional development?
- Does professional growth bring increased responsibility, status, or recognition?
- Are school resources available for teachers to participate in professional community and personal endeavors beyond the school?

It would also be useful to ask the question,

- How do the incentives affect teachers in different grade levels, or career stages?

but this would require a separate item with a different structure.

Providing time for professional development. In the Foreword to the publication *Breaking the Tyranny of Time: Voices from the Goals 2000 Teacher Forum* (USED, 1994) the Secretary of Education, Richard W. Riley, describes the critical element of time as one of the greatest issues in education reform. The teachers who participated in the forum, 119 in number, identified time as the most critical resource for the success of school reform. It is no surprise that one of the eight recommendations of the conference was *"We recommend that teachers be provided with the professional time and opportunities they need to do their jobs."*

Corcoran (1995) discusses one of the steps policymakers should be taking to improve professional development for teachers--increasing the time available for teacher interaction and professional development. He summarizes five approaches described by Watts and Castle (1993) that have been used to increase the time available for IPD:

Using substitutes or releasing students. Some schools are effectively using one morning or afternoon a week for teacher development and other improvement activities. However, this approach provides only small blocks of time and is often resented by parents.

Purchasing teacher time by using permanent substitutes, retirees, or giving compensation for weekends or summer work. This is expensive, sporadic, and some teachers will not participate on weekends or during the summer.

Scheduling time by providing common planning time for teachers working with the same children or teaching the same grade on a regular basis. This is often done in schools using instructional teams, but it could be done in many more schools if assistance was provided with block scheduling.

Restructuring time by permanently altering teaching responsibilities, the teaching schedule, school day, or school calendar. This has serious implications for busing, union contracts, facilities

maintenance, state regulations, and budgets. It also means changing public expectations--a reason few schools or districts have taken this approach.

Making better use of available time and staff. Decrease the hours teachers spend in the classroom to provide them with more time for professional work. Although costly, the costs could be minimized by:

> Occasionally substituting appropriate television programming for regular instruction;
>
> Using adult volunteers or older students to provide extracurricular activities for children;
>
> Using occasional large classes for special topics, for exposure to the arts, or presentations of outside "experts";
>
> Using independent study to let students pursue projects on their own: and/or
>
> Involving more students in community service activities.

An item should be added to the Principal Questionnaire asking what actions have been taken to provide teachers with more time for professional development based on the approaches described above.

Item 7:[9] Providing Time for Professional Development. Which of the following actions (a list developed from the five approaches described above) have been taken in your school to increase time available to teachers for IPD. (Columns should be provided for answering yes or no to each action.)

Support for IPD in main teaching assignment field. In Question 33 of the 1993-94 SASS, the first two questions pertain to providing time for IPD and the other questions refer to monetary support or support for professional growth credits. Although this question appears to overlap the proposed Item 7, this question is limited to IPD related to the teacher's main teaching assignment field and is addressed to teachers rather than to the principal, which makes it possible to look at equity among groups of teachers in the allocation of these types of support. Therefore this question should be repeated, but with the addition of an item for "leaves or sabbaticals."

Item 8:[10] Support for IPD in Main Teaching Assignment Field. Repeat Question 33 of the 1993-94 SASS, but starting with the addition of an item for "sabbaticals and leaves" and a change in the wording of the current first item to read "other released time from teaching."

School Environment

Although high-quality professional development programs that influence the knowledge and abilities of teachers are important, teachers also need to work in an environment that is supportive of good teaching. Research on educational quality, teacher professionalism, policy

implementation, effective schools, and educational change suggests that several characteristics of the school environment are related to effective education (Loucks-Horsley et al., 1989):

- Clear purposes and outcomes
- Adequate, appropriate resources, including time, staff, and materials
- A robust conception of staff development
- Norms of experimentation, risk taking, collegiality and collaboration
- Involvement in decision making
- Leadership and support

The importance of these characteristics of school environment were recognized in the development of the 1993-94 SASS in three of the questions about teachers' perceptions and attitudes toward teaching:

> Question 44. At this school, how much actual influence do you think teachers have over school policy in each of the following areas? (See Appendix A for the list of areas and the scale used in this question and the following question.)
>
> Question 45. At this school, how much control do you feel you have IN YOUR CLASSROOM over each of the following areas of your planning and teaching?
>
> Question 47. Do you agree or disagree with each of the following statements? (A list of 25 statements that relate to the six characteristics of school environment listed by Loucks-Horsley follows.)

These three questions should be repeated in the 1998-1999 SASS to make it possible to measure the major changes in school environment that can be expected between 1993-94 and 1998-1999 due to the systemic reform efforts under way in many schools and districts. These efforts can be expected to lead to (1) increased professionalization of teachers and (2) schools, classrooms, and teachers that value questions, experimentation, risk taking and collaborative problem solving. Both of these results are dependent in part on school environment.

Some augmentation of the questions, particularly Question 47, might be desirable. The report by Mullens et al. (1996) included a review of the items on professional development in over 25 surveys. They report finding six surveys that include items on 32 elements thought to affect school culture. It would be desirable to match these 32 elements against those used in the SASS questions to look for possible additions to the SASS questions. It would also be desirable to group the statements for each of Loucks-Horley's six characteristics so that it would be easier for teachers to understand the purpose of the question.

Item 9:[11] Teachers' Influence Over School Policy. Repetition of SASS Question 44.

Item 10:[12] Teachers' Control in the Classroom of Planning and Teaching. Repetition of SASS Question 45.

Item 11:[13] Teachers' Perceptions of School Environment. Repetition of SASS Question 47 with items grouped by the Loucks-Horsley characteristics and with

possible additional items identified in research.

Data Needs for the *Year 2000 National Education Goals Report*

In 1994, the Goals 2000 legislation formally authorized the National Education Goals Panel (NEGP), a bipartisan committee of state and federal officials that had been meeting since 1990 to monitor progress toward the goals. Charges to the panel included continuing to play a major role in tracking education reform through its annual reports on progress toward meeting the education goals. The 1995 goals report (National Education Goals Panel, 1995b), which is the Panel's fifth report, includes a section on teacher education and professional development that lists the four objectives under goal 4:

> All teachers will have access to preservice teacher education and continuing professional development activities that will provide such teachers with the knowledge and skills needed to teach to an increasingly diverse student population with a variety of educational, social, and health needs.
>
> All teachers will have continuing opportunities to acquire additional knowledge and skills needed to teach challenging subject matter and to use emerging new methods, forms of assessment and technologies.
>
> States and school districts will create integrated strategies to attract, recruit, prepare, retrain, and support the continued professional development of teachers, administrators, and other educators, so that there is a highly talented work force of professional educators to teach challenging subject matter.
>
> Partnerships will be established, whenever possible, among local educational agencies, institutions of higher education, parents, and local labor, business, and professional associations to provide and support programs for the professional development of educators.

The report also provides nine measures of progress toward the goal of which three deal with professional development and two with teacher support. The other measures relate to preparation to teach limited English proficient students and preservice teacher education and certification. All of the measures were derived from the Teacher Questionnaires in the 1991 and 1994 School and Staffing Surveys. In fact the NCES expanded the section on staff development in the 1993-1994 SASS to provide information needed by NEGP.

Enhancements for the *Year 2000 Goals Report* Derived from the Suggested Items

The items that have been suggested for inclusion in the 1998-1999 SASS would have a very positive effect on the goals report for the year 2000 by providing additional detail for measures used in the 1995 report as well as a number of additional measures. Each of the five measures on professional development and

teacher support in the 1995 report are discussed in turn showing the source of the information used in the 1995 report and the effect the suggested items could have for the year 2000 report.

The three measures of professional development are direct measures of the goal:

> **Participation in Professional Development Activities on Selected Topics**: Percentage of teachers who reported that they participated in inservice or professional development programs on various topics (uses of educational technology, methods of teaching subject field, in-depth study in subject field, and student assessment) since the end of the previous school year, 1994. Participation is tabulated for all teachers, and for urban, suburban, and rural teachers.
> (Source: SASS Question 31)

Item 2 would add two topics to the list in Question 31. Both of these topics are important in reform: classroom management skills and preparation to teach limited English proficient (LEP) students. It would also provide information on the teachers' opinions about the impact of the programs.

> **Support for Professional Development**: Percentage of teachers who reported that they received various types of support (released time for teaching or scheduled time, travel, per diem expenses, tuition, and/or fees: and professional growth credits). Support is tabulated for all teachers, and for urban, suburban, and rural teachers.
> (Source: SASS Question 33)

Item 8 would add one additional type of support "sabbaticals and leaves" to the list in the 1993-94 SASS.

> **Participation in Different Types of Professional Development Activities**: Percentage of teachers who reported that they participated in various activities related to teaching (workshops or inservice programs, college courses, and activities sponsored by professional associations) since the end of the previous school year, 1994. Participation is tabulated for all teachers, and for beginning teachers, teachers with four-to-ten years of experience, and teachers with more than ten years of experience.
> (Source: SASS Question 30)

Item 1 would greatly expand the list of types of IPD activities. Of special importance, it would include new approaches for IPD that may be effective in reform. In addition it would provide information on the amount of time spent in each program and the teachers' total monetary expenditure for IPD.

The two measures that deal with teacher support are direct measures of the third objective and are closely related to inservice professional development:

> **Support through Formal Teacher Induction Programs**: Percentage of teachers (by experience

categories) who reported that during their first year of teaching, they had participated in a formal teacher induction program to help beginning teachers by assigning them to master or mentor teachers, 1994. Information is provided for the following categories of teachers: all, elementary, secondary, urban, suburban, and rural. Information is also provided on change in participation in induction programs between 1991 and 1994.
(Source: SASS 1993-94 Question 35a and SASS 1990-91 Question 28a)

As indicated earlier, items about induction programs for the 1998-1999 SASS will be the subject of a subsequent paper.

Teacher Influence over School Policy: Percentage of teachers who reported that teachers in their school have influence over school policy in selected areas (determining the content of inservice programs, establishing curriculum, and setting discipline policy). Information is provided for the following categories of teachers: all, elementary, secondary, urban, suburban, and rural. Information is also provided on the change between 1991 and 1994 in teacher influence over school policy for the selected areas.
(Source: SASS 1993-1994 Question 44 and SASS 1990-91 Question 39)

Since Item 9 is a repetition of Question 44, it will provide no additional information.

In addition to the above items on professional development and teacher support, the NAGB report includes two measures that deal with preparation to teach limited English proficient (LEP) students: (1) percentage of teachers who reported that they have LEP students in their classes and have received training to teach LEP students and (2) percentage of teachers who reported that they have received training to teach LEP students, 1994. The SASS question on training does not inquire when the training was received so it is not clear whether the training was preservice or inservice. The suggestion in Item 2, to add a topic on preparation to teach LEP students to the list of topics of IPD programs in Question 31 of the Teacher Questionnaire, would eliminate this ambiguity and help measure current efforts for the first objective of Goal 4. As mentioned, it would also be possible for Item 2 to include topics related to teaching other special student populations, which would provide even more information relevant to the first objective.

Additional Measures for the *Year 2000 Goals Report*

In addition to providing more information directly related to the IPD measures in the Goals Report for the year 1995, the suggestions in other items would provide additional measures on the following topics for the goals report for the year 2000:

Item 3: Planning and Coordination of IPD.

Item 4: Why Teachers Choose Not to Participate in IPD Programs.

Item 5: School Organization for Teacher Learning and Other Growth Opportunities Provided for Teachers.

Item 6: Incentives to Participate in IPD.

Item 7: Creating Time for Professional Development.

The selection of indicators for the 1995 Goals Report was limited by data availability. The resource group identified some future data needs, two of which might be filled by SASS 1998-1999:

> The matter of equity regarding the number of teachers having full access to high-quality professional development activities should be reported.
>
> Partnerships that provide and support programs for the professional development of educators should be established.

Data for both of these topics could be provided by adding questions to the Principal's Questionnaire. As proposed, Item 3 on Planning and Coordination contains the question: "Is your school or school district engaged in partnerships that will promote community stakeholders' support of programs for professional development of educators? Item 5 on School Organization for Teacher Learning and Other Growth Opportunities Provided for Teachers contains the question: "Do all teachers have full and equal access to high-quality IPD activities?

Board certification. The Resource Group also suggested indicators that show the number of teachers who are seeking to become board certified and the number of school districts that are supporting teachers who are seeking National Board certification. Information on the number of schools that are supporting teachers who are seeking board certification could be obtained from Item 5 which includes the question "Does your school district support teachers who are seeking National Board certification?" Information on teachers who are seeking or who have received National Board certification could be obtained by adding questions to the Teacher's Questionnaire in the section on teacher training.

Item 12:[14] Board Certification. Add a new question with the two parts: Have you received National Board certification? Are you seeking National Board certification?

In summary, the *Year 2000 Goals Report* could provide a much more comprehensive picture of progress toward Goal 4 if the 12 suggested items were adopted.

Summary

How well do the suggested items respond to the 14 introductory questions? Early in the paper it was noted that it is not feasible for SASS to collect the data required for Questions 6 and 10. However, information about some aspects of these questions would be provided by other suggested items. Teachers' perceptions of the effectiveness of the IPD programs would be known and certainly Item 1 on prevalence of IPD by type and Item 2 on

program content and length would provide a good idea of what the public sector investment (whatever the amount may be) is purchasing. Question 9 will be covered in a later paper. Excluding these three questions, items have been suggested that provide data that relate directly to all the remaining questions except the last four. One of these, number 13, is addressed in part in Part II. Analysis of the data from the suggested items can also provide some information relevant to better ways to invest resources (Question 11). Documentation of the range and quality of IPD in 1998-99 can also be the basis for suggesting the changes needed in IPD to meet the challenges of the reform movement (Question 14). Finally, it should be possible to measure how the characteristics of IPD are changing over time (Question 12), since care was taken to preserve the options in the 1993-1994 SASS when modifications of questions were suggested.

Including all 12 suggested items in SASS would greatly expand the section devoted to IPD. It is important, however, to remember the essential role of the teacher in the reform effort and the importance of providing teachers with the degree of professionalization needed in reform. We should not forget Sykes' assertion that the most serious unsolved problems for American education today are that teacher learning must be the heart of any effort to improve education and that conventional professional development is sorely inadequate (Sykes, 1996). Policymakers need information to address these problems. It follows that inservice professional development should be given the attention and the space in the 1998-1999 SASS that it deserves.

PART II

International Comparisons of IPD for Use of Computers and Advanced Telecommunications Equipment

Part II discusses the value of international comparisons and the value of state and nation comparisons generally and more specifically with respect to IPD. A number of international comparative studies that have been reported in process or in the design stage will provide data on IPD and related topics such as school organization and environment.[15] Part II, however, addresses only one international study, the IEA Computers in Education Study (CompEd Study), which has extensive information on the professional development of teachers. It is discussed here to allow ample time for careful evaluation of the suggestion made in a later section to incorporate items from the CompEd Study in the 1998-1999 SASS. If implemented, this suggestion would have a large impact on SASS and should be considered in the early stages of the development of SASS. Part II therefore continues with a discussion of the need for data on IPD for use of computers and advanced telecommunications equipment, a specific proposal to include IPD items from the CompEd Study in SASS, and a description of the benefits of doing so.

Value of International Comparisons

The SASS measurements could be made more meaningful and the policy-relevance of the data could be enhanced by

comparisons with data from other nations. A number of educators have discussed the value of international comparative education information. Bradburn and Gilford (1990) consider that the most important use is to improve understanding of our own education system. In the absence of absolute standards for educational systems, comparative information can contribute to setting realistic standards and to monitoring the success of educational systems. They note the value of comparisons with other states or the nation, comparisons that have the advantage of comparing systems that are broadly similar. International comparisons, however, expand the range of comparison beyond the limits of national experience, and can be helpful not only for descriptive purposes but also for monitoring. Plomp (1992) also considers that the most important reason for international comparisons is to improve understanding of educational systems and to provide policymakers and educators with information about the range of educational quality among various national systems. Cross and Stempel (1995) note that the value of international information is that it provides the opportunity to resolve the failings of our system in a uniquely American way. They urge concentrating on the reasons behind the decisions made by different countries concerning teacher training policies. Understanding their motives and expectations will help us decide what will and will not help us improve primary and secondary education in America.

Similarities in Cross National Issues

Most developed countries are facing similar education policy issues. Several countries are involved in reform efforts and many are faced with the issue of how to provide high-quality education to a multicultural student body. These common concerns enhance the likelihood that we can learn from the actions taken by other countries. Some of the issues relate specifically to IPD. Most countries that are members of the OECD are deepening inservice teaching opportunities, as are Asian countries, e.g., Japan, Taiwan, and China (Darling-Hammond, 1996). There is concern about the limited opportunities for advancement and promotion in teaching. To address this issue, some countries, e.g., the United States and New Brunswick, Canada, are taking action to create a career path that would lead toward highly accomplished practice over the course of a teaching career. Korea has also recognized the need for a teaching-oriented career continuum (Darling-Hammond & Cobb, 1995). In Spain and Portugal inservice training is linked to career advancement (EURYDICE, 1995).

Another issue common to several countries stems from recognizing the importance of giving teachers greater professional authority and responsibility. The United States, Manitoba and Quebec in Canada, and the Republic of Korea have responded by giving teachers greater professional autonomy and greater voice in creating standards for preparation, licensure, and practice. Several European and Asian countries have recognized the significant role of continuous professional development as an important part of

professionalism (EURYDICE, 1995; Darling-Hammond & Cobb, 1995).

Value of State and Nation Comparisons

The policy relevance of the SASS data could be further enhanced by comparisons of state and nation data. SASS certainly has the potential to provide state data on IPD. Although the *SASS by State* publication (NCES, 1994) includes data about teacher characteristics and their preservice preparation, it does not include IPD data. During the current period of extensive reform and restructuring of the schools it is important for states to know about the involvement of the current teaching staff in the reform effort and how teachers are upgrading their expertise in their field and in pedagogy to meet the demands of reform. If the suggestions in this paper are implemented, it would be possible to provide state data on the types and extent of IPD activities, the planning and coordination of IPD, school organization for teacher learning and other growth opportunities provided to teachers, support for IPD, and the school environment. It should also be possible for states to compare some characteristics of their professional development activities with those in other countries in a format like that used in the NCES publication, *Education in States and Nations* (1996). Because of the central role that teachers play in student achievement, states that have demonstrated interest in educational achievement in other countries (frequently for economic reasons) would find uses for such information.

We turn now to ways of obtaining IPD data for state and nation comparisons and international comparisons for one topic: use of computers and advanced telecommunications equipment. We first consider why such data are important at this time.

Need for Data on IPD for Use of Computers and Advanced Telecommunications Equipment

This section describes the rapid growth in the use and types of use of computers in the schools, and the political support for introduction of advanced telecommunications equipment in the schools. Although IPD in the use of computers and other technologies is an important aspect of the successful introduction of the equipment in the schools, little is known about it. There are large gaps in the U.S. system of teacher training: teachers need more time to become conversant with computer technology, to plan lessons that integrate the computer in classroom activities, and to learn about computers (Anderson, 1993). The CompEd Study is of special interest because of its careful look at IPD for use of computers and because of its finding that U.S. teachers had less opportunity for such IPD than teachers in countries whose students were more proficient than U.S. students in the use of computers. This section concludes with a description of the IPD items in the CompEd Study.

The Use of Computers in Education

As we move into the age of cyberspace, there are many unanswered questions about the role that computers and other forms of technology can play in education. The percentage of elementary and secondary school students who use a computer at school is increasing rapidly: in the nine years from 1984 to 1993 the percentage doubled, increasing from 28.5 percent to 59.0 percent (NCES, 1996). Fulton (1996) estimates that there were almost 5 million computers for instructional use in K-12 schools in 1995 and that the expenditures on technology reached $2.4 billion a year. Policymakers are justly concerned about the effectiveness of an investment of this size; they need additional data about computers, how they are used in the schools, and how they improve teaching and learning.

Changes in the Use of Computers in the Schools

Changes are rapid in this field. Recent new releases (Washington Post, 1996) illustrate two such changes. The first describes an experimental program in Germantown, Maryland, using the computer as an online algebra instructor to replace a human teacher and a program in an Alexandria, Virginia, school where fourth- and fifth-graders can choose to learn math from a computer or a teacher. The second announces the "Net Day" on March 9, 1996, when most of California's 13,000 public and private schools were scheduled to be wired for the Internet. Television on that day showed both the President and the Vice-President participating in the wiring! The National Information Infrastructure proposed by President Clinton includes a goal to connect all the nation's school classrooms (and also various other institutions and organizations) to the "Information Superhighway." It remains to be seen how teachers will use access to the Internet in their teaching.

Importance of IPD in the Use of Computers and Advanced Telecommunications Equipment

Teacher training is an important aspect of the introduction of computers in schools because most of today's teachers did not use computers when they were in elementary and secondary school and many of them did not receive computer education as part of their preservice training. On the other hand, it is noted by Pelgrum and Plomp (1993) that: "...teachers are ultimately the ones charged with the implementation of computers in educational practice and therefore education of the educators or teacher training is an important aspect of the introduction of computers in schools." In fact, most of the benefits students will derive from using computers depend on the extent to which teachers integrate computers in their daily classroom activities. In 1992, however, less than half the schools in the United States reported having an introductory computer course available for teachers (Anderson, 1993, p. 52). American teachers have less opportunity to take inservice computer courses than do teachers in Austria, Germany, and the Netherlands and, as might be expected, students in these countries are more computer-knowledgeable than American students (Anderson, 1993).

More recently, a survey to obtain baseline data on the status of advanced telecommunications in public elementary and secondary schools asked about barriers to the school's acquisition of advanced telecommunication capabilities. Nearly two-thirds of the surveyed schools cited lack of or inadequately trained staff and lack of teacher awareness regarding ways to integrate telecommunications equipment into curricula as moderate or major barriers (NCES, 1995).

IPD Items in the CompEd Study

The aim of the first stage of the study, with data collection in 1989 was "to obtain information about the current status of the use of computers in education, more specifically within schools, ...for use in planning, implementation and evaluation in the field of computers in education" and to provide baseline information for measuring change in stage 2, with data collection in 1992. In addition to obtaining data to measure change, "...stage 2 involved assessing effects of school variables, and teacher and teaching variables on student outcomes in the domain of computer usage in schools (functional computer knowledge and skills)" (Pelgrum & Plomp, 1994). The survey included questionnaires for principals, school computer coordinators, and teachers of mathematics, science, mother tongue, and computer education in the grades 5, 8, and 11.

The CompEd Study includes a number of questions about teachers' professional development related to the implementation of computers in educational practice:

A self-rating scale about the teacher's knowledge about and skill level in using computers

Problems experienced in using computers. The list of problems includes three that are related to professional development: (1) teachers lack knowledge/skills about using computers for instructional purposes, (2) insufficient training opportunities for teachers, and (3) lack of interest/willingness of teachers in using computers

Teacher's opinion of training needs

Training received--provides a list of 25 topics covered in training. Information on teacher training is important because the CompEd Study found that teachers tend to teach the topics covered in their own training in the lessons for their students.

Support for training: availability of training at school; agencies that provide training support; availability of and type (full time, teacher, etc.) of computer coordinator in the school; time the computer coordinators spend helping teachers use computers (in-school support) or in training or study for themselves

Percent of teachers using computers in mathematics, science, English, or computer education

The following section makes a proposal for using some of the CompEd IPD items (augmented by items related to advanced telecommunication) in the 1998-1999 SASS and discusses the benefits of doing so.

Proposal to Measure IPD for Computer Education in the 1998-1999 SASS

It is proposed that SASS include IPD questions from the CompEd Study. This would require additional questions in the Principal Questionnaire, a new Computer Coordinator Questionnaire, and either additional questions on the Teacher Questionnaire or a separate questionnaire for a sample of teachers in the fifth, eighth, and eleventh grades.

Although the CompEd Study did not address the IPD aspects of teachers' use of advanced telecommunications equipment, it would be useful to include questions in the Teacher Questionnaire on how teachers use networking and other forms of advanced telecommunication, the training teachers receive to prepare them to use technologies as teaching tools and resources, and their awareness of the resources technology can offer them as professionals in carrying out many of the activities of their jobs (Fulton, 1996). Fulton develops this topic more extensively. A focus group to address ways to incorporate such questions in the survey without losing comparability with the data from the CompEd Study could be useful.

The magnitude of the impact of this proposal on SASS is recognized. To compensate for the response burden it would create, it could replace the Teacher Demand and Shortage Questionnaire in the 1993-94 SASS. The most essential questions from that survey could be added to the Principal Questionnaire.

Benefits of Including IPD Items from CompEd in the 1998-1999 SASS

There are several reasons why it would be useful for the 1998-1999 SASS to include some of the CompEd stage 2 questions about inservice development of teachers. First, because many types of experts were involved in developing the IEA survey, it has led not only to interesting findings about the status of professional development for computer education, and identification of large differences between countries in IPD, but has also provided data useful to policymakers. For example, data from the CompEd Study (a) provided the basis for recommendations concerning the training needs of teachers, (b) made it possible to identify the relative position of a country with respect to the availability of training and support for teachers, (c) provided a measure of the extent to which the computer was integrated in classroom teaching, and (d) made it possible to determine the relationship of teacher training to actual classroom use of computers. Second, including CompEd IPD questions in SASS 1998-1999 would make it possible to measure change in the amount and character of computer IPD in the United States from 1992 to 1998. Third, it would permit states to compare their IPD in 1998-1999 with that of other states and the nation. And fourth, although there would be six years difference in the data, states could compare IPD for their teachers with that of teachers in other nations at an earlier time.

In summary, the importance of this proposal is supported by the combination of rapid growth in the use of computers and advanced telecommunications technology in the schools, the essential role that teachers play in their effective use, the inadequate training in their use that is available to teachers, and the national will for U.S. students to match the achievement of students in other countries in the use of these technologies. Our national leaders have already recognized and recently underscored the importance of such technologies in education.

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1. Mandel (1995) is the source for Questions 4, 7, and 10.

2. Because networks have become an increasingly important form of IPD in the reform of U.S. education, Lieberman and Grolnick (1996) studied 16 networks to ascertain how they are formed, their focus, and how they are sustained. They note that networks provide ways of learning that are more in keeping with the professional lives of teachers. Networks engage "...school-based educators in directing their own learning, allowing them to side-step the limitations of institutional roles, hierarchies and geographic locations, and encouraging them to work together with many different kinds of people."

3. Provides information related to introductory Questions 3, 4, 7, and 12.

4. Provides information related to introductory Questions 4 and 5.

5. Provides information related to introductory Question 1.

6. Provides information related to introductory Question 8.

7. Provides information related to introductory Question 8.

8. Provides information related to introductory Question 8.

9. Provides information related to introductory Question 8.

10. Provides information related to introductory Question 8.

11. Provides information related to introductory Question 2.

12. Provides information related to introductory Question 2.

13. Provides information related to introductory Question 2.

14. Provides information related to introductory Questions 3, 4, and 8.

15. The potential of all of these studies as a source of IPD-related items for the 1998-1999 SASS will be explored in a later paper. The paper will also provide analysis plans describing how data from these studies might be used in international comparisons or in state and nation comparisons of IPD--if the 1998-99 SASS includes comparable items.

DISTRICT LEVEL DATA IN THE SCHOOLS AND STAFFING SURVEY

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The importance of district-level data in systematic assessments of changes in the organizational structure of schools as educational institutions is increasing.[1] This raises the question of whether the next Schools and Staffing Survey (SASS) should shift its focus toward district-level processes rather than toward classroom instructional models as has been proposed in other papers in this seminar series.[2] The arguments for a reconsideration of the role of district-level data in SASS are derived from several sources: (1) a review of sociological theories as applied to the organization of education in the United States; (2) a critical review of the 1993 SASS district-level survey and its ability to uniquely answer important research questions; (3) the increasing importance of "choice" mechanisms for student assignment policies in public schools;[3] and (4) recent policy research based upon studies of state-wide systemic reform efforts.

Many of the important organizational issues outlined below are amenable to more systematic empirical exploration even with the 1993 SASS (particularly as they involve between-state and between-district variations). The argument presented here is that the local school district is still an important mediating organization in the implementation of educational policy. From this review, it should be apparent that the 1993 SASS district-level survey should be supplemented by more yearly Common Core of Data (CCD) school enrollment information (including 1990 demographic data from the School District Data Book), staffing data, and fiscal data. Through an examination of data on magnet schools, the feasibility of a multi-level linked approach will be examined in the context of a different sampling strategy. For some, the need for more programmatic information that can be provided by district- and school-level administrators is still an open-ended question for 1998. For others, however, top-down models of analysis are the prevailing, if not the only, strategy to study reform implementation effects. Research studies suggest that the addition of critical reform data at the district level could enable SASS surveys to become the established baseline survey for a large variety of hierarchical studies by the U.S. Department of Education and the National Science Foundation.

Administrative Structures and District Organization

Long-term historical trends. The state role in education has continued to expand rather than diminish during the 1990s. State funding and programmatic control of education has complex organizational implications for school districts and the management of schools within these districts.[4] Through the 1980s relationships among different levels of government (federal, state, and local), became increasingly complex, and at the same time, a more layered, formalized structure of control (multi-level and centralized) continued to develop. As the

external environment imposed a multiplicity of new requirements, administrative complexity expanded substantially at the intermediate (i.e., school-district) level.[5]

A major factor in this increased complexity has been an increase in categorical funding at the federal level for a large number of special programs, and the emergence of new administrative subunits to monitor and oversee these programs within states and local school districts.[6] These additional layers of new authority typically have not displaced existing structures, and the current system of governance has preserved the legal autonomy of lower levels of power, primarily local school districts.

> Local districts are fundamental governance agencies, by tradition and practice .... and their influence is extraordinary in world perspective. Despite the recent growth of state and national power, these districts make a great range of decisions, including those that bear on levels of funding, the nature of educational programs, and the teachers to be hired. (Cohen & Spillane, 1992)

By most accounts, the resulting structures are highly fragmented, and from more critical perspectives "incoherent" (Cohen, 1995).[7] The difficult (or unsettled) question is whether local responses to these new reform initiatives have amplified differences (i.e., increased rather than decreased variability) between districts and schools as new instructional policies are filtered through fragmented and heterogeneous organizations.

The diminishing role of local revenue in the operation of local schools means these authorities are now held more accountable to standards imposed by external funding sources and to the parallel need to centralize the budgeting process and personnel decisions at the district level.[8] The resulting interdependence between the district and its component schools has required more administrative coordination and an increasing number of professional administrators to "manage" the schools. One critical element of this administrative growth has been the addition of categorical programs (and the external accountability requirements) from state and federal sources to each district's operating budget. At the individual school level in larger school districts, the administration of these programs has involved a parallel increase in the number of administrators and program specialists. In some schools, however, the bureaucratic burden of many separate programs has generated a variety of school-wide reforms, and, consequently, ongoing decentralization efforts have been designed to counter the organizational effects imposed by the demands from these external authorities.

Analytic Role for SASS District-Level Data

The primary rationale for the district-level survey (still identified as Teacher Demand and Shortage Questionnaire--TDSQ) in its first administration in 1987 was national concern over the prospects of teacher shortages, particularly in specialized fields and special programs.[9] Before a more

detailed review of other issues related to district-level information is undertaken, it is important to identify the main questions that were the primary focus of the Local Education Agency (LEA) Questionnaire, and how analysis of administrator and teacher surveys provided alternative strategies to satisfactorily answer these questions.[10] In the 1987 and 1990 SASS, the "number of positions filled" was consistently high, approximately 99 percent in both years. As reported by district administrators, less than 0.5 percent were vacant or unfilled. Similarly, districts reported that nearly 10 percent of their teachers were new hires, indicating that when positions became available they could find qualified teachers from available sources of new college graduates, teachers in other districts, private schools, or other sources.

At the other end of the spectrum, districts provided counts on how many teachers had been "laid off" for budgetary reasons (i.e., RIFs). In 1990, the percentage was only 0.6 percent. Although the percentage of "laid-off" teachers is not included in the *1993-94 SASS Statistical Profile* (because previous year estimates of faculty were not asked), a slightly different calculation for districts with more than 100 teachers indicated that 162 districts had reductions greater than 5 percent. Included in this group are several well-known districts where these large cuts merited notice in local newspapers (and even in *Education Week*). Clearly, the down-side in teacher staffing numbers is concentrated in one year when a budgetary crisis (often precipitated by declining student enrollments) occurs. As the frequency of SASS shifts to every five years, the inclusion of faculty trends for prior years from CCD may be more necessary to identify these long-term trends.

Only a few tables in the *SASS Statistical Profiles* contain data from the TDSQ. Many of the demand issues are adequately addressed by results at the school level (Table 7.2, Statistical Profiles: 1990)[11] and by questions related to the relative difficulty in filling vacancies by specific fields (Table 7.3 and Table 7.4). Likewise, the analysis of school-level turnover rates (as measured by the percentage of teachers who left positions in the school in the prior 12 months) allows statistical analysis of school characteristics, private school status, district-level salary and benefits, and even workplace climate (Ingersoll, 1996). In regard to the availability of new teachers and other characteristics of the teaching profession, the individual teacher survey has provided more detailed information on new teachers (Rollefson & Broughman, 1995).[12] And finally, the teacher followup survey provides even more detail on the flow (and the reasons) that teachers move to other positions or leave the profession (Bobbitt et al., 1991, Bobbitt et al., 1994).

Districts after schools. Schools are sampled first, and districts are included if one of their schools is selected. As a result, the average district in 1993 was represented by 1.7 schools. When national and state-level estimates are made for student enrollment and staffing data, there is substantial overlap, and consequently the school-level information and the district data are redundant.[13] Incorporating some CCD district data directly into the interview instrument (but taking into consideration a lag between sample selection of schools[14] and data collection

time frames), and then the refinement of this information through more structured survey questions would be a major design improvement. In addition, basic data could be added on enrollment and teacher data for a fixed number of prior years.[15] The district-level data should also include aggregated counts (students and teachers) for all schools in the district.

In the process of linking schools to districts (and both units back to teachers), certain varieties of governance structures become evident. Some of these state-specific categories are more accurately identified in the current CCD district classification system.[16] District and school eligibility criteria should be reviewed in order to consider other types of instructional and support staff counts that are included in the agency universe survey since in some districts they are becoming more important elements in the "reform agenda."

In reconsidering the utility of the district survey, the functions administrators perform should be reviewed in order to consider whether these administrative responsibilities should be incorporated into the next SASS. District staffs historically have had limited authority for instruction conducted in the classroom by teachers. Nevertheless, a high percentage of expenditures are no longer associated with instructional staff as conventionally defined.[17] A large number of routine administrative and budgetary tasks (some are generally not relevant to the objectives of SASS) are still performed by district staff. Some information, such as starting teacher compensation with different degrees and benefits (Table 5.3 and Table 5.4, *1990 SASS Statistical Profile*) are already core variables and other questions have been asked for two administrations of SASS (Levine & Christenson, forthcoming). A large number of personnel and student assignment decisions are made by district-level administrators (public schools only). But, the personnel office performs many other critical functions for teachers working in a district. Teachers are typically hired by the district and then assigned to specific schools.[18] Likewise, between-school transfers of students and teachers are required to adjust for shifts in student populations, and periodically school openings and closings necessitate even larger adjustments. More process questions seem to elicit more useful information about the outcomes of administrative decisions (e.g., the school questionnaire could ask how vacancies were filled in a school with a check list and a rating of difficulty). District administrators could be asked how they have recruited new teachers over the last few years (types of strategies such as visiting local college campuses, national or local advertising), in what disciplines teachers were hardest to find and then hire teachers for (at this point pay incentives would be relevant to ask). Certification requirements for new teachers are usually established at the state level, and district administrators can offer more information about recent changes in these policies.[19]

New policies for "student performance" (e.g., the number of courses required for graduation and more rigorous standardized tests) have been enacted in recent years by many, but not all, states. The district questionnaire could ask whether a change has occurred (there should be a high degree of consistency within states) and

then the respondent would indicate how the number of course credits changed when the policy was implemented. Likewise, most large districts have some written discipline and substance abuse policies (primarily for legal reasons). In response to federal and state initiatives, new policies have been adopted, and the discipline implications for similar infractions represent a new policy dimension.

Many important policy decisions are based on school board actions, state legislation, and new federal programs that often are not best analyzed at the individual school level.[20] For many programs, the funds are identified separately in terms of dollar amounts and funding sources. For example, the Eisenhower professional development grants are administered by local districts after they apply to state departments for approval of programs. Individual districts have wide latitude in the use of these funds and may use them for such activities as professional workshops at a local university, national conferences, or instructional sessions for teachers within a district.[21]

Even more relevant are student assignment issues that are a policy realm under the nearly exclusive control of school district authorities rather than individual schools (with the exception of some districts still under federal desegregation court orders). In a narrow historical perspective, the district activities in this realm were quite conventional: fixing physical boundaries (that rarely changed), constructing a new school when enrollment expanded rapidly, selecting which school to close when enrollments declined, and then deciding which schools to consolidate (with limited adjustments in surrounding schools). In physically large districts, transportation imposed another set of fiscal and resource constraints. In the last 25 years, fundamental change has slowly displaced "the neighborhood school" linked solely to residence. In large central city districts, the change was abrupt when federal desegregation plans imposed new geographic configurations, but the transition was also facilitated by experimentation with district-wide "magnet schools" based upon distinct instructional programs that would attract different-race students. Besides the obvious benefit of dismantling "racially identifiable" schools, magnet schools enabled some schools within a district to formulate their own content emphasis, special themes, or school philosophy (and also recruit their own faculties for these purposes). The traditional uniformity of schools imposed by a central "bureaucracy" no longer maintained its total control over students, faculty, and instruction in these schools, and for the first time "market mechanisms" were incorporated in the school selection process (parents had an option to choose a magnet for their children or could leave if they were not satisfied). At this point, it is evident that identification of specific magnet schools can only be obtained at the district level where student assignment policies are implemented.

Multi-level analysis. The utilization of district-level information in prior SASS surveys and reports has been quite limited, and the additional questions included for the first time in 1993 (AIR, 1996) probably will not change interest in complex multi-level analysis. Ingersoll's *An Agenda for Research on Teachers and*

Schools (1995) does not identify a single issue where district-level data are a decisive factor in an important research question. Only the recent studies by Chambers (1995 and 1996) explore the differential effects of school and district characteristics (i.e., measured by cost factors that local decision makers cannot control) on teacher salaries.[22] For example, the relationship between salaries and the racial composition of the district showed that only the percentage of students who were Asian Americans had a significant effect (the school-level analysis had significant effects only for percentage of Hispanic). In the Chambers study, however, the inclusion of district-level (and school variables) resulted in a substantial loss of schools (17.1 percent) and also teachers in the sample. The Ingersoll (1996) analysis also had a large erosion in its school sample size when such district-level variables as availability of merit pay plan, paid benefits, and district size were included in his analysis (and most not significantly) of net teacher turnover rates.[23]

The Chambers study (1996), although based upon 1990-91 SASS, does at least provide a model for making decisions about which type of questions should be asked to whom based upon multi-level statistical analysis. In his analysis, only a few district-level variables have a significant effect in explaining differential teacher salaries. In fact, the three district-level variables in his regression equations (district size, racial composition of the district, and enrollment growth) were obtained from CCD, and it is reasonable to assume that data from the district survey on pay incentives or fringe benefits probably would not explain additional variation in teacher salaries (above and beyond the combined effects of individual teacher background factors and school-level factors). Using this method, one could determine if there was a district-specific effect for pay incentives offered to mathematics teachers for example, controlling for their education background and years of teaching experience. Likewise, this method of multiple-level analysis could determine the additional contribution of district policies to differential teacher salaries.[24]

Multi-level analysis is complex, and this alone might account for the limited use of district-level data by researchers. Similarly, missing data problems unexpectedly escalate when a district nonresponse for a large district eliminates several schools from the sample. Moreover, the original CCD identification is difficult to reconstruct "after the fact" for schools with a missing district survey. Most statistical software packages do not allow other sources of district data to be easily incorporated after SASS analysis files have been merged. Finally, multi-level analysis of between-school differences (controlling for district context) is severely limited by the nonhierarchical design feature of the SASS sampling strategy given the small percentage of districts with more than one school per district.

Schools after districts. The limited number of key variables in the SASS district-level questionnaire imposes practical difficulties in linking different levels. How conceptual issues related to district policies in turn impact schools within each district suggests a different design strategy for the new SASS:

sampling districts first (based upon the number of teachers in the district's schools), and then sampling schools within these selected districts. A larger number of schools per district[25] thereby would be sampled in districts that have more than 10,000 students, for example. In Appendix I, a comparison between the average number of schools per district with a district sampling strategy is presented with the results of the 1993 SASS.

Take a state such as Florida with large county-wide districts. SASS 1993 samples 258 schools, but they are scattered across 55 districts, giving an average of only 4.7 schools per district.[26] With districts sampled first, only 20 districts would be selected with an average of 20 schools per district. Utah, a more typical state, would have an average of 12.9 schools per district drawn from a sample of 20 districts (in 1993, the SASS average is 5.5 schools per district). Obviously in rural states, such as Iowa, an average of 2.8 schools per district is not a substantial improvement over 1.3 schools per district, and fewer sampled districts (67 versus 128 in 1993 SASS) does not improve district estimates when most districts are quite small. There are more than 175 districts that have student populations greater than 25,000 students (most have more than 25 schools) and at least five to ten schools from each district would be selected with this strategy.[27] The number of schools, however, is also a function of the relative concentration of students in larger districts, and the average number of schools would vary by state.[28]

Furthermore, a district-level survey would allow direct links to individual schools in each district through the LEA questionnaire. Federal and state program funds are allocated to specific schools within a district, and accordingly the number of instructional staff allocated to these programs (such as magnet schools) would be enhanced through this type of multi-level design.

District-wide Assignment and Choice

Districts have developed schools with special academic programs that attract students on a district-wide basis in order to comply with federal desegregation court orders. These "magnet" schools first emerged in the late 1970s in several large northern districts. Initially, they often were part of a more global restructuring of school attendance boundaries and the emergence of noncontiguous assignment policies that have been responsible for major revisions in conventional "neighborhood" attendance zone practices in many districts. Their growth has been accelerated by federal grant programs (Emergency School Aid Act, Magnet School Assistance Program-1983), and increasing acceptance of voluntary student assignment components in desegregation plans by federal courts in the mid-1980s. In the last five years, more districts have been released from court supervision and have adopted expanded student choice options as a replacement for mandatory policies. Other reform movements have stimulated a broad interest in specialized "choice" schools in districts (often encompassing an entire district with "racial balance" a minimal consideration).

The particular combination of conventional attendance zone and district-wide choice policies reflect a district's long

desegregation history. In broad terms, one needs to know when a district first desegregated its schools; whether a partial or district-wide remedy was required; whether a plan was phased in over time; the statistical guidelines used for these desegregation plans; and the racial composition (and size) of the district when the first substantial desegregation plan was implemented.[29] Certain historical parameters, although difficult to establish initially, facilitate the tracking of these periodic modifications that are used by many large districts to maintain certain levels of "racial balance" through the provision of choice policies.[30] The evolution of district plans also shows the variations in magnet schools, from the "ideal" district-wide option for both minority and majority students, to schools that have district-wide options for students of one race and neighborhood options for students of another race, and to smaller programs-within-schools where district-wide options are mixed with neighborhood assignment policies. In most cases, only the recent history is relevant since large changes in student assignments require well-publicized announcements by district administrators.

Most large districts are expanding choice elements in many schools and the implementation of more specialized curriculums has an indirect effect on those schools that do not offer "new" programs. Students are selectively drawn from large geographic areas and some teachers are "redeployed" from other schools to staff these new programs. Rarely has a magnet school been opened without consideration of district-wide racial balance (either to attract other-race students for the first time or to maintain desegregation when a district shifts from mandatory to voluntary assignments for some students). Even one magnet school with district-wide enrollment options has an impact on which students are enrolled in other schools. These attendance policies are administered by district administrators and school-level principals are not fully aware of the interrelationship between who attends their school and the schools other students attend as a consequence.

Choice in the 1993 SASS. Questions concerning magnet schools were asked in both the SASS district-level and school-level questionnaires, and a reanalysis of the data offers a preliminary view of the inherent difficulties in translating policy options into clean simple survey language. Alternative question formats and more reliable results are fortunately available from a survey conducted in 1991-92 by AIR on magnet schools and desegregation plans. The 1993 SASS district-level survey asked whether students could "enroll in another school or district outside their attendance areas"[31] and if the answer was "yes," the respondent could check enrollment in a magnet school or "enrollment in any school in this district" (and then the respondent would estimate the number of students in each program). Approximately 579 districts indicated that some students attended magnet schools.[32] It would have been preferable if the SASS questionnaire had provided a definition of "choice" that included some reference to a special emphasis or distinct curricular theme, and a district-wide enrollment option for some students (rather than "outside their attendance areas," which could refer either to school or district lines). Likewise, obtaining the number of magnet schools and their names is feasible,

even in large districts. Brochures describing these programs are routinely sent to parents.

In SASS, the school was asked two distinct questions concerning special or magnet programs. First, it was asked "what type of school it is": a "regular" school, or whether it was a school with a "special program emphasis" such as "science/math" or "performing arts" (or vocational/technical or alternative). The second response category should correspond to a "total" school magnet (without distinguishing between dedicated and partial attendance zones). The percentage estimate from the 1993 SASS is 3 percent magnet using the first definition, which is higher by 1.1 percent than the AIR figure. However, the racial composition of the magnet schools in SASS parallels the AIR survey (57.9 percent of the students are in schools greater than 50 percent minority in the former versus 56.5 percent in the AIR survey). Likewise, the SASS survey locates nearly 60 percent of the magnets in central city districts as expected.

A second question in SASS asked whether the school offered a "magnet program." This could reference "programs-within-schools" in contrast to total school magnets, but for some schools a "no" answer to this question could filter out schools that did not have a curricular focus and should not be considered as magnets in the conventional sense. Assuming the latter possibility, the SASS estimate is now 1.8 percent (1,466 magnet/special schools weighted[33]).

We now turn back and ask the degree of consistency between the district and school surveys. Certainly in some districts, it is likely that no magnet school would be selected when a district indicates it has magnet schools (maybe one in four schools are magnet schools in a typical district with more than 10,000 students), and only 6 percent of the districts fit this pattern. If slightly more refined questions had been elicited from the district administrator (e.g., asking for the subset of magnet school names), some confusion would have been minimized. More problematic is the situation when a school identifies itself as a magnet, and the district indicates it has no magnet schools. (In some of these cases, several magnet schools were sampled, and the districts are known to have comprehensive "choice"plans.[34]) Nonetheless, we were able to match 501 districts where there was a "yes" response both to the magnet school question in the LEA survey and by one school administrator in that district (the weighted average number of magnets in large and mid-sized cities was 4.3 schools). Most districts did not, however, provide estimates as to the number of students in the magnet schools (They would need a list of the schools themselves to count participants.[35]).

This preliminary exercise demonstrates the potential for SASS to explore complex policy issues in certainly a more cost-efficient manner than large-scale retrospective surveys. AIR collected most of its information on magnet schools (in contrast to general desegregation information obtained in the initial interview) from a follow-up survey to the 127 districts that had choice plans. Another phase of the AIR study involved districts that had received federal Magnet School Assistance Plans grants over

several years between 1985 and 1993. The grants cover a three-year time span, and 117 districts had obtained a least one grant. The survey gives some insight into the administrative infrastructure that implements these complex student assignment plans using choice on a district-wide basis. Many of the districts used their program funds to hire new teachers and staff development for the magnet schools (besides substantial investments at the district level in program specialists). Implementation of new choice programs also required large-scale outreach programs to attract new students and the development of more extensive transportation plans to handle district-wide choice. An interesting aspect of these choice mechanisms is the manner in which districts handled admissions, the priorities granted in the admission process, and the maintenance of waiting lists. Obviously if there is high demand, individual applications have to be administered and centralized at the district office, even in medium-sized districts. The questionnaire offers some insight into the administrative processes that are amenable to descriptive "check-listing" as approximate summaries of administrative decision making. Other reforms based upon choice mechanisms (between-district plans, charter schools, and voucher proposals) need similar administrative structures to attract students from large geographic areas.

District-Level Studies of School Reform

In this section, the potential for linking SASS district-level data to the assessment of state-level reform efforts is examined. Obviously, a variety of optimistic and speculative assumptions permeate this evaluation of SASS's potential as a baseline survey for ongoing comparative state-level studies. First, it is hoped that some program (and/or discipline specific) data can be successfully incorporated from CCD aggregate sources into SASS district-level surveys as noted above. Second, one has to assume that basic commonalities can be extracted from the large number of "state" systematic studies currently being conducted, even though they involve only a few high-profile states.[36] Third, one must believe that the methodological split between qualitative ethnographic case studies and larger scale semi-structured surveys will diminish. Fourth, there is an expectation that additional investigations of state-level differences using the 1993 SASS can replicate certain findings from these reform studies. Finally, one has to assume that more comprehensive surveys on the effect of reform implementation will be administered at the state level to compare different types of policies. At a minimum, a more realistic understanding of the difficulties should emerge from a critical comparison of different methods, even in an area with clearly established standards such as mathematics.

A valuable introduction to some of these issues can be garnered from a recent Michigan State report (Spillane et al., 1995[37]). The methodological framework for this study has developed from a series of evaluations (see Spillane, 1996, March) where the "key role" of LEAs in instructional policy making is apparent.[38] Michigan's reforms are representative of initiatives that are designed to radically restructure instructional practices in a state and incorporate a specific set of state-developed policy recommendations as outlined in "Essential Goals and Objectives"[39] that are linked to national

frameworks in mathematics (NCTM) and science (AAAS). The objective of the Michigan State study was to determine what local school districts were doing to reform mathematics and science education (i.e., what changes were occurring) and what "influences the way local schools make policy about mathematics and science education."

Nine districts were selected based upon geographic location, district size and urban type, social and ethnic composition of student population, and "reputation" for reform activity. It should be noted that the range of variation rather than statistical representation was the primary consideration in district selection. Accordingly, the study included two large mid-size city districts with high-minority population and high percentages of "free lunch" students, but it also included smaller low-minority rural districts with substantial percentage of students receiving "free lunch."[40] The interview selection process within each district is more complicated. First, central office personnel with instructional responsibility were interviewed; second, for the two elementary, one middle, and one high school from each district in the study, the principal was interviewed; and third, teachers with the "lead role" in mathematics and science education were also part of the study.[41] The total number of interviews ranged from 13 to 32 per district, and these open-ended interviews were then transcribed.[42] Six categories were used to code the first round of interviews: background information on the district, substantive ideas about mathematics and science, the efficacy of LEA policy, the opportunity for teachers to learn about policies, and local perspectives on state and federal policies.

At this point, it is necessary to review the broad outline of national NCTM standards and some of their implications for state policies before district implementation can be discussed (this is classic top-down reform). At a general level, these standards outline a general set of topics organized around four basic themes (problem solving, communication, reasoning, and connections) and then more grade-specific recommendations for alignment of content coverage.[43] In this study, the state document *Essential Principles* was generally recognized as a set of new policies that required substantial changes in curricula, instructional practices, textbooks, and so forth, by all districts. The conclusion of Spillane et al., however, is clear: "The reform rhetoric masks significant variability across and within districts" (p. 34). While all districts indicated that they were implementing the new state guidelines, the details of specific reforms revealed distinct differences in the priorities given to different themes. Only three districts had moved beyond more routine topic identification toward substantive alignment as it relates primarily to two criteria (communication and reasoning) when compared to the other districts that gave more attention to other themes (problem solving and hands-on mathematics). More specifically, in these latter districts new concepts became new "labels" for old activities ("hands-on" became the same use of concrete materials -- "manipulatives" and "integration of concepts" became more group activities). The rich discussion in this report suggests an underlying rank order in the

implementation of these reforms that are measurable when one asks about certain topics for certain grades.

The findings for science demonstrate how seemingly parallel state frameworks generate qualitatively different levels of change. The AAAS science standards[44] emphasized connections and common themes between disciplines, teaching a smaller number of central scientific ideas, and developing students' ability to utilize scientific methods and technology. While all districts were either purchasing curriculum guides from outside sources or developing their own, these materials were only aligned topically to the state frameworks. In the four districts that had moved closer to state standards, the "boundaries" between conventional disciplines had been "softened," but there also was more explicit attention to principles of "constructivist learning" and "conceptual understanding." Description of these topics, as district administrators or lead teachers explained how material was presented differently, suggested an ability to actively translate these principles into the curriculum. In many of the other districts, reform was limited to "hands-on science" and these reforms, unfortunately, appeared to be quite similar to the old "cookbook laboratory experiments." Likewise, integration of content from different disciplines (particularly mathematics) often evolved into team teaching, without adoption of a newer integrated curriculum.

The Michigan State study then examined the more complex process of how these proscribed changes in classroom instruction successfully flowed downward from these new district policies.[45]

Without commenting on the specific findings at the school level, they found the "LEA actively engaged in instructional policymaking, both defining policy problems and crafting solutions to them" (Spillane et al., 1995). This conclusion contrasts with conventional perspectives on local school districts as the passive "implementor" of state and federal policies (or more narrowly concerned with administrative and budgetary issues) rather than directly concerned with instructional content. This active role in instructional policy appears to be a new development in these districts, and the variability between districts is more striking when specific organizational and historical factors are examined. It is important to note that formal or (traditional) "channels" of influence had definite limits. Neither curriculum guides, curricular materials, student assessment, nor professional developments were initially influential in shaping mathematics and science reforms when traditional methods were employed. In a narrow sense, most LEAs emphasized the simple coherence of topics and utilized lists ("what teachers should teach") rather than the more radical restructuring of ideas about "substantive reform ideas." There is no question in the Michigan State analysis that two state laws (a mandated core curriculum and fiscal penalties for poor performance) stimulated district administrators to "pay attention to instructional issues for the first time." Despite this opportunity to use these mandates to leverage support for new reform agendas within each district, the distinct variation between districts in their responses, as summarized above, does not lend itself to simple a priori explanations.[46]

The conceptual approach proposed by Spillane accounts for these differences and relies upon district organizational capacities, organized access to information, and the skill of individual administrators (such as knowledge and commitment).[47] A common theme across these resource capacities was the mobilization of individuals within a district into a more focused and organized collectivity. ("This interaction of organizational and individual resources is a key to understanding an LEA's capacity for instructional reform. Spillane et al., 1995). Before the statewide reform was initiated, most districts had limited structural capacities to initiate new instructional initiatives. Administrative structures were hierarchical and preoccupied with managerial and procedural concerns (i.e., simple mechanical compliance).[48] The development of resource capacity described in the Michigan State study have certain parallels to James Coleman's (1990) analysis of organizational innovation and the creation of social capital in output-driven systems. In order to construct new curriculum material, district administrators first had to identify knowledgeable experts within the district (usually "lead" teachers) in each discipline, and then organize some sufficient numbers of these individuals willing to collaborate in a "new" enterprise.[49]

Second, links to external professional networks[50] provided access to discipline-specific knowledge for certain administrators and teachers. Besides providing opportunities to learn about these new reforms first hand from these professional organizations, they allowed participants to bring back to their districts a "sense of ownership of the reform agenda" which they then could communicate with more substantive conviction to other teachers. The third elements (time, funding, and labor) were resources that district administrators continued to control before and after the new reform initiatives. Small district size and state regulations often imposed serious constraints on the ability of districts to shuffle priorities in order to give more attention to new instructional issues. For example, staffing curriculum development committees and funding substitutes while regular teachers spent one week in professional development seminars required administrative skill (and not budgetary flexibility and available funds).

These case studies provide strong evidence, in my opinion, that the local school districts will play a critical role in educational reform. State legislation has affected the broad parameters of reform in terms of proposing core curriculum, new statewide testing requirements, and funding incentives. But the state mandates cannot be directly translated into new instructional practices at the school level without a restructuring of the relationship between schools and district curriculum policies as demonstrated by these experiences in Michigan. At the same time, other reform strategies that have focused on individual school-level reforms (where the district is bypassed entirely) have not been a "stimulus to change in individual schools over time" (Elmore, Abelman, & Fuhrman, 1995). In the context of the Spillane arguments, individual schools do not have the administrative capacity or resources to mobilize curriculum reforms mandated by new standards (although a

limited number of high performance schools may have successfully implemented them prior to the establishment of these reforms[51]). In Michigan, a permissive charter law will provide interesting comparisons of different strategies, even though these charters must be "sponsored" by school districts.

The final question, of course, is the ability to consistently "track" different reforms in different states.[52] At least for mathematics and science, comparative "evaluations" have been started as part of the NSF state systemic program (SRI, 1996),[53] and individual states receiving SSI grants have also conducted their own studies.[54] There may be sufficient information from all these studies to extract some common themes concerning the role of district administration in developing instructional content in their schools. Some precipitating event (usually new state requirements, tests, or curriculum policies) provides an identifiable context (when did this occur, what did the district think it would have to do, etc.). Then the process of implementation involves several key elements: How was the new curriculum content constructed? Who was involved, how long did it take, what financial resources were shifted? What was the impact of new testing standards? Were new forms of professional development organized? The articulation of different themes in the new mathematics standards suggests that how administrators "talk" about reform has some relation to what they have done to develop new material, and how they have gone about implementing "reforms" in their schools. And, these administrators usually have some "feedback" from principals, teachers, parents (and probably their school board and superintendent) concerning the "relative progress of change."[55] Michigan is not unique in this "movement" toward "standards based" reform.[56] The organizational structures of local districts have responded, maybe more out of necessity than principle, to these pressures for improved student performance from the state. District administrators have forged new connections with school staff and teachers to design a more coherent, but not always consistent, set of curriculum principles and instructional guidelines. In most cases, the districts have not passively removed themselves from the process and they have not allowed individual schools to mobilize existing capacities or develop new resources for these new standards.

Conclusion

The current and future utility of SASS is derivative of these relatively new state education reforms.

The only comparative state data on the organizational capacities of districts and schools comes from SASS. Short-term student outcomes from state-level NAEP are important, but between-state variation often are not as critical as between-district comparison within a state to state-level policymakers. They are more concerned with their own performance systems and the quality of instructional capacities and resources within their own state (more importantly how they have changed over time). Accountability within existing governance structures is an active force driving these reforms. State education

commissioners are now more attuned to governors and state legislatures, and school superintendents are more responsive to their local constituencies. Administrative and school organizational processes have changed accordingly, and this change has implications for how a survey is organized and designed.

First, district administrators are no longer exclusively concerned with routine budgetary matters. More important, the details (the dollars, the personnel counts, the number of students, closing old buildings, etc.) are now collected and reported on an accurate and regular basis in the CCD surveys. When the National Center for Education Statistics comes back for the same information from the same administrators, the "bureaucratic response" may vary. The numbers may have changed in the intervening months, certain types of details may never have been available, or the terminology may not be recognizable to administrators in certain types of districts. Large districts are fundamentally different from small districts. Accordingly, questions that overlap with CCD surveys should, in principle, be avoided or subject to a simple and quick review (at the end of the survey: just ask, "by the way, can you quickly confirm these numbers."[57])

If one asks district administrators questions that are more relevant to their day-to-day concerns and problems (and which have not been asked before), they can give more detailed, consistent, and informed responses. The questions themselves have to be logically simplified with more introductory explanations to establish common definitions. A major concern of districts is the increasing preference for "choice" mechanisms in student assignment (at a certain level, this is how public schools respond to market pressures for private schools, charters, and vouchers). The slow demise of the neighborhood school[58] presents new problems of matching parental preferences to more distinct educational offerings. If within-school reforms did not work, districts had to shift to district-wide magnet schools and more limited choice options. In the process, the allocation of instructional staff is also subject to similar pressures. Total-school magnet principals are usually allowed to choose most of their staff from any school in the district when the school first opens. What district administrators know (and what school principals do not) is the complexity of shifting students, staff, and finally federal and state money associated with programs for special populations between schools. In most cases, these processes are not random and cannot be reconstructed without understanding the process.

At a minimum, district administrators can describe what they have done, or at least what they have been doing, since some "new" policies were implemented at some fixed point in the recent past.[59] The outline of these policies for student assignments has already been discussed. But the reform process also has to involve teachers and principals. Ironically, many teachers have strong ties and professional investments in the school where they are "employed," but they are employed by the district rather than the school. Subject to a multitude of procedural constraints, teachers can be and are reassigned with only limited "choice" by district administrators. In the 1980s, arbitrarily shifting personnel between schools was

common. The Michigan State study provides a different perspective on the networks between teachers in different schools, administrators, and professional organizations that are emerging in response to new state content standards. The outlines of these organizational capacities and the resources (often more time than money now) that are necessary to mobilize before instructional change can occur are still controlled by local school districts. Despite strong pressures for decentralization and deregulation, schools themselves have demonstrated limited capacity to initiate reforms except in isolated cases.

The question itself about the future status of a LEA survey, in many ways, mirrors the policy dialogue as discussed by Spillane et al. Maybe, if one continues to avoid the question, the significance of administrative structures will quietly disappear. This probably will not occur. States have chosen not to abolish local school districts, and only under extreme conditions such as receivership have states decided to administer districts with state personnel. The only alternative is to review, step-by-step, the implementation process of new reforms at the district level in each state. The administrative process reflects a common set of instructional themes and new accountability mechanisms. The major changes are compatible with a new and measurable discourse.

Appendix I

STATE	DISTRICT SAMPLING			SCHOOL SAMPLING			CCD	Dist
	Dist	School	Ave.	Dist	School	Ave.	Ave	> 10k
Alabama	42	203	4.8	103	221	2.1	10.0	6
Alaska	15	136	9.1	46	196	4.3	8.7	3
Arizona	50	246	4.9	95	170	1.8	5.0	14
Arkansas	61	173	2.8	126	164	1.3	3.4	2
California	99	394	4.0	268	416	1.6	7.2	53
Colorado	31	301	9.7	74	173	2.3	7.6	16
Delaware	22	51	2.3	19	72	3.8	8.0	
Dist of Col	1	35	35.0	1	72	72.0	181.0	
Florida	20	400	20.0	55	258	4.7	37.0	19
Georgia	44	286	6.5	97	179	1.8	9.4	17
Hawaii	1	73	73.0	1	94	94	238	1
Idaho	36	167	4.6	79	166	2.1	2.3	4
Illinois	94	344	3.7	193	283	1.5	4.2	9
Indiana	61	218	3.6	132	184	1.4	6.2	10
Iowa	72	204	2.8	128	169	1.3	3.6	6
Kansas	57	243	4.3	110	161	1.5	4.9	6
Kentucky	42	201	4.8	98	167	1.7	7.9	3
Louisiana	29	297	10.2	67	225	3.4	20.5	15
Maine	54	173	3.2	105	152	1.4	3.2	0
Maryland	14	293	20.9	23	171	7.4	52.6	12
Massachusetts	67	212	3.2	157	229	1.5	5.0	7
Michigan	85	329	3.9	189	227	1.2	5.2	16
Minnesota	72	200	2.8	134	171	1.3	3.7	13
Missouri	76	249	3.3	126	178	1.4	4.1	13
Montana	70	137	2.0	155	161	1.0	1.8	1
Nebraska	71	204	2.9	116	170	1.5	2.0	3
Nevada	11	193	17.5	18	119	6.6	21.3	2
New Hamphsire	46	135	2.9	76	120	1.6	2.7	2
New Jersey	93	223	2.4	151	194	1.3	3.9	9
New Mexico	25	188	7.5	62	142	2.3	7.4	7
New York	63	384	6.1	201	313	1.6	5.3	7
North Carolina	41	325	7.9	92	184	2.0	14.9	21
North Dakota	47	136	2.9	130	162	1.2	2.3	2
Ohio	93	239	2.6	155	196	1.3	6.1	10
Oklahoma	72	230	3.2	235	161	.7	3.2	10
Oregon	53	255	4.8	107	170	1.6	4.1	7
Pennsylvania	88	225	2.6	159	196	1.2	6.0	6
Rhode Island	23	158	6.9	35	106	3.0	8.5	2
South Carolina	38	257	6.8	70	164	2.3	11.6	13
South Dakota	48	131	2.7	112	164	1.5	3.5	2
Tennessee	35	258	7.4	86	189	2.2	10.9	12
Texas	84	442	5.3	291	413	1.4	5.9	45
Utah	20	257	12.9	31	170	5.5	17.8	11
Vermont	62	91	1.5	92	108	1.2	1.3	0
Virginia	35	275	7.9	92	188	2.0	13.4	15
Washington	56	298	5.3	117	197	1.7	6.8	18
West Virginia	28	216	7.7	55	178	3.2	16.6	6
Wisconsin	64	219	3.4	126	170	1.3	4.8	7
Wyoming	55	96	1.7	50	131	2.6	.	0
Total	2573	11379	4.4	6459	9333	1.7	4.4	

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1. The formal governance of public schools itself is another topic "... there is little agreement as to what the system actually looks like." (The Twentieth Century Fund, 1992)

2. For example, Baker (1996) and Stodolsky (1996) implicitly link individual teachers to classroom instruction practices through a greater attention to content-specific disciplines.

3. This paper unfortunately can not address any of the important organizational parallels or differences between sectors (Baker, Han, & Keil, forthcoming).

4. How this centralized and integrated political culture survived reform-oriented competition in the 1980's is another question.

5. This argument follows the discussion presented by Scott and Meyer (1987).

6. The percentage of funding from states sources (45.6 percent) now exceeds local sources (44.7 percent), *State Comparisons of Education Statistics: 1969-70 to 1993-94.*

7. The historical sources of this situation are traditional localism and federalism, mistrust of government, and political design.

8. The original argument was presented by Meyer, Scott, and Strang (1987), but has not been updated. Increasing sophistication in aggregate district-level and school-level data in CCD (supplemented by individual data from SASS school and teacher surveys) provide untapped resources to verify changes in these theories of bureaucratic complexity.

9. Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century, the Report of the Task Force on Teaching as a Profession* (1986). The most detailed review is E. Boe and D. Gilford, *Teacher Supply, Demand and Quality* (1992).

10. The most comprehensive review of SASS-related research is contained in Ingersol (1995).

11. The school-level question asked only if there were any unfilled position, not how many. It should not be expected therefore that aggregate school-level numbers will provide precise estimates.

12. The limitations of the LEA survey, which can only ascertain how many teachers were new hires in that district, are quite apparent compared to individual data. A substitute measure based on net aggregate change from CCD would probably be satisfactory.

13. The sophisticated weighting of schools and districts ensures close estimates. Nonetheless, there are some inconsistencies in district-level responses such as counting K-12 but including pre-kindergarten counts in the CCD. The time frame sometimes is important with districts giving numbers as of the date when they are filling out the questionnaire rather the date specified in the SASS survey form.

14. For example, the 1993-94 SASS public school sampling design is based upon teacher counts from the 1991-92 CCD (see Kaufman et al., 1996).

15. When a LEA does not respond, simple variables, such as district size, for example, are treated as missing in SASS user files.

16. There are seven functional categories including special regional purposes. Approximately 1,197 districts (1992-93 CCD) have either no (or only one) school, and no students (but some also report FTE teachers). Schools in these districts are excluded from the sampling frame and therefore these LEAs properly are not included in the district frame. In the 1993-94, there was a process to sample these teachers, but only a small percentage were actually found to be teaching in regular districts. It is tempting to recommend a "footnote and exclude" philosophy for these districts with minimal staff and small numbers of students.

17. Based upon CCD estimates, only 53.8 percent of the total public school FTE are teachers.

18. Individual decisions are often made by the principal or hiring committee from filtered lists prepared by central office staff.

19. With a five-year interval, the district and school survey should ask whether policy changes occurred during this period and if so in what year.

20. In many large districts, attendance zones can be complex (particularly when choice options are available to some students), and they are established (and often adjusted on a yearly basis) exclusively at the district level.

21. The number and scope of these programs is well beyond the scope of this paper, but evaluation of these programs has frequently involved representative samples and structured surveys.

22. The discretionary factors that districts can control were primarily measured by teacher characteristics (undergraduate major, highest degree, type of certification, etc.) rather than district-level data such as base salaries, etc.

23. It should be noted that "climate" variables constructed from aggregating individual teacher responses to the school level had large impacts. While also accounting for some of the missing schools, aggregation is an alternative strategy to estimate higher-level units.

24. These equations allow one to estimate whether opposite race teachers (minorities teaching in white schools and whites teaching in minority schools) had higher salaries controlling for the racial composition of the district. The major effect was for Hispanic male teachers to have higher salaries than white male teachers, and this effect was not dependent upon the percentage Hispanic in the school or the district.

25. In some preliminary estimates, the average number of schools per district for the state of Michigan would increase from 1.2 per district to 4.8.

26. Florida has a total of 67 districts.

27. There are still over 6,000 districts with less than 600 students. Under this proposal fewer schools would be sampled and a brief (if any) LEA instrument could be administered, thereby reducing total burden.

28. In North Carolina, there are seven schools with student populations greater than 25,000 and an average of 19.7 schools (the range was 10- 37 schools) were sampled. Among the 14 smaller districts (population between 10 and 25 thousand), an average of 6.8 schools per district (the range was 3 to 13 schools) were sampled.

29. The size of the district when a desegregation plan was first implemented (not a district's size when its current plan is assessed) is important to consider in order to avoid confounding growth in student population due to racial composition of the district and its metropolitan context with the long term effects of the plan independent of its specific components.

30. Complex student assignment plans utilizing choice are typically not employed in smaller districts. In their initial plans, all-black schools were closed and attendance boundaries or grade structures were changed.

31. There was an additional condition concerning special needs students.

32. For rough comparisons, the AIR study estimated that only 230 districts had magnets. This was a telephone survey that included lengthy descriptions of what magnets were and their objectives for desegregation purposes.

33. The published figure in *1993 Statistical Profile* is 6.5 percent in reference to programs offered within schools in a manner comparable to bilingual or Chapter One (Table 2.4).

34. The number of districts with this erroneous classification was only nine after the revised definition of a magnet school was used and some may have been nonresponses, such as Chicago and St. Paul.

35. The "open enrollment" question did not provide meaningful numbers. In most small districts (with one type of school for each grade level), all students were in "open enrollment" programs. Between school transfers is an unfamiliar concept.

36. The criteria for state selection are driven by standards-setting criteria, primarily increases in the number of mathematics and science credits required to graduate from high school. Comparable state data on credits, revisions of guidelines to align with NCTM standards, and test requirements for graduation are currently reported in Table 17 in *State Comparisons*.

37. This ongoing study was funded by the Michigan Statewide Systemic Initiative under the direction of James P. Spillane.

38. This an ongoing three-part study that is properly classified as a "policy implementation" research.

39. The development of these new standards is contained in Thompson, Spillane, and Cohen, *The State Policy System Affecting Science and Mathematics Education in Michigan* (1994).

40. This type of district selection strategy, common in most state-level evaluations, implicitly reflects the interest to find the widest range of different types when only a limited number of districts can be studied in depth.

41. In principle, 36 schools would constitute the selected school sample for these nine districts, although in the smaller districts fewer schools were part of the sample. The 1993-94 SASS sampled 227 schools (7 percent) in Michigan, based upon the number of teachers in the state. In general, Michigan (558 districts) has a large number of smaller districts with 27.1 percent more of its students in districts less than 2,500 compared to national levels.

42. More structured interview protocols for district-level personnel were developed in the *Reform Up Close* study. There are certain characteristics of district-specific policy that appear to be "common": is there a "framework" document that the district has adopted, who decides what textbooks will be used, is there a testing program in the district, and have there been changes in graduation requirements.

43. This approach differs from the more detailed taxonomy used in the *Reform Up Close* study (see M. Leighton and J. Mullens, *Measuring Curriculum Content: The Status of Recent Work*) designed to measure instructional content at the classroom level.

44. The National Research Council has proposed a different set of standards.

45. The actual classroom implementation of these reforms is the third phase of this study. Of course, how comprehensive district-level curricula facilitates more fundamental changes in instructional practices within schools (even when background variation in content knowledge is considered) provides a rigorous test for this district mediating theory.

46. From the perspective of developing a district-level survey in the context of SASS, it is not clear that retrospective accounts at a single point in time can reconstruct how more successful and articulate themes were developed by administrative personnel.

47. Six factors are identified in the study: knowledge, commitment and disposition, time, funding and labor, professional networks, trust, and collaboration.

48. The obstacles presented by bureaucratic layering (particularly in large districts) have to be considered a factor in the slow implementation of reform. It seems that districts had the necessary resource capacities, but had to make specific decisions to mobilize content knowledge and utilize this expertise in a different manner. Different allocations of personnel, time, and funds were critical in the "crafting" of district-wide policy.

49. From the descriptions in the study, the necessary "critical mass" was a mixture of self-selection (teachers volunteering themselves to lead the reform) and decisions by district administrators about their level of expertise. Apparently, conventional selection standards (no rules seem to have guided the selection) for committee participation were not followed and a decision was made to include teachers from most or all schools to bolster the argument for "representativeness."

50. These include NCTM, Michigan Council of Teachers of Mathematics, Michigan Partnership for New Education's Frameworks Project, Michigan-funded Mathematics and Science Centers. A substantial amount of federal Eisenhower funds flowed to the organizations through professional development programs (allocated to the districts).

51. The issues in school-level reform, primarily deregulation to promote autonomy and innovation, often find themselves limited to "relatively successful schools, to which eligibility was generally limited, did not find much need to embark on wholesale change, and used deregulation as one of many resources to support innovation." (Elmore, Abelman, & Fuhrman, 1995).

52. Unfortunately, the more detailed case studies have focused on implementation in individual states and the more comprehensive, comparative state analyses focus on national standards without providing analytic methods to examine between district variation within states.

53. CPRE's new Center, funded through the Governance Institute, has proposed additional analysis of state and local reform policy in these 26 states.

54. It is extremely doubtful that many of the state-level studies are comparable in insight and depth to the Michigan State study.

55. The Michigan State study included some interesting material on "complaints" (i.e., why the state policies were "unreasonable," why they didn't have money or personnel to prepare the mandated guides, etc.) that help distinguish the relative progress of different districts.

56. In a survey of 50 state school superintendents or commissioners, 43 claimed that they were revising their assessment and accountability systems in accordance with these principles (Elmore, Abelman, & Fuhrman, 1995).

57. Most of the first 22 questions are eliminated by this criteria.

58. Fixed geographical attendance boundaries were more amenable to sophisticated geocoding schemas and computerized transportation programs. These administrators didn't have to visit a school or talk to a parent.

59. Despite the idiosyncratic labels embedded in district-wide reforms, there are common features below the surface.

USE OF EDUCATION INFORMATION SYSTEMS WITH THE SCHOOLS AND STAFFING SURVEY: HOW CAN SASS BE LINKED TO SCHOOLS?

Rolf K. Blank, Council of Chief State School Officers

The Schools and Staffing Survey (SASS) has proven to be a very important and useful multi-purpose survey of teachers, administrators, and school systems. The next iteration of the SASS now being planned for 1998-99 school year can build upon a record of success and accomplishment from the 1988, 1991, and 1994 surveys. SASS is accomplishing some important goals; in the 1999 survey it can reach for a new goal of relating survey data on teachers to more detailed data from school information systems on the students teachers teach and the schools where they work.

SASS results provide important national- and state-level statistics for American educators about critical areas such as characteristics of the teacher and administrator force in elementary and secondary schools, basic descriptive statistics on dimensions of schools, and reliable data on the preparation and experience of teachers in their assigned fields and positions. SASS provides critical national statistics on projections of teacher supply and demand and key variables for analyzing trends in teacher turnover and hiring.

I approach this paper for the National Center on Education Statistics (NCES) from the perspective of educational uses of SASS and the data produced from the surveys. SASS meets several important purposes: reliable, periodic statistics for monitoring and reporting on the status of education systems to Congress, federal agencies, and states; and a valuable source of data on teachers and administrators that is useful for analyzing current conditions in K-12 education and projecting needs for educators.

My main position in this paper is that the current design of SASS could be significantly strengthened through linking with education information systems and that it would provide important data on the characteristics of American schools and how education is carried out within them. My suggestions and proposals for use of data from education information systems are based on my assessment of the strengths and weaknesses of the current survey and my views of the needs of education decision makers and educators for better information about schools and staff.

State and Local Education Information Systems Versus SASS

Strengths of SASS Design

SASS is based on surveys of individuals from stratified national and state samples of schools. The strength of the design is in providing reliable national estimates from samples of teachers and administrators with sufficient numbers of

respondents and items to provide both detailed descriptive information and relational analyses using a large number of variables. Another strength of the design is providing reliable state-level estimates across a wide range of variables describing teachers, administrators, and schools. In some areas of statistics about education, SASS provides breadth and depth of information not available in any other national or state survey, including:

- Teacher and administrator background
- Teacher education and experience
- Current assignments
- Pay and benefits of educators
- National projections of supply and demand
- Student enrollments and staff characteristics analyzed by key demographics--size, type of community, state

SASS is designed from a research-based model of key statistics for understanding and explaining the operation of the teaching force in schools. Using a sample survey, SASS can ask more questions from a sample of teachers and schools than would be possible or feasible in a universe or population data collection. A sample survey across states also provides a standardized method of collecting data on basic elements of the education system, such as number of schools, students, special programs within schools. States collect data on these variables but they are hard to standardize.

Limitations of SASS Design

The SASS design emphasizes certain purposes and uses. The main limitations of SASS as a general-purpose education survey are:

- Information about the students in schools
- Lack of curriculum and instruction data
- Student outcomes
- How schools are organized and how resources are used
- Capacity to analyze equity of staff and resources allocation in relation to student characteristics

SASS has further limitations at the state level. Due to limitations of sample size in each state (100-200 schools), important uses of SASS data at the national level are not possible at the state level, such as analyzing extent of teacher turnover by field, projections of teacher supply/demand, and trends in preparation of teachers by field.

Design of Education Information Systems

State, local, and school education information systems are typically based on universe data collection. These data systems have been designed mainly from the requirements of state legislation and district policy--that is, the systems are designed to provide counts and tabulations on students, schools, and educators in order to satisfy laws and policies concerning education accountability, monitoring, and reporting. An example would be reporting the extent to which schools have state-certified teachers, or assessing the extent of improvement in rates of graduation.

Recently, more states and districts are designing data systems based on rational

planning of the multiple purposes and uses of data at all levels, and the efforts include systems for linking and transferring from classroom to school level to district to state. However, even the most recently developed "unit record systems" such as in Texas, Florida, and Ohio have not attempted to expand the breadth of the data into many of the areas covered by SASS, such as teacher background and education, professional development, attitudes, or conditions in schools (CCSSO [unpublished analysis of state accountability and indicator reports], 1996).

All states have an education information system that involves collecting data from all districts and schools. About 45 states maintain annual databases for all teachers and administrators with their assignments/courses and other information. About ten state systems include student records with student background data and annual data on variables such as student activities, courses, and test scores.

Why Use Education Information Systems?

Given the main differences between the purposes and scope of data in SASS and state or local systems, what are major reasons for trying to link data from education information systems to the SASS? What advantages and benefits are there are for NCES, the sponsoring agency? What advantages and benefits are there for states and for local districts and schools--that is, the expected partners in the project? What are the advantages and benefits for customers and users of SASS and education data?

There are three possible approaches to linking SASS with data from education information systems. All of these possibilities reflect the goal of increasing data analysis and reporting at the state-by-state level. SASS has made strides in providing state-by-state data on education (NCES, *SASS by State*, 1994). My view is that SASS can significantly strengthen the useability and relevance of the Survey to educators by linking to education information systems that will greatly augment the capacity for reporting at the state level and developing within-state analyses.

State Aggregate Statistics

SASS results are used to produce indicators at the state level. The National Education Goals Panel, Council of Chief State School Officers, and the National Science Foundation are among users of state-level statistics, mainly data about teachers, which are generated from SASS. It would be possible to generate state totals and averages for indicators not available in SASS, such as:

- Course enrollments
- Enrollments in special programs
- Graduation rates
- Student and teacher transfers between schools and districts
- Detailed data on teachers by assignment

These state aggregate statistics could be generated by state education information systems using definitions and categories supplied by SASS, allowing a match to SASS statistics. For example, state data could be used to report the percentage of teachers in each state in the subjects/fields

defined on SASS questionnaire that are over a given age or are male vs. female.

In 1991, NCES conducted a field trial with ten states by asking them to report state-collected data on specific SASS items, including teacher assignments, certification, and special program enrollments. A workshop held by CCSSO to analyze the results showed that there were differences in how states defined and reported some of the variables in comparison to SASS and in comparison to each other. State data managers did see the possibility of reporting data requested by NCES at the state level that are not reported by SASS, or variables that do not have sufficient detail at the state level. State managers saw strong benefits for decreasing burden on schools of reporting available data from information systems to avoid duplication or further need for expansion of SASS.

How could this approach (#1) be carried out? NCES would need to contract with each state, or an organization that would subcontract with each state, to produce data according to specifications and definitions defined by SASS. The amount of money would not be large for each state, but a contract would provide for a timetable, staff to perform the work, reporting schedule, a state commitment, and assurance from NCES about uses and reporting of the data. The advantage of using state aggregate statistics reported by states is that SASS could obtain additional state-level indicators in key areas of policy and educator interest, such as progress of secondary students to higher level courses, with relatively little additional cost and with the addition of 50 data collection sites (state departments of education). The disadvantage of this approach is that data would not be available for analysis down to the district and school level.

State aggregate data on science and mathematics enrollments, teacher assignments and demographics, and teacher certification have been collected by CCSSO from SEAs since 1990. Currently, 35 states report on all of the state aggregate statistics. Forty-five states report on teacher assignments for grades 7-8, 9-12 (Blank & Gruebel, 1995).

CCSSO also collects state policy information from all states every two years. The policy information on graduation requirements, standards, teacher certification, attendance, accreditation, and policies on time can be made available to SASS (CCSSO, 1995).

States Report Data at State and School Level

SASS selects a sample of schools for the nation and for each state. Teachers and administrators are surveyed from the sample of schools. At the school level, the SASS survey collects data on student and teacher characteristics such as race/ethnicity and on enrollments in programs such as Title I and vocational education. In 1994, SASS requested data on a sample of students from each school in order to determine school-to-school differences among students.

SASS is limited in reporting on and analyzing differences among states in school-to-school variation in areas such as student background, teacher characteristics, and school resources and materials. Four important questions could

be answered by linking SASS with state information systems for a sample of schools in each state.

(A) Is there equity of access, by state, to well-prepared teachers and resources for excellent teaching for students from schools with varying composition and location?

These data would provide the kind of research analysis that Jeannie Oakes, Iris Weiss, and others have conducted with the National Survey of Science and Mathematics Education (see, for example, Weiss, 1994). The NSSME surveys (1977, 1987, and 1993) were conducted with a national sample of teachers and schools. The results of the analyses showed significant variation in the allocation of well-prepared teachers to high minority vs. low minority and high-SES vs. low-SES schools. Also the issue of course taking differences by school/student characteristics could be studied. This kind of analysis can now be carried out with SASS data at the national level.

(B) What is the rate of teacher turnover and return to teaching, by state, across different subjects/fields?

Little can be done with teacher supply/demand questions at the state level using current SASS samples. By adding universe data from all schools in SASS sample, including teacher assignments, demographics, number of years teaching, etc., NCES could join with states in analyzing turnover by field/grade level and by school characteristics as well as analyzing some data on teachers returning to teaching and new teachers.

(C) What are differences in curriculum offerings, programs, and course enrollments according to differences among schools and students?

Many states, not all, would be able to report school-level data on courses and programs. Other states would have to request the data from districts or schools. These data would not provide data from teachers on subject content and instruction (see below) but they would be able to provide universe data for all students in a school to determine differences by school characteristics matched with teachers in the same schools.

(D) What are the differences in expenditures by function (classroom teachers, administrators, benefits, buildings, textbooks, materials, technology) across school differences?

Recently, systems have been developed for coding and analyzing education expenditures down to the school level. These systems involve a methodology for coding all education costs and allocating costs on a per school and per classroom basis. SASS produces important and useful data on teacher and administrator salaries and associated costs. If a state, districts, and schools used the same accounting system, SASS data could be linked to data at school levels and costs other than salaries could be analyzed to determine how education funds are used across states and by school characteristics.

How could this approach (#2) be carried out? NCES could contract with states to report universe data on all students, teachers,

courses, programs, and costs for schools selected into the SASS sample. This is based on the assumption that the SASS school sample is representative of schools in the state. If some additional issues pertaining to school organization, programs, and curriculum were desired, such as effectiveness of the middle school approach, additional schools would need to be selected.

Data on the universe of teachers and students in the sample schools would allow for analysis of the questions about equity, teacher turnover, curriculum, and finance. NCES could establish a system of technical assistance to states for sampling and for matching data definitions in SASS with definitions used by states, or for data collection and reporting. This model of assistance to states is employed by Centers for Disease Control in its Youth Risk Behavior Survey that is conducted in collaboration with states.

School as Unit of Analysis--Working Directly with Schools and Districts

Data from schools and districts. A third approach would be to expand the number of variables for school-level data collection through education information systems. The 1994 SASS tried a student record data collection using a sample of students in selected schools. This was designed to provide statistics on the characteristics of students in each school. SASS could also link to school-level data systems and expand the kinds of questions to be asked at the school level. This model assumes that SASS could send a data diskette directly to a school and they could transfer school-level data directly to the diskette. NCES may consider a small payment to each school to assist with the data reporting/transfer.

By drawing on existing school records and data systems, SASS could ask a focused set of questions that would get at the following key areas of data that would reflect key policies and school decisions, operations, student and teacher assignments, and student activities and progress. The kinds of data envisioned with this approach are similar to the kinds of items in the NELS surveys. All of the variables identified in #2 could be collected with this approach. Additional variables that could be accessed:

- Changing student and teacher composition: number of new students per grade per year, number of new teachers per year per subject/grade
- Allocation of materials, texts, and resources: e.g., data on the types of books, equipment, and other curriculum materials and how they are allocated
- Student outcomes: type of student assessments and other methods of evaluating progress, how assessment data are used (public reports vs. teacher diagnostic and curriculum planning), aggregate school or class-level scores on tests, student retention and promotion, suspensions and transfers/reassignments
- Curriculum information: data that reflect curriculum and instruction in schools may be obtained from information systems, including

course offerings, levels of courses and enrollments, teachers assigned to courses

- Data on teacher inservice and professional development: schools or districts would be more likely to have data on professional development in an information system, possibly as part of their personnel files. To the extent these data are annually updated, a wealth of data on current professional development activities may be available

How could this approach (#3) be carried out? This school or district approach would add a major data collection component to SASS. Several thousand schools in the SASS sample would receive an additional request. By 1999, data systems and access to personal computers in districts and schools would be sufficiently developed to allow a computerized data collection form, saving time and effort for school personnel. Data systems and coding structures may be common enough to allow a direct data entry/transfer approach that would expand the amount of information that is currently collected from schools. The expansion of data collection from school level may not be possible if SASS relies on paper forms to be filled out at the school level. But, even if this method must be retained, a number of additions could be made at the school level.

Schools are a key unit of analysis for research on education reform and analyses of education programs and curriculum, use of resources and staff within schools, and efforts to improve the skills of staff. Efforts should be made to collect and provide much broader access to data about schools and what goes on in schools, at both national and state levels.

Incentives for Schools, Districts, States

NCES and SASS needs to strongly consider an approach to data collection that will provide some incentives for cooperation. NCES and federal data collection has typically approached education units as "data providers." Users are viewed as Congress, researchers, or policymakers. Educators know this. Surveys are viewed as a burden, particularly those for which they seldom see results or direct feedback. In order to make use of Education Information Systems, NCES/SASS will need to carefully think through and plan incentives. Here are suggestions:

- Money: Small amounts go a long way toward reducing negative responses

- Direct feedback: Give back school averages, state averages, or national averages as soon as they are available to all respondents. Give them back a sample of the data results that are allowable within the law. Make it a two- to five-page feedback of some kind

- Give educators something else in return: NAEP has alleviated some hard feelings by allowing schools to keep calculators, science equipment, and other assessment materials. A report on the last

SASS survey could be given to each school when the requests are made

- Raise the visibility and importance for educators: A letter from a congressman, senator or state superintendent could be enclosed saying how the survey and data are important

- Invite educators to a workshop in each region or state: NCES puts lots of money into the Cooperative Statistics program with states. Use some of it to give and get feedback directly from educators in states about data and their uses

- Think creatively about education data helping education: Data are often viewed as part of monitoring, accountability--an external requirement. How can it be viewed and provided as a support to educators? Efforts to build bigger and better databases will not be widely used or appreciated if this question is not addressed

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COLLECTING REPRESENTATIVE DATA ON SCHOOL RESOURCES: UNDERSTANDING THE LINKAGE BETWEEN ADEQUACY, EQUITY, AND OPPORTUNITY TO LEARN THROUGH SASS

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Introduction and Background

The purpose of this paper is to suggest ways in which the 1998-99 Schools and Staffing Survey (SASS) might be redesigned to examine patterns of resource allocation in public and private schools in the United States. The paper assumes that the reader has a basic knowledge of the current structure and content of SASS.

This paper argues for taking advantage of the opportunity that SASS currently offers to expand and improve upon the resource data at the school and district level. It suggests some significant reconfiguration of the ways in which personnel data are gathered at the school and program level. It argues that SASS could serve as the foundation for considerable work of interest to other agencies within the U.S. Education Department and could be utilized as a centerpiece of data analysis for studies of educational programs. Moreover, an enhanced version of SASS could reduce the need for more detailed fiscal data collection at the school or program level. SASS also could enhance the student-level data collection to improve the quality of information on how individual students are being served, and SASS could begin to consider ways of linking to other databases on student outcomes to address productivity issues in education.

The paper begins with a definition of what is meant by the term school resources and the importance of these data. This is followed by a discussion of an alternative source of data on school resources: namely, the fiscal reports of the Common Core of Data (CCD). The major portion of this paper is devoted to ways of redesigning SASS for the purpose of gathering better data on school resources. This section discusses ways of gathering data on the quantities of school and district personnel, the qualities of school and district personnel and compensation, information on the state regulatory and funding environment within which schools operate, utilizing the existing student questionnaire to gather data on service and cost profiles of students, the importance of linking SASS to other databases, and, finally, what we might give up in SASS to make room for the proposed changes and revisions.

What Is Meant by School Resources?

For the purpose of this paper, the word resource can be used interchangeably with input. School resources are the ingredients or inputs used in the educational process in the nation's public and private schools. Among these ingredients are the characteristics and capabilities of the students themselves as well as the school personnel and non-personnel resources used at the school and district level to organize and provide educational services.

Each student arrives at a school with a unique set of endowments that when combined with the resources provided by the school produces a certain collection of outcomes, i.e., student performance, behaviors, and attitudes.

Among the school resources are the variety of personnel who come into direct contact with students. These personnel are characterized by a set of attributes, abilities, and skills. Their job titles describe the ways by which they interact with students, while their personal characteristics provide information that may relate to their potential for generating outcomes for students. While there are a number of other important non-personnel resources (e.g., computers, televisions, and other technology items as well as access to the Internet and its utilization) which affect the process, this paper will focus attention on the personnel quantities and characteristics. The fact that more than 80 percent of public school district budgets are devoted to personnel costs suggests the importance of understanding how this input is allocated and utilized among different kinds of schools.

Why Are Data on School Resources Important?

By understanding the patterns of utilization and allocation of personnel resources, policymakers can increase their ability to address issues of equity, adequacy, and opportunity to learn. At the heart of the issue of adequacy are measures of access of the nation's youth to educational resources, while the critical equity issue is the distribution of those resources among different types of communities and among students with different educational needs.

For all children to have equal opportunity to learn, it is a necessary condition that they have similar access to an appropriate level of resources. The next step in this process is linking school resources to student outcomes. Increasing our understanding of the linkage between resources to outcomes is going to be critical if the push for higher academic standards as a cornerstone of school reform coming out of the recent Education Summit is to have any meaning.

The value of school resource data may be found in the kinds of studies that could be done.

Resource allocation studies. What kinds of resources are being allocated to different programs? What are the quantities and characteristics of the resources being utilized in different communities? How are services being delivered in the nation's schools? To what extent are different kinds of services being offered and how are resources organized for the provision of services (e.g., through self-contained classrooms, integrated or inclusionary programs, pull out programs, departmentalized instruction)? What other kinds of supplemental or related services (e.g., physical therapy, occupational therapy, speech therapy, counseling, social services) are being offered? What are the patterns of inequity in resource allocation? What district characteristics contribute to differences in resource levels? To what extent do community factors play a role in resource allocation? How much can be affected by policy changes?

Estimates of programmatic costs. What are the patterns of variation in the allocations of resources among different educational

programs? How well do these programs relate to the patterns of variation in student needs? What are the implications for the adequacy and equity of existing patterns of resource allocation?

Educational productivity. What are the relationships between school inputs, student characteristics, and outcomes? Which kinds of school resources make the most difference? Are there differences among types of communities in the effectiveness of school resources? To what extent can differences in outcomes be accounted for by differences in school resources?

School finance reform. What impact do different school finance formulas have on the levels and allocation of educational resources among different communities? To what extent do differences in district versus school characteristics influence the level of resources allocated to individual schools?

School labor markets. What are the differences in the costs of different school personnel? What factors affect the ability of different local communities to recruit and attract qualified personnel? What kinds and combinations of school personnel are being utilized in different communities across the nation? How do such personal characteristics as degree level, field of study, type of certification, and professional experience match the responsibilities to which they are assigned?

Differences in public versus private schools. What are the differences in the patterns of resource allocation and utilization in public versus private schools? How do class sizes compare? How do the qualifications and compensation of staff compare? What factors underlie the differences in the quantities and characteristics of personnel resources in public and private schools?

Why SASS Versus the CCD-fiscal Reports?

For years, school finance researchers have paid considerable attention to the equity with which educational resources and services are distributed among local schools and districts. The problem with these studies is that they have focused on fiscal measures of resources which, because of geographic or inflationary cost differences, make it difficult to sort out the real differences in the levels of resources across schools and districts. NCES is currently organized in such a way that creates a rather narrow view of what constitutes school finance research. The division of NCES within which the Common Core of Data resides is responsible for the school finance agenda of the entire agency. The phrase "school finance" itself engenders an image of dollar allocations. The problem is that these dollar images provide little information about differences in the "real" resources devoted to education. Spending differences over time or across geographic regions reflect both real differences in resources as well as differences in the prices of comparable resources.

Another significant problem in fiscal data is that it is ultimately organized according to reporting standards that differ across states and over time. Although NCES does publish an accounting handbook that provides standards for reporting fiscal data, not all states or local jurisdictions use the handbook. Moreover, those jurisdictions that do, do not necessarily

hold strictly to the accounting standards. In other words, there is a great deal of variability in the standards of reporting fiscal data among local jurisdictions. Analysis of resource allocation *must* ultimately rely upon more detailed and precise information on the physical ingredients utilized in the process of producing educational services.

In addition, there is much discussion from NCES as well as the community of school finance researchers about moving to school-level fiscal analysis and about improving fiscal reporting to obtain estimates of how much schools are spending on different programs. SASS may offer the best opportunity to obtain good data on costs of programs at the school level through improvements in data collection on staff. SASS already collects a significant amount of important information on school personnel. A reorganization and reconfiguration of existing questions could enhance significantly the value and comprehensiveness of the data (specifics are offered below). SASS provides data that are representative within states as well as across the nation. Representativeness of SASS within states permits comparisons of differences in patterns of resource allocation that might be a result of differences in the administrative, regulatory, and fiscal environment within which schools operate across states. In addition to the added compatibility of information across states and local jurisdictions, using more direct measures of ingredients in this way allows increased flexibility to reorganize the data more easily for different purposes.

Another issue confronted by NCES in considering whether or not to begin gathering school level data is the cost of such a move. Does one gather data on all schools across the country or a just a sample of schools? To gather fiscal data on all schools requires imposition of a rigorous set of standards for reporting fiscal information. SASS provides a cheaper alternative by gathering data on a sample of schools, and it has the potential for providing raw data in a more compatible format than is common in fiscal reporting systems.

Many of the large-scale studies undertaken by the U.S. Department of Education every year could benefit by a somewhat expanded version of the SASS. These large-scale studies require significant data collection activities that to some degree duplicate information that already exists within SASS. With some expansion of SASS and some consultation with those government program officers involved in the design of these large-scale studies, the costs of data collection for these other studies might be reduced by virtue of the availability of SASS. One role of NCES should be to provide the kinds of databases that permit analysts to conduct these kinds of large-scale studies of issues related to the allocation of resources and to make these data available for use in the conduct of studies being required by other divisions of the U.S. Department of Education. Rather than having each study go off in a completely independent direction for data collection, the data for the SASS schools and districts and states could be used as a foundation for analysis. The advantage would be in efficiency in data collection, and it would provide larger samples of schools and districts for analysis for many

studies that currently rely on small samples of schools because of limited budgets.

For example, one could easily envision ways in which the SASS data collection could serve as a foundation for analysis of resources utilized for special needs populations including Title I, special education, limited-English proficient, gifted and talented, vocational, and early education programs. With these issues in mind, the following recommendations for revising SASS will be elaborated upon below.

- Staff should be reported through FTEs rather than full-time and part-time head counts
- Staff should be reported according to types of delivery systems and programs they serve
- All staff should be covered in the survey: both school-level staff in the sample schools and district-level staff in the sample districts
- More information on individual staff should be gathered to improve data on geographic cost differences and inflationary trends--with ability to control for personal characteristics
- Individual student information should be revised to obtain a more precise profile of needs and services
- SASS data and samples should be more effectively linked with other NCES data such as the CCD fiscal files and with data on student outcomes
- If it is necessary to sacrifice elements of SASS in order to make some of the revisions being recommended in this paper, then it is suggested that SASS reduce or eliminate the subjective elements on teacher attitudes and perceptions in favor of more objective data

Redesigning SASS to Gather Data on School Resources

Quantities of School and District Personnel

The current SASS school questionnaires request information on the numbers of all full-time and part-time staff employed at the school. No such data on district level staff are currently available in the SASS battery of questionnaires. Two specific changes in the way school level data are reported could improve the quality of the information for understanding issues related to resource allocation. First, report personnel counts according to full-time-equivalents (i.e., FTEs) or in a way that permits translation into the intensity of services received by the school. Second, personnel should be broken down by major program category. A sample of the way in which such personnel data might be gathered is presented in the appendix to this report. The proposed changes are discussed in more detail below.

Reporting FTE personnel. As an alternative to gathering the data on head counts of part-time and full-time staff positions, (e.g., as in items 16 and 17 of the 1993-94 *Public School Questionnaire*), these data

should be reported in terms of FTEs (full-time equivalencies) or hours per week of services by job title of personnel. Certificated school personnel should be reported in terms of FTEs because their jobs generally are defined according to responsibilities for providing certain categories of services and less in terms of the time they spend providing them. Non-certificated school personnel should be reported in terms of total hours per week of services rather than FTEs or head counts.

There are a number of ways in which this might be accomplished. For example, instead of just recording the number of full-time and part-time "school counselors," the questionnaire could request the FTE number of counselors employed at the school. This FTE count should reflect only the time of the counselor devoted to a particular school. That is, a counselor who is a full-time employee but who works half-time at the school for which the questionnaire is being completed would be reported as a 0.5 FTE counselor. An alternative approach would be to maintain two columns in which the number of full-time staff by job title and the total FTE or total hours per week of part-time staff are recorded.

Non-certificated staff are reported according to the total hours per week of service because there is a wide variation in the way districts define what constitutes a full-time non-certificated employee. In some cases, one FTE may be defined as an eight-hour day, five days per week, and 52 weeks per year or a total of 2,080 hours of work per year, while in other cases one FTE might be different for each category of worker. For example, one FTE aide might be defined as six hours per day for 181-day school year, while one FTE custodian could be defined as eight hours per day for a 210-day work year.

Because of these potential complications in the way districts define FTE, one needs to gather information on non-certificated staff in a somewhat different fashion to ensure compatibility. For example, if a school employed two full-time custodians each working 40 hours per week and one half-time custodian working 20 hours per week, the total reported in the cell in Table 1 for custodians would be 100 hours per week. If custodians typically worked a 200-day school year, then the total of 200 days would be reported in the column labeled, *"Typical contract days per year of work for this category of worker."*

Reporting staff by program. There is significant interest in the allocation of resources among programs for special need populations. As shown in Table 1, the school staffing data gathered on the SASS *Public School Questionnaire* could be reconfigured to gather the FTE and hours per week staffing data by program. Rather than simply reporting totals for each category of personnel as in the current SASS questionnaires, reporting could be done for the major school programs such as regular education, special education, the Title I program, programs for limited-English proficient students, and early childhood education programs. Even if the decision is made to count the number of full-time and part-time staff, a matrix of job titles by program categories could be reported to help assess the level of resources being utilized by special need versus the regular education program.

These data should be reported according to how people allocate their time and not according to how their salaries are paid. That is, an individual who is regarded as working in the special education program should be allocated to that program regardless of whether his/her salary is paid by the program.

The reader should notice the job titles or categories listed in Table 1 represent a somewhat expanded list from the staffing categories used in the 1993-94 SASS school questionnaire. First, student support staff like psychologists and therapists have been separated into two categories. The reason for this is to capture more accurately the types of resources being utilized in certain special need versus regular programs. Therapists often provide direct services to students on a weekly basis, while psychologists and social workers tend to provide services more on an "as needed" basis.

Second, teachers represent the most important resource in schools. For this reason, it is important to distinguish the use of teachers in primary as opposed to supplemental assignments. The self-contained classroom or departmentalized classroom teachers represent the vast majority of teaching staff within a school. However, in addition, many schools employ resource teachers or subject area specialists to provide supplemental instructional services to students. It is important to capture such differences because these different types of teaching personnel may have fundamentally different impacts on student outcomes.

Finally, because of the significant interest in inclusionary or integrated programs, particularly for special education students, it is useful to break down resource teachers according to whether they are providing the traditional pull out or departmentalized programs as opposed to the more integrated services within the regular classroom.

Custodial and maintenance staff have been separated from food service staff to capture the level of staffing of these programs. Food service staff may tend to vary greatly among schools depending on the way food production services are organized. In some cases, school lunches are produced in one central kitchen and delivered to other schools, while in other instances, each school may run its own cafeteria. To combine food and custodial/maintenance services would obfuscate the different ways in which these services are allocated and provided among schools.

Reporting district administration and support staff by program. The increased interest in school-level resource analysis has led to an increased demand for information on the staffing of district administrative and support functions. There is already a fair level of detail about what schools look like, but little is known from SASS about what district administrative structures look like. Such data would be useful in assessing what kinds of functions are commonly performed by district as opposed to school-level staff. In the same way SASS could request data at the school level, it could also ask for data on personnel at the district level who do not show up on the school surveys. Staff who are assigned to schools and who provide services, even part-time, on a regularly scheduled basis at the school site should be

recorded at the school, while all other personnel should be reported as working out of the district office. Once again, as with the school counts, personnel should be counted according to FTEs and should be allocated among the same program categories as suggested above for the school-level allocation.

Characteristics of School and District Personnel and Compensation

The SASS surveys have contributed significantly to the analysis of teacher supply and demand. These data have been used to describe in great detail the characteristics of teachers, to examine those who are leaving the teaching profession, and to analyze patterns of teaching assignments, to explore the factors underlying variations in teacher turnover, and to explain variations in salaries of teachers. In a current project for NCES, the SASS databases for 1987-88, 1990-91, and 1993-94 are being used to construct a geographic cost index and an estimate of inflationary trends in the costs of teachers. Development of such geographic or time-series cost adjustments requires detailed information on the compensation and personal characteristics of teachers and the schools, districts, and regions in which they work and live. These indexes may be used by NCES to adjust reports of nominal expenditures to reflect real differences in resources devoted to the provision of educational services. These indexes may be offered to funding agencies at the state or federal level to be used in adjusting distributions to reflect real purchasing power of state or federal aid to local or state jurisdictions. Such indexes provide policymakers with important information about the ultimate impact of changes in economic, demographic, and political trends on the supply of teachers' services and the costs of educational services across local jurisdictions and over time.

In order to improve upon the analysis being done in the development of models of teacher compensation, there are three areas in which the SASS questionnaires need to be enhanced: the measurement of teacher quality, the measurement of benefits, and the extension of individual data to include other categories of personnel. Each of these is discussed further below.

Teacher characteristics. One of the most contentious areas in the analysis of teacher supply and demand involves attempts to measure teacher quality. It is an illusive concept and one that defies any simple approach to measurement. The best that one can hope to do is to obtain information on a comprehensive set of teacher characteristics so that one can explore the patterns of variation across schools and districts, and one can associate those differences with variations in compensation and productivity. In 1987-88, the SASS teacher questionnaires requested that individuals record the colleges or universities attended to obtain their degrees. This question was dropped in 1990-91 and was restored in 1993-94. This variable is one possible indicator of the intellectual capability of teachers in that it permits one to match teachers to the selectivity (e.g., as measured by the average Scholastic Aptitude Test (SAT) scores of entering freshmen) of the colleges in which they were trained. The presumption is that individuals graduating from more selective institutions of higher

education may have a greater capacity to become quality teachers. It is important that this question not be dropped in the future as it is one of the few direct attributes of teaching personnel that is not explicitly recognized in public school district salary schedules. It also would be useful if NCES would, as a matter of course, obtain data on the characteristics of colleges (e.g., student selectivity, acceptance ratios, percent of students from the top ten percent of the graduating high school class) that would be matched to this database prior to making it available to the public.

It would be preferable to obtain more direct measures of teacher intellectual capabilities. Teachers may well be in any place in the distribution of SAT scores within a particular college or university. It might be worthwhile for NCES to explore the possibilities for obtaining information on the SAT scores of the individual teachers. One might anticipate that teachers would not remember their actual scores, but they might remember the range within which they scored on the math and verbal components of the SATs. This might be asked in terms of raw score (e.g., below 400, 400 to 499, 500 to 599, 600-699, above 700) or percentile rankings (e.g., below 50 percentile, 50 to 75 percentile, 75 to 90 percentile, or above 90 percentile). An alternative might be to explore the possibility of merging records obtained from the Education Testing Service.

Fringe benefits. Data on the costs of benefits for various categories of personnel would be important in improving the quality of the information on compensation. The current SASS questionnaires ask teachers what kinds of benefits beyond salary compensation they receive from the public and private school systems in which they teach. However, there is no indication as to the value or cost of these benefits. It is important in order to adequately characterize personnel compensation that one knows how much money is contributed by the school (in the case of private schools) or district (in the case of public schools) on behalf of each employee for health and welfare insurance premiums, the retirement plan, and other categories of personnel. Using this information, one can estimate the total cost of compensation (i.e., salaries plus the cost of benefits) for each teacher.

Conceptually the importance of fringe benefit information is to recognize that schools and school systems use a combination of salary and benefits to attract teachers. In the long run, one would expect teachers to sort themselves out across districts in such a way that a dollar of fringe benefits (in terms of the cost to the district) is equal to a dollar of salary. That is, the individual would trade off salary to receive fringes up to the point at which the two have equal relative marginal value in comparison to their relative cost to the district (or school). If this is true, then one should be able to add salary costs and the costs to the district of fringe benefits together for purposes of analyzing compensation.

Much analysis has been done of variations in salaries, but only limited analyses have ever been done on full compensation of salaries and fringe benefits together. With such information, researchers could examine the impact of including fringe benefits in the analysis of teacher

compensation. This would represent a major step forward in examining the patterns of differences in teachers' salaries across geographic locations and between public and private schools. Indeed, the data suggest that the differences in public and private school teacher compensation is larger than the differences between public and private school teacher salaries because of the lower levels of benefits offered by private schools. Moreover, how does the introduction of the benefit data affect the patterns of variation in the costs of teacher services across different geographic locations?

Part of the reason that fringe benefit data have not been gathered in the past is that these data are difficult to obtain because of the complexity of the benefit packages across employers. Many districts offer multiple health plans from which teachers may choose and the premium paid by the district for these plans varies with the size of the employee's family. Moreover, most individual employees probably do not know exactly what the district contributions are without substantial effort. While there is probably no way to get individual information for samples of school personnel on benefits, one could obtain from the district-level questionnaires in public schools and school-level questionnaires for private schools some information on the structure of benefits that would allow researchers to estimate the value or cost of a benefit package.

Benefits come in two basic forms: those that are lump-sum payments per employee and those that are a percentage of salary. Health and welfare benefits are most often in the form of insurance premiums paid by the employer on behalf of the employee, and the amount per employee is fixed for any given benefit plan. This amount can be represented as a fixed, lump-sum payment per employee. These health and welfare benefits include basic health insurance, major medical plans, dental insurance, vision insurance, and life insurance. To obtain estimates of the costs of these plans, the SASS would include a series of questions on the public school district or private school questionnaires regarding the lump sum payments paid on behalf of teachers or certificated school employees for each category of benefit for the most widely used plan (assuming the district offered multiple plans): basic health, major medical, dental, vision, or life insurance.

Another category of benefit is most commonly paid as a percentage of salary of the employee. These benefit elements include, for example, contributions by the employer to retirement plans (e.g., public employee pension plans), social security payments, unemployment compensation, workers' compensation plans, and disability insurance. For example, the district might contribute some fixed percentage of the employee's salary to a retirement program. In many states, teachers become a part of a public employees' retirement program established for certificated school employees. In some states, teachers may be part of the social security system. Unemployment compensation and workers' compensation programs are most often based on the experience of the district and rates paid by districts on behalf of employees will vary.

A further complicating factor in obtaining information on employee benefits is that in some instances, states provide for the

direct payment of benefits of public school personnel. For example, the state of New York makes direct payments to teacher retirement systems for all teachers in the state. The Department of Education in Kentucky provides direct payments on behalf of public school employees for many of the elements of the benefit plans. The problem is that district administrative staff who are being asked to provide these data for a district-level questionnaire may not have the information on the cost of these plans per employee.

While benefits can be complex, they nevertheless represent an important component of compensation, and one on which some data can be obtained. Data from individual districts can be used to estimate benefit rates for individual employees. To illustrate one approach to obtaining information on benefits, a sample set of questions is included in the appendix to this paper.

Samples of other school personnel. Currently, SASS includes samples of individual teachers, principals, and professional library media personnel. These data may be used to examine issues related to the distribution of personal characteristics and abilities as well as the job assignment attributes of critical members of school district staff. If NCES were to consider improvements in SASS that would ultimately permit analyses of educational productivity, it would be of critical importance also to include more extensive information about the personal characteristics and job assignments of other school and district staff who come into contact with children or who are involved in leadership activities in schools and districts. Data on other school and district staff would also be extremely valuable in enhancing the value of SASS for analysis of the supply and demand for other critical school personnel and for developing of geographic or inflationary cost adjustments.

Specifically, there are two other important categories of personnel that could be covered in these samples. First, instructional aides play a potentially important role in instructional services in a number of school programs. Instructional aides are used to supplement the instructional program for students with special needs (e.g., students who have limited-English proficiencies or who are eligible for special education services). They are also used to increase the ratio of adults to students in regular education classrooms. Data on samples of instructional aides could provide policymakers with a better look at the ways in which aides are being utilized in schools, the qualifications of these individuals, and the patterns of compensation.

While SASS currently gathers information on principals, there is virtually no information on the high-level administrative staff (e.g., superintendents, deputy superintendents, and other program administrators) of school systems. Who are these individuals leading the nation's schools? What kinds of qualifications do they bring to these jobs? What factors underlie the patterns of variations in compensation of high-level administrators in school districts?

It would also be useful to gather data on samples of other noncertificated school employees. These data could be used in

conjunction with FTE counts of staff to estimate costs at the school and district level. The data on individual school personnel could be used to explore the patterns of variation in rates of pay over time or across geographic locations and their implications for variations in the costs of educational services. Currently, the only such data available to researchers studying these costs are from the samples maintained by the *Current Population Surveys*. Alternatively, SASS could gather data on average salary levels or hourly rates for those categories of personnel for which no individual data are provided.

Data on State Environment in Which Schools Operate

As suggested earlier, SASS could enhance the ability of researchers to examine the effects of state policies on resource allocation and outcomes by systematically gathering data on state policies in the same year as the SASS questionnaires are administered to local schools and school systems. In each year of SASS, surveys could be sent to the state departments of education to gather some of the following kinds of information:

Funding formulas. Information describing the structure of the school finance system in place within the state. This would include not only the structure of the basic distribution formula for elementary-secondary education, but also the nature and structure of the categorical program funding that currently exists within the state. What kinds of formulas are used: flat grants, foundation formulas, percentage equalizing, guaranteed tax base, or district power equalizing? What do the formulas look like? Are there caps or limitations on local contributions to educational spending? How much does the district contribute to categorical programs for special needs children? How are the categorical formulas connected with regular education funding? Are there limitations on the percentage of children who can be declared eligible for certain special needs programs (e.g., special education)? Are funds targeted to these populations?

Employee benefits. Information on benefit programs for public employees could be gathered to supplement the benefit information obtained at the district level. What contributions does the state make on behalf of teachers to benefits such as health and welfare insurance or retirement plans?

Public school regulations. Information on the regulations under which public schools operate could be gathered to allow comparisons across states of the impact on the way resources are allocated. What kinds of curricular standards exist within the state? What is the structure of teacher certification within the state? What kinds of laws or regulations exist with regard to collective bargaining agreements for certificated employees?

Private school regulations. Information on the nature of private school regulations could be gathered. Under what kinds of regulations do private schools operate within each state? Are private school teachers required to be certified? What kinds of safety standards are imposed on private schools? What kinds of regulation of private school curriculum exists, if any?

While currently there exist other data collection besides SASS on some of these elements, it would enhance the value of these data significantly if they could be linked to the SASS data collection activity.

Data on Individual Students

The recent addition to SASS of information on individual students provides a useful structure for obtaining data on the types and costs of services received by individual students across the nation. The current survey provides a listing of some of the classes taken by the student as well as whether or not the student is receiving certain other services. However, the survey falls short of providing sufficient information to estimate costs of these direct services. The importance of these individual student data is that they have the potential to allow researchers to explore the patterns of variation in expenditures across students with differing characteristics or educational needs.

Over the years, there have been numerous attempts at the school level to determine the expenditures on programs for special needs students (e.g., special education). But it has been more difficult to obtain estimates of the costs of serving a particular type of special needs student. Data are needed at two levels. At one level, policymakers want to know how much is being spent to provide certain types of services and programs to certain categories of students. This type of information can be obtained at the institutional level (e.g., school- or district-level data collections). Based on such institutional data, one can obtain estimates of the average expenditures on *specific categories of services* such as the special day class, a resource (*pull out*) program, or a related service such as speech therapy. For example, how much is being spent on special education services? How much is being spent on special day classes or resource programs and how many students receive such services?

However, such institutional data do not indicate how these services are combined to meet the needs of *specific categories of children*? They do not provide information on the full cost of educating a particular type of child since most children are not served within a single program. For example, the vast majority of special education or other special needs children receive services in the regular program. What is required is information on individual children that indicates the types of services received, the amounts of time spent receiving those services, the staffing of those services, and the size of the classes or caseloads within which those services are delivered. Specifically, one would need the following information to enable researchers to estimate costs.

Range of services received. The current survey provides an overview of the types of programs in which the child participates and some indication of some of the special services received. Using a structure similar to that used to record teachers' schedules on the teacher questionnaire, the *student records questionnaire* of SASS could provide for coding of all of the instructional and related service assignments of the student. The assignments could include a listing of all of the secondary courses or classes as well as elementary placements including self-contained classroom or resource pull out programs.

The student's time. For each instructional or related service assignment, the amount of time (e.g., hours or minutes per week) the child spends in each assignment could be recorded. This information could be used to determine: How do children spend their time in school? How much time do they spend in the regular classroom? How much time is spent in supplemental or resource programs designed for special needs populations?

Staffing. For each instructional or related service assignment, one could record the types and time spent by various types of staff members while the student was present. For example, if the student was enrolled in a self-contained classroom for 30 hours per week, the respondent would record the number of hours the following staff were present in the classroom: the regular classroom teacher, a special education resource teacher, an instructional aide, or a personal aide for this child.

Class or group size. For each instructional or related service assignment, one could record the size of the class or group (e.g., for a pull out session) in which the child was served.

These kinds of data could provide valuable information on the patterns of direct services received by students across the country. Administrative and support services expenditures could be ascertained from the school- and district-level data if FTE counts are obtained as suggested above. The information on direct services would allow researchers to address the following kinds of questions:

- How many hours do children spend in school? How do they spend their time in school?
- What kinds of courses are being taken by students and how do these differ according to the educational needs of students?
- What percentage of students are being served in different special needs programs around the country?
- How do the ways in which these children are served differ across communities categorized by urbanicity, size of district, state, and household income or poverty?
- What are the expenditures for different categories of children categorized by disability or other special need characteristics?

If one were able to take the next step in this data collection of obtaining outcomes for individual students, then the possibilities for beginning to unravel the mysteries of input/output relations in education would be enhanced significantly.

Linking to Other Databases for Analysis

A key to making NCES databases valuable lies in the ability to link the various elements. SASS provides us with the opportunity of gathering detailed and valuable data on the ingredients of educational production and services as reflected in the staffing patterns across local schools and districts. But this is only

the first step. Another piece of the puzzle is in linking fiscal data collection activities to the staffing information. If the Common Core of Data (CCD) samples or universe files could be linked with the SASS data collection, each of the two activities would be enhanced. Although it would be valuable to gather information on other nonpersonnel ingredients in the educational process through SASS, it may simply be creating too much in additional burden of data collection to obtain any additional information beyond the staffing information previously suggested.

However, if the CCD fiscal files could be obtained from the schools and districts included in the SASS data collection activity, this linkage would provide additional information about some of the nonpersonnel resources provided to students. Combining the staffing information with the fiscal data on nonpersonnel expenditures would enhance the value of both the staffing and fiscal data.

An additional and significant step would be to link SASS with data on student outcomes, either the outcomes of individual students included in the sample of students for whom the *Student Records Questionnaire* is obtained or the outcomes for the SASS schools. This kind of linkage would allow researchers to explore productivity issues. How do outcomes relate to the quantities and qualities of staffing in different schools? How do these relationships differ in schools serving students with exhibiting differing educational needs or economic circumstances?

Burdens of Data Collection: What Do We Give Up in SASS?

The current SASS questionnaires contain a combination of objective and subjective data items. Among the objective items are counts and characteristics of staff. Among the subjective items are questions about the attitudes and perceptions of teachers, principals, and library media specialists. Perhaps SASS should focus as much as possible on gathering data on the more objective measures of what is going on in schools and less on the subjective measures. This is not to say that attitudinal measures are unimportant. The problem is that attitudinal issues are difficult to benchmark and the data are difficult to interpret. What one person designates as a serious problem, another person might designate as a moderate or even a minor problem. Ultimately, objective measures of events, activities, and behaviors and their relationship between one another, or with schooling outcomes, permits determination through analysis when a particular event, activity, or behavior is a serious problem.

For example, the questionnaires ask about teacher and principal perceptions about the seriousness of certain kinds of problems in the school such as student tardiness, student absenteeism, teacher absenteeism, students cutting class, physical conflicts among students, and robbery or theft among many others. It may be preferable to obtain objective counts of events or behaviors that would reveal the degree to which students were tardy, absent, cut class, or were involved in incidents or acts of physical violence or robbery that were reported to the school office.

The purpose of this is not to suggest that attitudinal data are of no consequence or value. First, in the absence of more objective measures of the events, activities, or behaviors that these subjective measures attempt to document, such subjective measures may be the only source of information. However, what is being argued is that where possible, objective measures should be requested rather than information on attitudes and perceptions. If schools do not maintain reporting mechanisms on certain student behaviors or activities, then one might question whether or not the activity is really a serious problem.

Second, one of the questions posed in the design of this series of papers is what elements in SASS could be sacrificed in order to make room for the additional data collection being proposed in this paper. In the opinion of this author, if something needs to be sacrificed in order to make room for a revised data collection strategy, it is the questions on the subjective perceptions and attitudes of school personnel.

Summary and Conclusions

1. **Could information on the source, level, and allocation of such resources be valuable to researchers and other data users**?

With the continuing interest in issues related to educational productivity, it is going to be essential for researchers and policymakers to understand the relationships between resource allocation and outcomes in U.S. schools. Some redesign of SASS with attention paid to linking SASS with other important databases could be of tremendous value to the research and policy community in education in exploring these issues of educational productivity.

2. **Could collection of such data be reasonably integrated into current SASS collections without increasing overall respondent burden**?

SASS already gathers the kinds of data that are important for understanding these patterns of resource allocation. A number of the suggestions made in this paper for the redesign of SASS involve asking for the same type of data in a slightly more detailed and reorganized form. For example, this paper suggests reconfiguration of the data collection on staff to be done on the basis of full-time equivalencies and to gather staffing information by program of service.

There has been some discussion at NCES of gathering fiscal data at the school site. This paper suggests that it may be more efficient to gather resource data through a vehicle such as SASS where the physical ingredients of the educational production process can be measured explicitly. Gathering fiscal data may be more burdensome in that it requires reconfiguration of fiscal data to match the categories (i.e., objects, functions, and programs) of expenditure being requested. Physical ingredients (e.g., FTEs) such as individuals by job title and program are more easily counted. Quality data on personnel at the school level gathered through SASS could reduce the need for such detailed fiscal information.

3. What would need to be given up to accommodate this increase?

It was suggested that if, indeed, something must be given up to accommodate the suggested revisions or additions to SASS, the items focused on gathering the attitudes and perceptions of teachers and principals should be sacrificed. Attitudinal data are more difficult to interpret than objective counts of events or occurrences, and in most instances, the attitudes are simply a way of trying to obtain information about things that can more properly and usefully be measured by objective data (e.g., student tardiness or absenteeism). If such information is important, it was argued in this paper that the attitudinal data be eliminated in favor of more objective measures of events, activities, and behaviors of students or staff.

4. Is SASS the appropriate vehicle?

What makes SASS the appropriate vehicle for gathering resource data is that it already focuses a significant amount of attention on this kind of information and it is focused at the school level. The recommendations made in this paper involve modifications or additions that fit well within the existing framework and structure of the SASS questionnaires. Moreover, where expansion of the SASS structure is being recommended, it is for the purpose of expanding in important and significant ways the kinds of analyses that can be carried out using SASS. For example, it was suggested that some of the existing data collection regarding state school finance systems be integrated with the SASS data collection so that the information could be more easily linked for analytical purposes.

5. Is this information currently collected by states, LEAs, or by other means?

There has been some discussion within NCES about the possibility of moving toward the collection of school-level fiscal data. The purpose of such school-level fiscal data is to obtain better information on the patterns of resource allocation as they relate to issues of equity and productivity in education. But because of the complexities of making appropriate adjustments in fiscal information for geographic or longitudinal input price differences, SASS would be a potentially more fruitful area of exploration for examining equity and productivity. SASS has the potential of gathering the physical ingredients rather than fiscal data that obscures real input levels. By gathering data on physical ingredients, SASS avoids many of the compatibility and definitional issues that surround the ways in which fiscal data are reported by local jurisdictions. Finally, using SASS as a source of resource data avoids the problems associated with disseminating and implementing a set of complex standards for reporting fiscal information that would be required for developing a school-level fiscal data collection system.

THE SCHOOLS AND STAFFING SURVEY FOR 1998-99: DESIGN RECOMMENDATIONS TO INFORM BROAD EDUCATION POLICY

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Introduction

The Schools and Staffing Survey (SASS) and the Teacher Followup Survey (TFS), a longitudinal component of SASS given in the subsequent year, have been administered by the National Center for Education Statistics (NCES), the U.S. Department of Education, during three different time periods: 1987-89, 1990-92, and 1993-95.[1] Though NCES has made incremental improvements in SASS[2] between administrations and supplemented the basic SASS with additional questionnaires addressing special topics such as Indian education and library issues, there has been intentionally a great deal of continuity in the content of the several SASS questionnaires to permit the study of trends over the six-year period of SASS.

In preparation for the next administration of SASS/TFS scheduled for 1998-2000, NCES has decided to reassess the design of SASS, including questionnaire content and related matters such as the possible linking of SASS to other NCES surveys that collect student background and achievement data. This reassessment is subject to the constraints that (a) SASS will continue to be a cross-sectional survey based on national probability samples, (b) the focus of SASS will continue to be on schools, including their staffing, at the elementary and secondary levels, and (c) changes to the content of SASS should not increase the burden on respondents completing SASS questionnaires (i.e., any new content will have to be counter-balanced by selective deletions of old content).

As a contribution to NCES's current reassessment of the design of SASS, this paper will consider future questionnaire content in broad scope with respect to how SASS can best inform education policy issues pertaining to schools and their staffing--especially important issues that may emerge over the next two decades. Specifically, the objectives of this paper are to:

1. Reconsider the goals, foci, and strategy of SASS, taking into account the original framework established in the mid-1980s and SASS's potential to inform broad education policy in the future.

2. Identify potential new areas of questionnaire content related to schooling that are likely to be of importance to education policy issues in the future.

3. Review the content of the most recent (i.e., 1993-94) SASS questionnaires in light of (a) the existing balance between teacher

supply and demand content and other school content, (b) the extent of coverage of particular topics that appears to be excessive or the coverage of topics that appears to be of relatively low priority, and (c) redundancy across questionnaires. An outcome of this review will be the determination of questionnaire content that can be compressed or deleted to accommodate expansion in other content areas.

4. Recommend priorities among potential new content areas and essential areas from past SASS administrations that might be included in the 1998-99 administrations of SASS. The focus will be on factors determining the nature and quality of schooling that are amenable to education policy interventions, as distinguished from aspects of the broader social, economic, and political contexts that also shape the form and functions of education within society.

Two caveats involved in the pursuit of these four objectives should be noted. First, the emphasis will be on schools in the public sector because policy formation in education applies predominantly to public schools. Second, data collected by SASS should be relevant to education policy assessment and decisions at the local, state, and federal levels. Even though most education policy is made at the local and state levels, the mix of local, state, and federal influences on schooling has been in gradual flux and is expected to continue to change.

School Improvement Versus School Change

In preparation for the fourth administration of SASS in 1998-99, NCES is reconsidering the value of continuing to emphasize teacher supply and demand data in contrast with other data that may contribute more toward school improvement. Specifically, NCES asked, in commissioning this paper, "What nationally representative schools and school process data will inform our thinking about and work toward *improving schools* in the next 10 to 20 years" (emphasis added). Given this task, possible changes in the goals, foci, and strategy of SASS will be considered in light of their potential contribution to improving schools.

If the value of SASS is to be measured by its contributions to school improvement, it is necessary to define what is meant by school improvement. To begin, distinctions must be made among (a) changes in policies that are designed to improve schools, (b) changes in programs and practices that are designed to improve schools, and (c) changes in school performance reflected in indicators such as outcome measures (e.g., higher achievement test scores), resource efficiency measures, school climate measures, and approval ratings by stakeholders (e.g., parents, the public). Ordinarily:

- Changes in policy are expected to result in changes in programs and practices that conform to the new or revised policies

- Changes in programs and practices, in turn, are expected to result in improved school performance

It is well known, however, that (a) changes in policies (ordinarily construed as, and intended to be, improvements) do not necessarily result in changes in programs and practices, and (b) changes in programs or practices (often construed as, and intended to be, improvements) do not necessarily result in improved indicators of school performance. Therefore, the intent of policymakers and educators to improve policies, programs, and practices by implementing changes is not certain to reap the desired effects on school performance. Whether such changes actually affect school performance is an empirical matter, subject to systematic measurement such as by standardized achievement tests.

Furthermore, there is even a problem in determining what actions or conditions constitute "school improvement" because this involves judgment. What some regard as an improved policy, program, or practice, others may view as a reversal. For example, some view private school vouchers as a promising policy reform, while others regard them as a basic threat to public schools (Jennings & Stark, 1995). In contrast, there is often consensus about what changes in school performance represent improvement, such as rising academic achievement scores. Even so, judgments differ about whether some changes in school performance represent improvement--as evidenced by the conflict in several states over outcomes-based education.

The upshot of this line of thinking is that it will be more useful and productive to translate the concept of "school improvement" to that of "school change," and to determine whether changes in policies, programs, and practices actually lead to changes in school performance. Let others (policymakers, professional educators, the press, and the public) debate whether changes observed actually represent improvement. In contrast, SASS should be used to make major contributions to understanding various changes in the interlocking sequence of policies, programs, practices, and performances by establishing baseline status data and monitoring changes from these baselines over time.[3] Specifically, SASS can be used to:

- ***Monitor changes in policy***. With respect to policy changes, SASS has not monitored the status of, or changes in, federal and state education policy. However, SASS has and can continue to monitor the status of, and changes in, policies at the local education agency (LEA) level through the Teacher Demand and Shortage Questionnaire. One value of monitoring the status of, and changes in, LEA policies is to determine how policies at the federal and state levels are being interpreted and translated into local policy. Another value of monitoring LEA policies is to determine how well programs and practices at the school level conform to LEA policies.

- ***Monitor changes in programs and practices***. SASS has and can continue to monitor the status of,

and changes in, programs and practices at the LEA and school levels through the Teacher Demand and Shortage Questionnaire and the School Questionnaires. One value of monitoring the status of, and changes in, programs and practices is to determine how well they are conforming to federal, state, and local policies. Another value of monitoring the status of, and changes in, programs and practices is to measure many of the dimensions of schooling that impact on school performances.

- ***Monitor changes in performance indicators***. SASS has and can continue to monitor the baseline levels of several indicators of school performance, and changes from these baselines, through the School, Principal, and Teacher Questionnaires.[4] Though most school performance indicators are measured by instruments other than SASS, SASS nonetheless serves a special role in monitoring some school performance indicators (such as school climate) because SASS is the most direct, and possibly only, source of such national data available.

Change in school policies, programs, practices, and performances is used here as a generic concept to include school improvement, reform, and restructuring, since all such initiatives entail various forms of change. Clearly, it is not possible to predict many of the school improvement, reform, or restructuring initiatives that will continue, or be initiated, in the coming two decades. Who could have predicted in 1983 the variety and form of such initiatives that were taken in the decade following publication of *A Nation at Risk*? Thus, it will not be prudent to redesign SASS to monitor specific current reforms per se (such as systemic reform). Instead, SASS should monitor the *fundamental dimensions of schooling* that are amenable to manipulation by public policy for the purpose of improving school performance.

Considering that SASS is an instrument for collecting basic data on schooling and is scheduled to be administered only every five years in the foreseeable future, it should be designed to cover essential, enduring aspects of schooling that will be of continuing importance, as distinguished from covering specific reforms or current narrow issues. For example, if SASS monitored the character of, implementation of, and changes in curriculum frameworks, student assessment, and teacher preparation (both pre- and inservice), it would be monitoring fundamental dimensions of schooling that, as a group, are basic components of systemic reform. In the event that systemic reform, as such, proves to be a passing fad within a few years, SASS will nonetheless have tracked three fundamental dimensions of schooling that are likely to be relevant to future educational policy.

As noted previously, policy-based changes in such dimensions might be viewed by some as constructive reforms, and as reversals by others. Therefore, as a public agency dedicated to collecting and reporting unbiased statistical information, NCES should not appear to be an advocate for or against any reform. Furthermore, the publication of major reports of

information based on SASS data usually requires four years from the time of questionnaire design--all the more reason for SASS to concentrate on fundamental dimensions of schooling that will be of enduring interest instead of concentrating on any current high-profile reform initiative.

The Goals, Foci, and Strategy of SASS: A Reconsideration

Past SASS Goals, Foci, and Strategy

Since its inception in 1987-88, the goals, foci, and strategy of SASS can be characterized as follows:

- *Goals*: The primary goal of SASS has been to provide data "that will contribute to the development of sound educational policies at all levels of government" (NCES, 1994, p. 2). SASS has also served as a source of national and state data about schools and their staffing for educators and researchers.

- *Foci*: SASS has focused primarily on the teaching force (K through 12) and secondarily on school policies, programs, and administrators. Its distinctive strength has been the comprehensive data collected about teacher characteristics, qualifications, and attitudes, and about teacher demand, supply, turnover, and workplace conditions. These aspects of the teaching force are referred to collectively in this paper by the expression "teacher supply and demand."

- *Strategy*: The strategy adopted for SASS has been to collect detailed descriptive data about schools and their staffing, as distinguished from collecting data to test specific hypotheses or to evaluate specific policies, programs, or practices. This strategy is particularly suited to the sample survey method, and is in keeping with NCES's mission to collect, analyze, and disseminate education statistics.

It is these basic attributes of SASS that should be reconsidered in its redesign, along with the implications for questionnaire content.

Future SASS Goals

The goals of SASS should continue to be the collection of data that will contribute to the development of sound education policies at all levels of government and that will be useful to educators and researchers. Changes in SASS for 1998-99 should be made in its foci and strategy, and in questionnaire content that follow from decisions about foci and strategy.

Future SASS Foci

The fundamental question in redesigning SASS is whether the current primary focus on collecting data about teacher supply and demand should be maintained or modified. Major candidates for alternative foci are instruction, school governance, and school organization. In reconsidering the foci of SASS, the following guiding principles should be observed:

- The importance of *continuity* in data collected in previous

administrations of SASS should be recognized. In light of previous investments in establishing baseline data and changes over time in numerous dimensions fundamental to schooling, continuity should be valued highly. Therefore, the redesign of SASS should not start with a clean slate.

- SASS data that will be of *maximum value to policymakers* and others in describing basic dimensions of schooling and in monitoring change over time in these dimensions should be of high priority. In deciding what educational phenomena are sufficiently important to quantify, the following guidelines can be used:

  Select fundamental aspects of schooling that have been the subject of ***major policy action in the recent past****, such as teacher preparation and qualifications, school accountability, decentralization of authority, deregulation, instructional technology, and the like. Such topics are likely to be of policy interest in the next decade or two.*

  Select fundamental aspects of schooling that have been the subject of ***recent policy analysis and debate****, but only of minor policy action to date, such as contracting for school management and instruction (i.e., privatization), and vouchers for private school tuition. Some such topics are likely to attract major policy action in the future.*

  Select aspects of schooling of ***major public concern*** *such as instruction in basic skills, student discipline, and school safety.*

- The roles and contributions of *other NCES surveys* should be recognized, especially those that collect data about basic dimensions of schooling and monitor change in these dimensions. Even though certain data may be of critical importance, SASS should not ordinarily collect data that are available from other sources.

These principles for reconsidering the foci of SASS will be used later in analyzing alternative emphases that might be employed for the design of the fourth administration of SASS.

Future SASS Strategy

In keeping with NCES's mission to collect, analyze, and disseminate education statistics, the strategy adopted for SASS has been to collect detailed descriptive data about schools and their staffing. Without challenging NCES's statutory mission, however, it is useful to examine three potential uses of descriptive data in policy development. They are:

- ***Use of descriptive data for problem definition***. Since policy is formed in response to problems (either actual or imagined), one policy-relevant function of descriptive data is to quantify phenomena objectively so that judgments can be made as to whether, and to what extent, a problem exists. In this respect, SASS data have been

particularly useful in defining (i.e., quantifying) potential problems requiring policy intervention, such as teacher qualifications, turnover, and shortage (Bobbitt & McMillen, 1995; Bobbitt, Leich, Whitener, & Lynch, 1994). For example, SASS data have shown that the percentage of teaching positions that are not filled is less than 0.5 percent (Choy, Henke, Alt, Medrich, & Bobbitt, 1993). Thus, there does not appear to be a serious shortage of individuals available to be appointed as teachers. However, SASS data have also shown that about 6 percent of teachers overall do not hold full certification in their main teaching assignment. This can be taken as evidence of a significant shortage of qualified teachers. This problem can be defined even more precisely by computing this shortage percentage by main teaching assignment.

- *Use of descriptive data for evaluation of policies and programs*. Without collecting evaluation research data specifically, descriptive statistical data might be used by agencies other than NCES (e.g., by policy analysts located at various governmental agencies and private organizations at all levels) to evaluate policies and programs. For example, descriptive data routinely collected on the authority vested in school councils (where such exist) could be used to assess the extent of implementation of a state-wide policy to create school councils with authority to make teacher hiring decisions.[5] In addition, SASS could collect data about the judgments of principals and teachers on the workability, utility, and acceptability of policies such as those devolving teacher hiring decisions to the school level. Data might also be collected on teacher behavior. For example, if it is decided to monitor a policy requiring a school improvement plan every other year, data might be collected from teachers about their participation in, and contributions to, such planning. Data thus collected about the judgments and behavior of principals and teachers might provide insights into why some policies seem to be implemented and produce desired effects, and why others appear not to. Finally, some descriptive data relevant to school performance (e.g., school attendance data, as already collected by SASS's school questionnaires) are relevant to evaluating policy effects--though, as previously observed, most measures of school performance must come from sources other than SASS.

- *Use of descriptive data for enlightenment*. Apart from having immediate and specific relevance to defining policy problems and to evaluating policy implementation, SASS has also collected much new background data about schools and staffing that is useful to policymakers and others in fostering a broad understanding of the phenomena addressed (i.e, the "enlightenment" function of research and statistical information

as described by Weiss, 1977). According to Shavelson (1988), the central value of educational research findings (and presumably the systematic collection of statistics) lies in their ". . . constructing, challenging, or changing the way policymakers and practitioners think about problems" (pg. 4). For example, research on teacher turnover based on SASS data has contributed to a better general understanding of the components, complexities, and magnitude of this phenomenon (Ingersoll, Han, & Bobbitt, 1995).

SASS's current design emphasizes the problem definition and enlightenment uses of data collected, and minimizes SASS's relevance to evaluation of policies and programs. While the problem definition and enlightenment functions of SASS data should be continued, it is recommended that NCES, in the redesigned SASS, attempt to collect more data relevant to the evaluation function as well.

Dimensions of Schooling Amenable to Policy Intervention

The identification of fundamental dimensions of schooling that are likely to become the subject of policy interventions is understood here to be equivalent to NCES's concept of "emerging educational issues." In commissioning this paper, NCES asked, "What emerging educational issues are likely to be important in the coming years and how can SASS data inform our understanding of these issues?" This section of the paper is devoted to identifying both "emerging issues" and "enduring issues" that are amenable to policy intervention. Enduring issues, as well as emerging issues, will be considered because SASS may not have addressed (or sufficiently addressed) either type. The second part of NCES's question, pertaining to "how can SASS data inform our understanding," will be addressed in a subsequent section.

As addressed in this paper, the fundamental dimensions of schooling are classified into five main categories: school governance, instruction, educational finance, school infrastructure, and school staffing (principals and teachers). Because the first three administrations of SASS emphasized school staffing, a subsequent section of this paper is devoted to consideration of this major topic. Therefore, this section of the paper concentrates on the other four categories (school governance, instruction, educational finance, and school infrastructure).

Fundamental dimensions of schooling vary in the degree to which they are amenable to policy intervention. For example, the teacher-pupil ratio is directly amenable to policy intervention, while the social character of teacher-pupil interactions is not, even though the latter may have much greater effect on academic achievement and other valued student performances. Since a primary consideration in the redesign of SASS is to inform broad education policy pertaining to schooling in the next two decades, the objective of this section is to identify those fundamental dimensions of schooling that have a reasonable prospect of *being taken seriously* in future policy formation. Such dimensions might be relevant to both

current policies (possibly under reconsideration for modification or discontinuation) and to the formation of new policy.

To identify fundamental dimensions of schooling that are likely to be targets of policy formation in the next two decades, some explicit criteria are required. Such dimensions were identified here by meeting any one of the following criteria:

- Dimensions of schooling that have been the target of *major policy formation* in the past, especially the past ten years or so.
- Dimensions of schooling that have been the target of limited policy formation, but have been the target of *major policy attention* (as indicated by discussion, debate, attempted but failed legislative efforts to adopt policies, and policies subject to adoption on a small scale).
- Dimensions of schooling that are currently of *major concern or contention* to the public and/or policymakers.

A listing of dimensions deemed to be fundamental to schooling because they met one or more of the above criteria is presented in Table 1.[6] While other observers may offer different lists, there probably would be a high degree of overlap with the dimensions included here.

Because the listing in Table 1 includes too many dimensions of schooling for practical inclusion in redesigned SASS questionnaires, a subset of these dimensions must be selected. To reduce this list, dimensions were selected that met all three of the following criteria:

- Dimensions of schooling that are expected to *inform broad education policy* (an NCES specification for this commissioned paper).
- Dimensions of schooling that *can be measured feasibly* by the sample survey method with strict limits on burden for respondents (e.g., it is not feasible to expect LEAs to report per pupil costs disaggregated by school functions and programs because of technical difficulties and burden).
- Dimensions of schooling that are *not included in other high-quality surveys* (e.g., the Common Core of Data includes LEA financial data).

A listing of the subset of the dimensions meeting each of these criteria is presented in Table 2.[7] Other dimensions pertaining to teaching force are deferred to the next section. Since each of the dimensions of schooling selected for Table 2 is a candidate for inclusion in the redesigned SASS questionnaires for 1998-99, the potential of each dimension to inform broad education policy in the next two decades will be discussed in turn.

Table 1: Fundamental Dimensions of Public Schooling Receiving Policy Attention and/or Action***

1. School Governance/Organization

- •Centralization/decentralization of authority
- •Regulation/deregulation
- •Accountability
  - Student outcomes, and public reporting
  - Competition (i.e., school choice)
    - Inter- and intradistrict choice
    - Charter schools
    - Vouchers (including private schools)
  - Performance based accreditation
  - School performance monetary rewards
- •Privatization
- •Desegregation
- •School safety and discipline

2. Instruction

- •Curriculum frameworks/standards
- •Opportunity-to-learn standards
- •Student performance standards
- •Assessment of student performance
  - Standardized testing
  - Performance/authentic measurement
  - Attendance
  - Completions/drop outs
  - Discipline
- •High school graduation standards
- •Instructional practices
  - Basic skills vs. higher order thinking
  - Course requirements
  - Class size

2. Instruction (continued)

- •Instructional practices (continued)
  - Time (hours and days)/scheduling
  - Tracking
  - Nongraded primary levels
  - Inclusion of special need students
- •Instructional materials (mostly textbooks)
- •Instructional technology (computers)
- •Special programs
  - Disadvantaged/at risk
  - Limited English proficiency
  - Special education
  - Community service
  - Coordinated education, health, and social services
  - Substance abuse prevention
  - School-to-work transition
- •Nontraditional public schools
  - Magnet schools
  - Vocational education schools
  - Schools-within-a-school
  - Alternative schools for special populations
    - Exceptional/nonconforming students
    - Special needs students

3. Educational Finance

- •Sources of school funding
- •Per pupil cost as distributed among school functions/programs

4. School Infrastructure

- •Building construction/rehabilitation
- •Classrooms wired for computers/Internet

Table 2: Fundamental Dimensions of Public Schooling Recommended for Inclusion in SASS, along with Estimations of Costs of Implementing Related Education Policies

1. School Governance

   {Centralization/decentralization of authority} **
   Regulation/deregulation *N
   Privatization *R

2. School Accountability

   School outcomes **
   {Public reporting of school outcomes} *N
   Competition (i.e., school choice) *R
      {Inter- and intradistrict choice}
      Charter schools
      Vouchers (for public and private schools)

3. Standards: Curriculum and Student Performance

   Curriculum frameworks/standards **
   Student performance standards **
      Associated with curriculum standards
      {High School graduation standards}

4. Assessment of Student Performance

   Standardized testing **
   Performance/authentic measurement **
   {Attendance} *N
   {Completions/drop outs} *N

5. Instructional Practices

   Basic skills vs. higher order thinking **
   Inclusion of special need students *R

6. Instructional Technology

   Computer usage and infrastructure ***

7. Special Programs

   {Disadvantaged/at risk} ***
   {Limited English proficiency} ***
   {Substance abuse prevention} **

8. Nontraditional Public Schools

   {Magnet schools} **
   {Alternative schools for special populations} **
   {Schools-within-a-school} **

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*N Policy implementation would entail only minor incremental funding by new appropriations.
*R Policy implementation would entail reallocation of existing funding, but little new funding.
** Policy implementation would require substantial incremental funding.
*** Policy implementation would require major incremental funding.
{ } Dimensions of schooling addressed by the 1993-94 SASS.

School Governance

School-based management. In recent years, a great deal of policy development in education has involved changes in school governance, most of which has focused on school-based management--a policy designed to transfer authority from the LEA to the school level. Since major policy interest and development on the locus of authority over various aspects of schooling are expected to continue in the future, SASS data could be very useful in tracking the status of, and changes in, authority vested in school boards, superintendents, school councils, principals and teachers.

Deregulation. Deregulation is another school governance topic that has been the subject of much policy discussion and formation over the past decade or so, at both the federal and state levels. Deregulation typically is intended to liberate school personnel from stifling regulations so that they will be able to change school programs and practices in ways judged to be most responsive to local needs and circumstances. Deregulation policies have been framed in several ways, such as waivers of regulations granted upon application submitted by schools, deregulation for high performing schools, revocation of regulations by the regulating authority, and the award of charter school contracts with much less regulation than applicable to regular public schools. Since major policy interest and development in the area of school regulations is expected to continue in the future, it is important to track this phenomenon with SASS data.

Privatization. Privatization of instruction and school management is the third school governance topic of importance for monitoring by SASS data. Privatization is the subject of rapidly increasing policy interest development, especially during the past year when the Republican party captured majorities in Congress and in most state legislatures. The two main forms of privatization at the present time are: contracting for the management of particular schools, and contracting with private organizations to operate and staff charter schools--intentionally designed to have full authority and little regulation. Some vocal policy analysts and policymakers further advocate that school improvement can only be gained through radical change in the functions of LEAs, namely, that LEAs should function only as policy bodies and as contracting agencies for public schooling. Under this conception, all "public" schools would be operated by private corporations under contract with LEAs, and be subject to LEA policy and monitoring for contract compliance.

Privatization, in its various forms, is an appealing option to policymakers for several reasons, one of which is that it requires little or no incremental funding. Instead, the costs of privatizing schools are largely underwritten by reallocation of existing funding for regular public schools. In view of the rapidly increasing interest in privatization of schooling, the collection of SASS data about this phenomenon could be very helpful in future policy development.

School Accountability

School accountability measures, programs, and systems have been the subject of much policy development during the past decade

or so, and this is almost certain to be an area of much policy action in the coming decades. Though accountability policies have also been adopted for LEAs, school administrators, teachers, and students, the focus here is on accountability policies applicable specifically to public schools.

Measuring school activities. One accountability strategy favored by policymakers is the measurement of school outcomes, especially by standardized achievement tests and various approaches to performance measurement, and also drop out percentages. Achievement testing occurs at the national level (i.e., the National Assessment of Educational Progress--NAEP) and in most states. SASS could be very useful in collecting data on (a) the types and extent of outcome measurements of all kinds administered in schools, (b) the time and effort the measuring operations consume (including preparing students for testing), (c) the impact such measures have on instruction (e.g., teaching-to-the-test), and (d) the views of school personnel on the utility of various types of outcome measures for improving school performance.

Public reporting of school outcomes. Once states are committed to measuring school outcome performances, the public dissemination of such measures is a widely used accountability policy of very low incremental cost. It is popular with the press and the public who are very interested in school rankings, and this kind of exposure brings public pressure on principals and teachers to explain performance levels attained, and to develop and report school improvement plans. Because public reporting of school performance is so popular and costs so little, it is expected to continue to be widely mandated. SASS could collect useful data on the impact of this policy on the attitudes and behavior of school personnel. Such data would be helpful in assessing whether this accountability policy has the intended effect of evoking school improvement efforts.

Promoting competition. Other accountability policies are designed to promote competition among public schools, and between public and private schools. These policies entail various schemes for intra- and interdistrict public school choice, charter schools, and vouchers. School competition has been an area of increasing policy ferment in recent years, is so at present, and almost certainly will be so in the future. In fact, charter school and voucher polices are perhaps the subject of the most intense policy debates at the present time. SASS can provide useful data for informing broad education policy by tracking the several facets of this phenomenon in terms of how it impacts on the functioning of schools, on the work of their staffs, and on school climate.

The competitive aspects of school choice, charter schools, and vouchers have been discussed here as accountability strategies used by policymakers. It should be recognized, however, that these strategies serve other purposes as well. One of these purposes is to provide alternatives for students whose particular needs are not being served well by instruction and other programs offered in regular classrooms. Some advocate that such students should be able to choose a type of school best suited to them. Hence, a variety of school choices is required for this purpose. In addition to competition, privatization of

schooling serves a further function. As noted above under school governance, the charter school and voucher varieties of school competition are also strategies used to remove schools from the direct control of LEA's and to place them under private auspices.

Standards: Curriculum and Student Performance

Curriculum. The development of curriculum standards represents a major current policy initiative at the federal, state, and local levels, even though there has been considerable conflict over standards developed in some subject matters. Because the development of standards represents a major policy trend that lies at the center of the teaching and learning process (as distinguished from, for example, school governance), it would be worthwhile to track the types and sources of curriculum standards used in the nation's schools.

Student performance. Even though the development of student performance standards trails behind the development of curriculum standards, it would also be worthwhile to track whether student performance standards are used, and, if so, their source and whether they are correlated with curriculum standards that may be in use.

Opportunity-to-learn standards are omitted here because NAEP surveys already address instructional practices in some detail.

High school graduation standards are recommended for inclusion in SASS because they have also been the target of policy attention in recent years. They represent the level of attainment expected by the time of completion of secondary school, and are relevant to school-to-work and school-to-college transitions.

Assessment of Student Performance

The assessment of actual student performance (as distinguished from expected standards of performance) is a major ongoing subject of policy formation and is central both to instruction and to school performance. SASS can have two important roles in tracking the assessment of student performance. One role is to survey the types of measures used for academic achievement, especially standardized and performance/authentic measurement. However, it is not expected that SASS will attempt to collect data on the results of such measures due to the burden involved and because these results are often available from state education agencies. The second role for SASS is to collect data on the level of student performance based on other types of indicators (e.g., attendance data) because these data are important and the burden is modest.

Instructional Practices

As noted above, NAEP surveys address instructional practices in some detail. Therefore, little in this category is recommended for SASS coverage except for two instructional practices that are not covered by NAEP, have been contentious with educators and parents, and have been the subject of continuing policy attention. The first of these two practices is the instructional emphasis placed on basic skills in contrast with the emphasis on

higher order thinking. The second instructional practice is the inclusion of "special needs" students in regular classrooms. If SASS data are collected on these two practices, it would also be useful to survey the type and amount of instructional emphasis given to four other topics that have been of interest in the development of policy, namely, discipline, working together cooperatively, values, and computer literacy.

Instructional Technology

Many policymakers and others expect microcomputers in the classroom to revolutionize instruction, and continuing policy attention to this topic is expected. SASS can inform policy development in this area by collecting data about the availability in classrooms of computer hardware, networking and access to the Internet, and software for instructional purposes, how and the extent to which it is used, and other important aspects of this technology (e.g., the availability in schools of skilled technicians to install and maintain this technology).

Special Programs

A number of special programs have been implemented in public schools to address a variety of social problems (especially those of poverty, limited English proficiency, and substance abuse) that limit student performance. These concerns are expected to continue to command the attention of policymakers, educators, and the public in coming decades--especially since current trends suggest that such social problems are intensifying. SASS can contribute to policy development in this area by collecting data about the extent of such problems in schools, and the types and extent of school programs designed to address them.

Nontraditional Public Schools

Nontraditional schools (e.g., magnet schools, schools-within-schools, alternative schools, and specialized schools for students with severe disabilities) have been established in response to a variety of social and human concerns such as desegregation, school drop outs, alienation, and learning and physical handicaps. Since the concerns to which these schools respond will continue in the decades to come (and may even intensify), SASS data would be useful in informing policy review and development in this area.

The strategy to break up very large (and, therefore, impersonal) schools into smaller schools (i.e., schools-within-a-school) is an instance of a larger strategy designed to improve schools. Data that are collected routinely by SASS on school size and type are useful for tracking changes in these dimensions.

Review of Prior SASS Questionnaires

Improvements in, and changes to, the contents of SASS questionnaires have been made by NCES for the 1990-91 and 1993-94 administrations. There was substantial deletion of content from the 1990-91 survey and addition of new content for the 1993-94 survey. Many of the items deleted from the 1990-91 survey pertained to teacher supply and demand. Some of these changes also involved the deletion of

items from the school questionnaires that duplicated similar items from the teacher questionnaires. Nonetheless, in commissioning this paper, NCES asked, "Is the existing balance between supply and demand issues and other school topics still appropriate?" The review of SASS questionnaires presented here will yield an answer to this question about priorities.

Argument for improving SASS. As in the past, NCES can easily justify making incremental improvements in, and changes to, SASS. That is not the issue. The issue is whether the content of SASS questionnaires for 1998-99 should represent a drastic change from the past--a change characterized by major reductions in content pertaining primarily to teacher supply and demand (but also to principal supply and demand), and the addition of new content about other dimensions of schooling that would better inform broad education policy.

The argument for changing SASS drastically is that the first three rounds have yielded substantial data about the teaching force and additional data are unnecessary. Also, that by continuing to emphasize teacher variables, an opportunity is lost to collect data about aspects of schooling that will be of importance to future policy development on a wide range of other issues.

Argument for not modifying SASS. On the other hand, an argument can be made to maintain SASS in its 1993-94 form. Past decisions to emphasize collection of data about teachers and principals were astute and justified because staffing is the central factor in determining the quality and improvement of schooling. This view is buttressed by the results of a recent large-scale meta-analysis of education production functions that found that "resource variables that attempt to describe the quality of the teachers (teacher ability, teacher education, and teacher experience) show very strong relations with student achievement" (Laine, Greenwald, & Hedges, 1995, pp. 57-58). It can further be argued that, since the three past SASS administrations have yielded a large amount of data basic to understanding the dynamics of the teaching force (including trends over time), it is vital that continuity in data collection be maintained about this most important component of the quality and character of schooling.

Recommended approach. In response to the genuine tension between the strategies of "drastic change versus continuity" in redesigning SASS for 1998-99, this paper takes a middle position. While a considerable amount of the content of the 1993-94 SASS questionnaires can be compressed or deleted to accommodate expansion in other content, the first priority is to maintain continuity in data collection basic to understanding the attributes and flows of the teaching force. The basic data collection to be maintained for this purpose is presented in Table 3.

Table 3: Fundamental Dimensions of the Teaching Force Addressed by SASS Questionnaires

1. Teacher demand
2. Sources of supply
3. Teacher shortage
4. Teacher demographic characteristics
5. Teacher qualifications
    - •Teacher preparation
        - Preservice
        - Professional development
    - •Certifications
    - •Experience
6. Teaching assignment and load
7. Employment and working conditions
8. Collective bargaining/union membership
9. Turnover
    - •Among schools
    - •Among teaching fields
    - •Between sectors
    - •Attrition
10. Compensation
    - •Level of compensation
    - •Minimum compensation
    - •Special monetary incentives
    - •Salary setting principles
        - Salary schedules
        - Merit pay
        - Career ladder
    - •Employee benefits

Although it is widely recognized that teacher quality is perhaps the most critical educational determinant of student achievement (Kennedy, 1992; Mandel, 1995; Laine, Greenwald, & Hedges, 1995), teacher quality is a broad concept that includes (a) teacher qualifications, (b) classroom teaching performance, and (c) teacher ability such as measured by tests. The sample survey method is very useful for collecting data on teacher qualifications, and SASS should continue to have a strong emphasis on collecting such data as it has in the past. SASS is not a suitable vehicle for collecting data on the quality of classroom teaching performance, even under simulated conditions. Although teaching performance is the prime facet of teacher quality, a promising research approach to investigating this topic (as distinguished from collecting survey data) has been recommended elsewhere (Mandel, 1995).

As to teacher tested ability, NCES should study (if it has not already done so) the feasibility of either (a) collecting tested ability scores for teachers in the SASS sample, or (b) linking SASS to other databases where such scores might be recorded. Even tested ability scores for a subsample of the SASS sample of teachers would be useful.

Teacher qualifications are also directly relevant to the dimension of teacher shortage, as listed in Table 3. Information derived from SASS data demonstrates that there is practically no shortage of the numbers of individuals that are willing and able to accept teaching positions (Choy et al., 1993). Instead, other research has shown that there is a shortage of qualified teachers, and an even greater shortage of high-quality teachers (Boe & Gilford, 1992; Gilford & Tenenbaum, 1990). Therefore, the continued collection of extensive data on teacher qualifications by SASS will be vital to measuring the level of, and trends in, the shortage of qualified teachers.

As in past administrations of SASS, it is recommended that data pertaining to dimensions of the teaching force listed in Table 3 should continue to be collected through the teacher demand and shortage, school, and teacher questionnaires. However, the breadth of coverage of these dimensions should be reduced to a reasonable minimum. Some specific suggestions for minimizing the breadth of coverage of some of these dimensions are made below. One general recommendation is to eliminate all redundant item content that may still exist between questionnaires and within questionnaires.[8]

With respect to the remaining content of SASS questionnaires for 1993-94 (i.e., other than content relevant to the dimensions of the teaching force identified in Table 3), much should be condensed or deleted to accommodate new content in 1998-99 that will better inform broad education policy. The following guidelines will be helpful in deciding what content to retain, condense, or delete:

- Content basic to understanding the characteristics, qualifications, responsibilities and authority, leadership style, and compensation of school principals should be retained, but be reduced in depth of coverage.
- Content should be retained that has the potential to inform broad education policy in the coming two decades, while content that does not should be minimized. The topics listed in Tables 2 and 3 suggest what this content should be.
- Content should be minimized that is, or will be, available from other high-quality surveys.
- Content should be minimized that has shown a stable pattern over the first three SASS administrations if it is likely to remain stable or can be predicted with reasonable accuracy.
- Content should be minimized that has generated little policy or research interest in the past, unless there is reason to believe that it will become useful to emerging policy issues.
- Content should be minimized that is based on questionnaire items of marginal technical quality (unless efforts to improve the items are successful).

Content of Main SASS Questionnaires

Based on the general considerations discussed above for redesigning SASS questionnaires, specific observations and suggestions are made below relating to the content of each of the four main *SASS questionnaires used in 1993-94.*

Teacher demand and shortage questionnaire. The Teacher Demand and Shortage Questionnaire is the only source of some teacher data and should continue to be collected from LEAs. Items such as district teacher counts, hiring criteria, and collective bargaining agreements should be retained. In contrast, items pertaining to teacher type, certification, supply, turnover, ethnicity, and retirement benefits are candidates for deletion, because such information is included in the Public School Teacher Questionnaire. Much of the other content of the Teacher Demand and Shortage Questionnaire addresses the dimensions of schooling listed in Table 2, and are, therefore, candidates for retention.

Principal questionnaires. Though collection of data on the education and experience of principals is important and should continue, it would seem that assigning two-thirds of the content of the questionnaire to these two topics is excessive, and, therefore, should be condensed. While the item pertaining to school problems may continue to be important, it is doubtful that the same item should continue to be included in both the principal and teacher questionnaires. The content on locus of influence is relevant to governance policies promoting decentralization. Collection of data on this general topic should continue, but consideration might be given to casting it in terms of decision-making authority.

School questionnaires. Much of the content devoted to the teaching force in the first two administrations of the school questionnaires was eliminated for the third administration in 1993-94. As last designed, the content of the school questionnaires was focused on basic descriptive information about school characteristics, staffing, programs, and policies. Much of this is essential to describing schools, and much is relevant to educational policy issues. Therefore, it would probably not be prudent to delete or compress much of this material.

Teacher questionnaires. The content of the teacher questionnaires needs to be trimmed to permit the inclusion of expanded content relevant to education policies in areas other than the teaching force. Some suggestions are: (a) compress the content on teacher experience (especially breaks in service and experience prior to beginning teaching), (b) eliminate content on changes in teaching assignment (as data on year-to-year changes are available from the TFS), (c) compress the content on teaching load, and (d) compress or eliminate much of the content on teacher perceptions and attitudes (depending upon the extent to which previous analyses have demonstrated stability in data pertaining to these topics, and the extent to which these data have proven to be interesting or useful to policymakers and others). While these and other changes might be made to data collected from teachers, it is important to continue to collect sufficient data to monitor all the dimensions of the teaching force listed in Table 3.

Teacher Followup Survey

As a longitudinal component of SASS, the TFS has served an indispensable role in monitoring year-to-year flows of teachers included in the prior SASS sample. As a vehicle for tracking actual teacher career transitions (as distinguished from teacher reports of activities in the prior year, and plans for the coming year), TFS is the definitive means for collecting data on teacher turnover and variables associated with teacher turnover. Therefore, TFS should be retained in much the same form as in the past.

Linking SASS with Student Data

Because data collected by SASS provides critical national- and state-level information about schools and their staffing that is unavailable from others sources, SASS most definitely should be continued in its present general form. Yet, a major limitation of SASS is that it does not include student achievement data that can be analyzed in relation to school, teacher, and principal variables. Fortunately, NCES is exploring the possibility of linking SASS to student data collected by other surveys such as NAEP and the National Eduction Longitudinal Survey of 1988 (NELS:88). The advantages of doing so are obvious if the important role served by SASS in NCES's current array of surveys is not greatly diluted or sacrificed. If such radical changes in SASS were required to link it with student data that much of its current value to the field would be lost, then other solutions should be sought (e.g., expanding or otherwise changing the teacher and school/school administrator questionnaires of NAEP and NELS:88).

Discussion and Recommendations

Feasibility of Expanding SASS Content

To recapitulate, it is recommended that future data collection by SASS be prioritized as follows:

1. Include fundamental dimensions of the teaching force as listed in Table 3, with emphasis on teacher qualifications.

2. Include basic attributes of school principals, LEAs, and schools.

3. Include fundamental dimensions of schooling that are expected to be active areas of policy development in the next two decades, as listed in Table 2.

This is to be accomplished without increasing the burden on SASS respondents.

In contemplating the feasibility of adopting these recommendations, it should be recognized that the four SASS questionnaires used in 1993-94 already addressed a substantial majority of the dimensions recommended here. The only new topics recommended for inclusion in the next SASS are some of the dimensions of schooling listed in Table 2. As can be seen in this table, the 1993-94 SASS collected data pertaining to half of the dimensions listed. SASS has also collected data on all the teacher, principal, and school variables recommended above for continued coverage in the 1998-99 SASS. To offset the burden created by adding

new content, other recommendations were made about compressing or deleting content from the four SASS questionnaires used in 1993-94 (see section V).

It, therefore, seems feasible to consider redesigning SASS in accordance with the recommendations offered in this paper. The fact, however, that past SASS questionnaire content included half the dimensions of schooling listed in Table 2 does not imply that their coverage was adequate (either in form or breadth) for future purposes. Therefore, it may be necessary to establish further priorities for selecting among the specific dimensions of schooling recommended in Table 2 for future data collection, as addressed in the next section.

Data Collection Priorities for Dimensions of Schooling

As noted above, a number of the dimensions of schooling listed in Table 2 represent new content areas recommended for data collection by SASS because of their potential relevance to future policy development. If it is not feasible to collect SASS data about all these dimensions, then the subset selected should include the dimensions that are likely to be the most active areas of policy debate and development. The best candidates for areas of most intense policy development are *school governance and accountability*--just as they have been in the recent past. It is, therefore, worth examining why policymakers have attended so extensively to aspects of school governance and accountability.

A primary reason for the attention given by policymakers to these two facets of schooling is related to the "means" available to policymakers to influence the educational process. Specifically, policymakers can influence education by the following means.[9]

- They can structure the governance context by:

  -- Allocating decision-making authority (such as in school-based management).

  -- Adopting or revoking mandates (i.e., in the forms of statutes and regulations) (such as deregulation).

  -- Designating public or private sector for operations (such as in privatization).

- They can establish accountability policies, with performance incentives, designed to:

  -- Measure and report school performance (such as achievement test scores).

  -- Promote competition among schools (through school choice, charter schools, vouchers).

  -- Link rewards and sanctions to school performance (such as offering monetary rewards).

- They can appropriate funds by:

  -- Making direct allocation of funds for programs, and to build capacity in terms of human, equipment, or infrastructure resources (such as computer acquisitions).

-- Creating financial incentives to evoke desired responses (such as school improvements).

Adopting governance and accountability policies is appealing to policymakers for several reasons: (a) the funding required is relatively low, (b) implementation can often be accomplished quickly by central action without the delay and difficulty involved in securing the participation of professional educators (i.e., district superintendents, principals, and teachers), (c) policymakers appear to be decisive and to have educational problems under control, and (d) the policies often enjoy broad public support. For all these reasons, implementation of governance and accountability policies represents good politics. Therefore, such policies have been quite popular with policymakers for at least the past decade, and probably will continue to be so in the foreseeable future. In the following paragraphs, the three means available to policymakers to influence the educational process are discussed in greater detail.

Through *structuring the governance context* of schools, policymakers can control the governance environment in which schools operate by (a) assigning decision-making authority along the continuum from centralization to decentralization (the main levels of the continuum being Federal, state, LEA, and school), (b) adopting or revoking statutes and regulations (both as to the content and the general extent of control of schooling), and (c) designating the functions of schooling that will be performed by agencies in the public and private sectors (such as privatizing the management of public schools). As indicated in Table 2, only minor or moderate incremental funding is required to implement policies in the governance areas. Furthermore, policy decisions about school governance can often be translated into action much more quickly than can changes in instruction. Consider, for example, the relative ease with which regulations can be repealed in comparison with implementing curriculum standards in the classroom. These characteristics of school governance policies help explain why they have been so prevalent in recent years, and why they are expected to be a major area of policy development in the coming decade or two. A high priority should be placed by NCES on collecting SASS data about school governance arrangements in the interest of informing broad education policy.

Policymakers also influence schooling by establishing *accountability procedures and systems* applicable to LEAs, schools, teachers, administrators, and students. Such policies are popular with the press and with the public because they are taken as evidence of engagement, oversight, and control by responsible authorities. As indicated in Table 2, a remarkable variety of school accountability strategies are available to policymakers and many of these have been used widely (Boe, Boruch, Landau, & Richardson, 1993), while only minor or moderate incremental funding is required to implement them. In addition, such policies can often be implemented quickly and easily since they do not require the collaboration of school personnel. These circumstances explain why the development of accountability policies has been so prevalent in the past decade or so, and why it is reasonable to expect that this will continue to be a very active area of policy development in the

future. It is, therefore, recommended that NCES place high priority on collecting data about various forms of school accountability.

The *appropriation of funds* to improve schooling is, of course, a means also used extensively by policymakers. As noted above, one of the main advantages of developing policies of the school governance and accountability types is that they generally do not require substantial funds for implementation. However, the appropriation of substantial or major funds is usually required to implement policies intended to improve instruction such as curriculum and performance standards, educational technology, and special programs such as for at-risk students (see items 3 through 8 of Table 2). At this time of retrenchment in government spending, tight finances alone represent a major impediment to rapid progress in improving instruction.

With respect to adopting policies intended to improve instruction, several factors other than funding limitations also pose serious difficulties to implementing such policies. For example, efforts to implement curriculum, opportunity-to-learn, and performance standards have become embroiled in controversy over the proper role of federal and state policy in this area. Policies addressing other instructional issues (such as authentic assessment, inclusion of special needs students in regular classrooms, programs for limited English proficient students, and so on) are also very controversial. In addition, implementation of policies intended to improve instruction usually involve (a) changes in the work of principals, teachers, and students, and (b) changes in school programs and practices--both time-consuming processes. For all these reasons, progress in improving instruction is likely to be slow and uneven--even though central to improving teaching and learning. Regardless, it can be expected that policymakers will continue to devote considerable attention to instructional issues in the coming decades, and SASS data can be very helpful in informing broad education policy in this area as well.

The considerations discussed above suggest that policy development in the areas of school governance and accountability will be particularly active (and implementation of such policies will be feasible) during the next two decades, while policy development in the area of instruction will continue to be fraught with great difficulty. Therefore, if priorities need to be established for SASS data collection among these three areas, it is recommended that priority should be accorded to school governance and accountability in the interests of informing policy deliberations.

Evaluation Function of SASS Data

To enhance the value of SASS data for policy development, it has been recommended above that SASS questionnaires be designed to collect more data that is useful in evaluating policies, programs, and practices. While NCES should maintain a neutral posture with respect to the import of such data to policy issues, it seems feasible for NCES to collect and report descriptive statistical data of this type. In fact, such data were collected in the 1993-94 SASS, as illustrated by an item in the teacher

questionnaires which sought teachers' opinions about the impact and value of professional development programs in which they had recently participated. However, an item of this type represents only one of four types of descriptive data that could be very useful for assessing policies and programs. The several types of data relevant to evaluation that might be collected through SASS are:

1. ***Data on policies adopted.*** Data on whether an LEA has adopted a policy locally can be useful in evaluating the acceptability or feasibility of a policy originating at a higher level. For example, a state may promote (say, through financial inducements and provision of technical assistance) the voluntary adoption of school-based management by LEAs. The incidence of adoption of the new policy would be relevant to assessing the strategy used by the state to promote this policy.

2. ***Data on policies implemented as programs or practices.*** In those instances where an LEA has adopted a policy, data on whether it has been implemented at the school level in the form of a program or practice also can be useful in evaluating the acceptability or feasibility of a policy. If a policy has not been implemented, further data can be collected on barriers to policy implementation; if a policy has been implemented as a program or practice, further data can be collected that describe the program or practice, and any unexpected side effects. Such information can be useful for assessing whether the program or practice embodies the basic intent of the policy. For example, information could be collected about school-level efforts to implement a school-based management and the specific form taken by this management arrangement.

3. ***Data on judgments by principals and teachers.*** In those instances where a policy has been implemented at the school level, the judgments of principals and teachers can be collected about the workability, utility, and acceptability of the new programs or practices that result from implementing the policy. For example, the judgements of principals and teachers on various aspects of a school-based management system implemented in their school could be useful in assessing the merits and liabilities of delegating operational authority to the school level.

4. ***Data on behavior of principals and teachers.*** In those instances where a policy has been implemented at the school level, reports by principals and teachers could be collected about changes in their behaviors that have occurred as a result of implementing a policy. For example, the work of principals is expected to be changed substantially by the introduction of school-based management. If the workload has shifted, for example, from 50 percent instructional support and 10 percent financial management (plus other functions),

to 10 percent instructional support and 50 percent financial management, such information would be useful to policymakers and others to assess the policy impact on the culture of schools.

The discussion above demonstrates that descriptive statistical data such as collected by SASS could be very useful in assessing, refining, and developing education policy. If the evaluation function of SASS is construed in this way, it represents an approach to securing the systematic (as distinguished from anecdotal) input of principals and teachers on initiatives that have been taken, or might be taken, to improve schooling. Policymakers and others would then have sound information about the views of principals and teachers about what is workable and useful, and what is not. Therefore, the evaluation function of SASS data should be enhanced.

Summary

The final question posed by NCES in commissioning this paper was: "What are the likely concerns of the next 10-20 years, and what data should we collect now to inform those issues in the next decade?" The short answer to the first part of this question is that SASS should collect data relevant to the fundamental dimensions of public schooling listed in Table 2 and the dimensions of the teaching force listed in Table 3, for reasons previously discussed. If it is not feasible to collect data on all the dimensions listed in Table 2, then it is recommended that the priorities for expanding SASS questionnaire content should include the various dimensions of school governance and accountability listed in Table 2, rather than all the dimensions relating to improvement of instruction.

The guidelines that were used in this paper to select the dimensions listed in Tables 2 and 3 were:

- Select fundamental dimensions of schooling, especially of public schools
- Emphasize the selection of dimensions amenable to policy intervention at all levels
- Emphasize the selection of dimensions pertaining to the teaching force because of the central role of teachers in the quality and improvement of schooling, and in the interest of continuity with past SASS administrations
- Emphasize the selection of dimensions of schooling that have the greatest potential to be policy issues during the next two decades
- Include dimensions of major concern to stakeholders
- Exclude dimensions for which nationally representative data are collected in other high-quality surveys
- Exclude dimensions that are inappropriate for questionnaire surveys
- Exclude dimensions that pose an unacceptable burden on respondents

After thus having selected the sets of dimensions listed in Tables 2 and 3 for inclusion in SASS questionnaires, the second part of NCES's question can be addressed, namely, "What data should we collect now to inform those issues in the next decade?" In summary, it was recommended that:

- Data should be collected to quantify the baseline status of schools and their staffs with respect to the dimensions selected for inclusion in SASS questionnaires
- Once baseline status is established, subsequent administrations of SASS should monitor possible changes from baseline status in the dimensions of interest
- The collection of data on both baseline status and changes from baseline should be designed so that the data are useful to inform education policy development. The value of such data for policy development will be maximized if the data are:
  - -- Useful for problem definition,
  - -- Useful for evaluation of policies and programs, and
  - -- Useful for enlightenment

In the past, SASS data have been especially useful for problem definition and for enlightenment. In the future, it is recommended that questionnaires be designed to continue to collect useful data for these purposes, and, in addition, be designed to collect data more useful for evaluation of policies and programs.

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1. This paper assumes that the reader is familiar with background information about SASS. In brief, SASS is a large-scale cross-sectional survey with different questionnaires being administered to independent national probability samples of local education agencies (LEAs), schools, principals, and teachers in the public sector (variations of the questionnaires for schools, principals, and teachers were administered in private and Indian schools). In the public sector, schools are sampled first, and teachers are sampled within the schools. In addition, the principals for the sampled schools and the LEAs in which the schools are nested are included. Thus, responses to the several questionnaires can be linked. During the year following a SASS administration, the Teacher Followup Survey (TFS) is administered to three subsamples of teachers as follows: (a) teachers who continued to teach in the same school as in the SASS year, (b) teachers who transferred to a different school in year after SASS, and (c) teachers who left the teaching profession at the end of the SASS year. Descriptive information about SASS and TFS is available from NCES.

2. Throughout this paper, references to SASS alone imply SASS and TFS.

3. In fact, baseline status data may often be of more value in informing broad education policy than data on changes from baseline. Therefore, when this paper discusses changes in school policy, programs, practices, and performance, it should be understood that establishing baseline status data is a necessary and integral part of measuring change.

4. The major examples are school attendance items in the School Questionnaires, and school climate in the Principal and Teacher Questionnaires.

5. The Public School Questionnaire of SASS's third round already collects information about several functions of school councils.

6. Other than the dimensions of school listed in Table 1, SASS has also collected data on a variety of basic aspects of schooling such as student enrollment in LEAs and schools, staffing pattern and size, school type and level, location, etc., and should continue to do so.

7. It is possible that data for some dimensions included in Table 2 are available from other NCES surveys and should, therefore, be deleted from this list. This can best be determined by NCES staff members who know the detailed content of all their surveys.

8. It is recognized that most or all of such redundancies were eliminated in the 1993-94 SASS.

9. The following outline is based in part on the identification of policy instruments by McDonnell and Elmore (1987).

1998-99 SCHOOLS AND STAFFING SURVEY: ISSUES RELATED TO SURVEY DEPTH

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Introduction

The Schools and Staffing Survey (SASS), first fielded in 1987-88, represented a major redesign of the NCES elementary and secondary data collection, and it has proved to be a successful one. Thoughtfully designed and competently executed, the SASS linked surveys have made it possible to develop comprehensive profiles of the nation's public and private schools and teachers and principals, and to examine supply and demand issues more thoroughly than ever before. Successive administrations of SASS in 1990-91 and 1993-94 brought improvements in sample and questionnaire design and supplied additional information on timely topics. The switch to a five-year cycle of data collection provides some time to reexamine the survey's design and consider changes to enhance the relevance and quality of the SASS data collection effort.

This paper focuses on one aspect of the survey's design—survey depth—and addresses three major questions:

(1) At what level should estimates be provided? Are state- and affiliation-level estimates useful enough to justify the large sample size they require? Are the oversampled groups of schools and teachers still important to single out?

(2) From whom should data be collected? Should any new categories of respondents be added to the survey?

(3) How much data can reasonably be collected from each respondent? What options are available to expand data collection without overburdening respondents?

The paper starts by describing the context within which choices about survey depth must be made. It examines the purpose of SASS, identifies some important emerging policy issues and their implications for the survey, and describes the users and uses of the data. The paper then takes each set of questions in turn, discussing the issues they raise and making specific recommendations on how to address them.

Context for Considering Survey Depth

To make appropriate decisions about survey depth, we must first consider the purpose of the survey, who uses (or might use) it, and to what end. Although the future scope of SASS is currently being debated, some assumptions were necessary in order to make recommendations about survey depth. For the purposes of this paper, I have assumed that the general goals and structure of the survey will remain intact, but have also taken into

account emerging policy issues that might appropriately be monitored through SASS. Thus, although this paper focuses on survey depth, it unavoidably strays into the realm of survey scope.

Purpose of the Schools and Staffing Survey

SASS was designed to inform Congress, the Department of Education and other federal agencies, state education agencies, local districts, educational associations, and the larger education community on four major topics: (1) teacher supply and demand; (2) school conditions and programs; (3) the characteristics of the elementary and secondary teaching force; and (4) the characteristics of principals (National Center for Education Statistics [NCES], 1995b). In the mid-1980s, when the first SASS was designed, many analysts were predicting a serious impending teacher shortage, particularly in math and science. An important purpose of SASS, therefore, was to monitor the flow of teachers nationwide as they moved in and out of the teaching work force in ways that earlier elementary and secondary data collections were unable to do.

After more than a decade of concentrated attention to school reform at the federal, state, and local levels, the four general topics mentioned above remain as relevant as ever. The focus of some of the questions related to them has changed, however. For example, when the predicted teacher shortages did not materialize, researchers and policymakers shifted the emphasis of their work from the absolute number of teachers to more complex issues such as the supply of teachers in specific fields, the distribution of qualified teachers across various types of schools and subject areas using various definitions of "qualified," the match between qualifications and assignments as indicators of shortages in various fields, difficulties filling new positions, the adequacy of the supply of minority teachers, and the relationship of school and teacher characteristics to attrition.

Although teacher shortages may not exist in the aggregate now, monitoring supply and demand remains a worthy goal because shortages could still become a problem in the future. In 1993–94, about one-quarter of all newly hired teachers were not teaching the year before (Henke, Choy, & Geis, 1996). Thus, the size of the pool of potential teachers is uncertain and may be influenced by many factors such as teacher salaries, the attractiveness of alternative careers, and the general state of the economy, to name a few.

Like supply and demand, school conditions and programs and the characteristics of the school work force still command attention, although the focus of some of the questions has changed in these areas as well. SASS has been updated to reflect this. Compared with previous administrations of the survey, the 1993–94 SASS has more questions on teacher education and certification, professional development, the influence of various participants in school decision making, and the variety of programs and services schools offer.

In summary, SASS has been well structured to capture information on enduring issues and has been modified appropriately to reflect changing policy concerns through the early 1990s. Now, however, after more than ten years of

reform initiatives, a hard look at the information being gathered is necessary; it is important to monitor the implementation and impact of these initiatives, and to try to anticipate what people will want to know about schools and staffing five years from now when the data from the next SASS administration are released. No one would argue that an ongoing national survey monitoring conditions in the schools should be redesigned to follow every educational fad. Nevertheless, policies and priorities do change over time, and it is important for SASS to remain relevant and timely.

Emerging Issues

As we head toward the 21st century, some of the major issues that education researchers and policymakers are focusing on include the following:

- What students are taught (curriculum frameworks, course content, graduation requirements);
- How students are taught (instructional practices, use of technology);
- How their progress is evaluated and what are the results (tests, portfolios);
- Who is teaching, how they prepare for this responsibility, and what knowledge and skills they bring to bear (sources of teachers, minority teachers, content of teacher education, professional development);
- How students are prepared for school (preschool education, early childhood experiences), and how they are assisted in making the transition from high school to further education or work (school-to-work transition programs, tech-prep programs);
- How schools are organized and managed, including who makes what kinds of decisions (site-based management, decision-making processes, choice, vouchers, magnet schools, charter schools, networks).

<u>Implications for SASS</u>

There is much we want to learn about these reforms. However, it is important to pause and think about what SASS can and cannot do well given its overall size and design.

SASS should include only items that are readily measured and that have a readily understandable definition. At the recent NCES-sponsored conference on possible future directions for NCES, Jennings and Stark (1995, pp. 4–5) note this as a barrier to collecting information on school reform. They suggest establishing an advisory committee made up of individuals with widely varying views on education reform so that they can help determine what to study and develop common definitions. However, even if common definitions could be agreed upon through such a process, we certainly cannot assume that these definitions will mean the same thing to all the individuals answering questions about them. This is especially true for

reforms that are new and not yet clearly defined.

For example, the 1993–94 SASS asked schools if they offered a "tech-prep" program. Tech prep was defined as "vocational–technical instruction in the last two years of high school designed to prepare students for two years of vocational instruction at the postsecondary level." With this definition, almost any school with a vocational program could respond affirmatively to this question, and, in fact, 56 percent of public schools with 12th grades reported that they had such a program (Henke et al., 1996). However, "tech prep" has now come to mean something much more specific, with the critical defining feature being some type of formal articulation between secondary and postsecondary programs. Consequently, not much has been learned from this question. This example also illustrates the dangers of trying to measure something too soon, before there is a common understanding of what it is. If a reworded tech-prep question is included in the next SASS, the percentage of schools with tech-prep programs will probably appear to decrease, which would not be an accurate depiction of what is actually going on. NCES must guard against adding questions on "hot topics" that do not yet have commonly understood or easily communicated definitions.

SASS can only measure things that are widespread. National surveys are not useful for providing information on reforms that involve relatively small numbers of schools or teachers, as new structures and practices often do. For example, some schools are supporting each other in the reform process by establishing networks of schools with common goals, such as the Coalition for Essential Schools. In a nationally representative sample, however, you will not pick up enough schools to say anything useful about schools that belong to this network or to compare them with schools that belong to other networks. For now, if you want to study these networks, the best approach would be to start with the list of participating schools. Similarly, one day we might want to track the movement of teachers certified by the National Board for Professional Teaching Standards (Mandel, 1996, p. 3-30). At present, however, there are fewer than 1,000 such teachers. You might not sample any of them in a national survey, and certainly not enough to make any comparisons to other teachers.

Of the different types of reforms and changes occurring in schools and the teaching profession now, some are more suitable for including in SASS than others. It is relatively easy to ask who, what, or how many. Much harder to answer, however, are "how" questions. Thus, it is fairly easy to ask about professional development activities (how many workshops of a certain duration a teacher attended, for example, and in what subject areas) or teacher education (measured in terms of courses, majors, minors, or degrees). It is also relatively easy to measure how many students participated in certain programs (like tech prep), or how many plan to apply to college. It is also feasible to ask about the existence of certain policies that have readily understandable meanings (for example, choice programs or vouchers).

Much harder to measure are organizational management and issues such as how decisions get made. For these, national data collections such as SASS are less useful. In 1993–94, for example, teachers and principals did not agree on how much influence teachers have on certain types of decisions. Although this is worth knowing, it does not give us a clear picture of what was going on in schools. Because organizational processes are so complex, I therefore disagree with Baker (1996, p. 4) that SASS would be very useful for studying these processes, and believe that smaller studies using interviews would be more appropriate. A further complication is that the teachers in SASS are not representative of the teachers in their school. In fact, their perceptions about how their school works could differ quite markedly from those of their colleagues. Samples for schools are too small, for example, to permit HLM analyses despite the hierarchical structure of the surveys.

Implications for Survey Depth

1. ***NCES should take advantage of the fact that SASS, because of its linked-survey design, is uniquely positioned to monitor the extent to which various types of reforms are present in schools and in the classroom.*** SASS is the best vehicle NCES has for following how school reforms have been implemented and for determining whether or not state-initiated reforms have filtered down to the district, school, and classroom. States can develop wonderful curriculum frameworks, for example, but if teachers do not actually use them, we cannot expect to see their effects on student learning. SASS can ask teachers questions about instructional practices, and we can use that information to examine implementation patterns by school and district characteristics.

2. ***More information is needed to describe what goes on at the classroom level.*** In recent years, there has been increasing recognition that the quality of resources has to be measured at the classroom level. Teacher quality and opportunities to learn, not just district or school spending, which have traditionally been used as indicators of quality, are key to educational success, and therefore their distribution across schools and states is of major national interest. The implication for SASS is that more information about what is going on in the classroom is needed.

Of the current SASS participants, teachers are the best source of information on their qualifications and on what is going on in the classroom. They can be asked, for example, what professional development activities they have participated in, if they are using a state curriculum framework, what assessment practices they are using, and how technology is used in the classroom. Self-report data, even with such straightforward items such as degrees earned and dates, pose problems (Chaney, 1994, pp. 8–12) but at the national level is the best we can do. On a smaller scale, self-report data can be combined with other types of data collection such as video or case studies.

Data Users and Uses

SASS has been targeted to a wide audience, including policymakers at all levels, researchers, and the general public, and some of their data needs differ. Researchers, while interested in national

data, typically do not need the large sample sizes required to support state-level estimates. Education administrators, on the other hand, want to know about variation across states so that they can make decisions about funding, reform initiatives, and staffing (NCES, 1994, p. 1). Researchers are typically trying to establish links between educational structures and practices and student outcomes, while administrators and policymakers are more frequently interested in monitoring the implementation of proven or desired policies and practices.

From a survey depth perspective, the important question is whether the state- and association-level data are used widely enough to warrant continuing to produce estimates at this level. It is difficult to know the extent to which state data are used. NCES has published some state-by-state SASS data in the *Statistical Profiles* and in *SASS by State*, produced jointly with the Council of Chief State School Officers and Horizon Research, as well as in the *Digest of Education Statistics* and *The Condition of Education*, but it is reasonably safe to say that these publications do not provide everything a state might need.

For state-level data to be really useful, states need to have the capability to analyze SASS data themselves so they can tailor comparisons to their specific needs. The widespread availability of personal computers and appropriate software and NCES's practice of providing large data sets on CD-ROM have made this increasingly feasible. Moreover, a number of states have obtained the data themselves or requested analyses from the National Data Resources Center (NDRC). The data would be even more accessible if NCES were to create a Data Analysis System (DAS) for SASS, such as that developed by Dennis Carroll for some of the other NCES databases. The DASs have allowed users with very limited computing capacity and technical knowledge to create their own cross-tabulations.

The important point here is that rapid advances in technology are opening exciting possibilities for innovations in data collection, management, and distribution, and we are moving toward a closer connection between data producers and data users.[1] For example, Statistics Canada recently held a symposium entitled From Data to Information that explored topics such as the role of the customer in "co-producing information," the integration of data collection and analysis, advances in analytic techniques of customers, and the privacy and confidentiality issues associated with new customer/supplier partnerships (Scheuren, 1996). These trends suggest more, rather than less, demand for and use of state and other small area data in the future and a need for NCES to pay close attention to how SASS data are being or might be used. In the past, users of NCES data have been fairly well known to NCES staff, but as use becomes more dispersed, NCES may have to actively seek out the users to find out who is using what data and for what purpose.

This discussion of policy issues and data users provides the context within which to proceed with the discussion of survey depth. In the rest of this paper, I return to the questions posed at the beginning: (1) At what level should estimates be

provided? (2) From whom should data be collected? and (3) How much data can we collect from each respondent? In each case, the issues are discussed first, followed by specific recommendations.

At What Level Should Estimates Be Provided?

Issues

The 1993-94 SASS sample design provides estimates at both the national and state levels for public schools and teachers, and at the national and affiliation levels for private schools and teachers. In addition, the sample design provides state/elementary and state/secondary estimates; estimates of public and private libraries and librarians at the national level; and national estimates of public and private school students by grade level and urbanicity. To improve the accuracy of estimates for certain sampling units that were relatively small in number but important for policy reasons, SASS oversampled schools in which more than 19.5 percent of the students were American Indian/Alaskan Native, included all Bureau of Indian Affairs (BIA) Schools, and oversampled bilingual/ESL, Asian/Pacific Islander, and American Indian/Alaskan Native teachers.[2]

The level at which estimates are provided has implications for cost, response rates, and the precision of estimates. In the next section, the implications of each of these is discussed in turn.

Cost. Since the decision to provide state- and affiliation-level estimates affects sample size, it has a direct impact on the cost of administering the survey. To provide estimates at this level, the 1993-94 SASS included approximately 13,000 schools and 68,000 teachers. NCES could substantially reduce the sample size and therefore the cost of the survey if SASS provided only national estimates. Moreover, the reduction in sample size could free up resources to enhance the survey in other ways, such as covering more types of school staff, conducting the survey more often, or increasing the amount of information collected in each survey. The important question, then, is: Are state- and affiliation-level data useful, or should the sample size be reduced and the resources reallocated? Are there better ways to spend the resources allocated to SASS than having such a large sample?

Response rates. Survey depth may also affect response rates, although the precise impact, particularly of marginal changes, is not easy to predict or measure. State- and affiliation-level estimates might contribute to reduced response rates because the larger the sample, the greater the probability that a given respondent will be surveyed more than once over time. Since respondents may view being asked to participate repeatedly as a significant burden they may be more likely to decline to participate a second or third time.

Providing state- and affiliation-level estimates, requiring a larger sample, could jeopardize district response rates. In the 1991 LEA pretest, for example, response rates were significantly lower for overlap compared with nonoverlap LEAs (84 percent compared with 95 percent), suggesting a reluctance to participate repeatedly (NCES & U.S. Bureau of the

Census, in press, p. 39). This problem could worsen over time as the amount of overlap increases with repeated SASS administrations, although the shift to a five-year as opposed to a three-year interval between surveys will undoubtedly mitigate the problem. Reducing the number of questions asked of districts (by dropping them or shifting them to the school questionnaire) might also improve response rates for overlap schools.

Repeated participation does not seem to have had a negative effect on the school response rate. In the 1993–94 SASS administration, the response rate for overlap and nonoverlap schools was about the same among public schools (92 percent). Among private schools, overlap schools actually had a higher response rate than nonoverlap schools—83 percent compared with 88 percent (NCES & U.S. Bureau of the Census, in press, pp. 39–40).

Although there is no evidence to prove this, it seems reasonable to hypothesize that providing affiliation-level estimates would affect the private school response rate positively rather than negatively. Private schools are not a "system" and typically have less interest than public schools in making intrasector comparisons. The affiliation-level estimates allow private schools to define a more relevant comparison group than all private schools. For example, Montessori schools can compare themselves with other Montessori schools, and Catholic schools with other Catholic schools or with other religious schools. Without the affiliation-level estimates, private school associations might not be willing to endorse the survey. The response rate for private schools is already lower than for public schools—83 percent compared with 92 percent in 1993–94 (NCES & U.S. Bureau of the Census, in press, p. 4). Without association endorsements, the response rate might be even lower.

Precision of estimates. Finally, survey depth has implications for the precision of estimates. The optimum sample design for national estimates is different from that for state-by-state comparisons. For the best state comparison, schools and teachers should be sampled in proportion to their numbers in each stratum for national estimates, but equally among states. Since both types of comparisons have been important, the sample has compromised on these goals (NCES, 1991, pp. 9–10). The precision of the national estimates could be improved by abandoning state-level estimates.

The oversampling of certain types of teachers does not have cost implications because the oversampling does not change the total sample size. Larger samples of bilingual/ESL, Asian/Pacific Islander, and American Indian/Alaskan Native teachers are obtained by sorting the teacher lists so that adequate numbers of these types of teachers can be selected. However, oversampling does improve the precision of the estimates for these groups.

Recommendations

State- and affiliation-level estimates. I believe that a strong case can be made for continuing to support state- and affiliation-level estimates given the purpose of SASS, the nature of emerging policy issues, and the context in which school reform initiatives are taking place. First, we need

state-by-state data to describe accurately the education enterprise in the United States. Education is primarily a state and local responsibility, and the current trend is away from federal involvement and uniformity at the national level, not toward it. Moreover, many important aspects of schooling are typically controlled or heavily influenced by state policy, such as programs offered, curriculum, graduation requirements, the number of days per year and hours per day that schools must be in session, pupil/teacher ratios, expenditures per student, teacher certification requirements, and salary schedules, to name a few. Key features of the education system cannot be captured without state-level data.

Second, the major current school reform efforts are being implemented at a subnational level, even those initiatives originating at the federal level. The federal School-to-Work Opportunities Act, for example, has provided the states with grants and given them much freedom to design their own programs. In fact, there is much more talk in Washington about block grants than about new federal programs. The reality is that most of the major reform efforts are being initiated at the state level. In the area of curriculum standards, for instance, states have moved with varying strategies and at different speeds, with differences across states as noteworthy as the similarities (Cohen, 1995, pp. 11–12). To monitor reform, a state perspective is needed.[3]

Third, state-level data provide policymakers with information useful for making state policy, such as scheduled salaries. Although states can generate some of this information themselves through their own databases, SASS allows comparisons with other states, which is often hard to do when data do not come from a common source.

Fourth, providing state-level data may build support for NCES data collections with federal legislators because their constituents will be happy. In a similar vein, providing affiliation-level data will make the private school associations happy, thus encouraging them to endorse the survey, which, as suggested above, is likely to improve the private school and teacher response rates.

Finally, it would be a shame to eliminate state-level estimates just when the technologies being developed for data collection, management, and dissemination are leading toward increased usefulness of nationally collected data at subnational levels.

The major argument against continuing to support state- and affiliation-level estimates is cost. Cost savings could be a strong argument if there were better ways to use the funds. The major pressure right now seems to be how to get more information from teachers. Eliminating state- and affiliation-level estimates would not do much to accomplish this goal because the chief difficulty is the response burden on individual teachers.

Oversampled groups. Continuing to oversample schools with large American Indian/Alaskan Native student populations and to oversample bilingual/ESL, Asian/Pacific Islander, and American Indian/Alaskan Native teachers also seems appropriate. The issues that prompted the oversampling in the first place have not

disappeared. The only question would be whether other groups have greater priority, and this does not seem to be the case.

The American Indian/Alaskan Native student population is relatively small (about 1 percent of the total student population) and therefore would not be well enough represented in a national survey of schools and staffing to permit reliable generalizations about their characteristics. Yet there are policy concerns about the condition of education for these students as well as some systematic differences in the characteristics of these schools and staff compared with other schools and staff, and these bear monitoring (NCES, 1995a, p. 1).

In the United States as a whole, 14 percent of all children aged 5 to 17 spoke a language other than English at home in 1990, and 5 percent had difficulty speaking English. The percentage of school-age children with difficulty speaking English increased by 27 percent between 1980 and 1990 (Smith et al., 1994, p. 130). Thus, it will continue to be important to monitor the adequacy of the supply of teachers to help these students.

Because Asian/Pacific Islanders and American Indian/Alaskan Native teachers made up such a small percentage of the total teacher population (1.1 percent and 0.7 percent, respectively, in 1993–94) (Henke et al., 1996), it would be difficult to study them without oversampling them. Obtaining accurate data on minority teachers is important because the adequacy of the supply of minority teachers and their distribution among different types of schools remain crucial issues.

From Whom Should Data Be Collected?

Issues

One of the major strengths of SASS is the integrated survey design that links schools, teachers, districts (for public schools) and, as of 1993–94, libraries, librarians, and students. Questionnaires are completed by districts, schools, principals, teachers, and librarians. Two issues are important to consider here. One is whether this is the correct structure. Are we getting all the information we want, or should we include other staff such as vice principals, department heads, or counselors?

The other issue is whether we are asking the right questions of the right people. There are two reasons why we might want to change. One is to improve accuracy. For example, until the 1993–94 administration of SASS, information on public school teacher benefits was collected from the district, which was asked to identify from a list of benefits those that were offered to teachers. Beginning in 1993–94, questions on benefits were shifted to teachers, who were asked what benefits they received, which was much more useful because it provided more accurate information and allowed direct comparisons with benefits received by principals. The second reason we might want to change the source of information is to reduce the response burden imposed on particular types of respondents. For example, if some questions currently on the district questionnaire could be shifted to the school questionnaire, the response burden for the districts could be reduced.

Recommendations

Since schools employ a wide variety of types of staff, collecting information from principals and teachers necessarily provides only a partial picture of school conditions. Other staff who could provide information on school conditions include vice principals, department heads, counselors, and school superintendents. However, the major problem with including these types of staff is that their roles vary widely from school to school, giving them quite different perspectives. School superintendents would be a useful source of information on both state and district policies, but probably no better than whoever fills out the district questionnaire. It might be interesting to learn about superintendents' backgrounds, education, and career paths, but this would not be a high priority given the ambitious goals already outlined for SASS.

If extending the survey depth to collect more information about what goes on in the classroom is considered desirable, the question then arises as to who should provide the information, teachers or students. The current Teacher Followup Survey (TFS) survey contains a considerable amount of information on teaching methods collected from teachers. However, judgments on the usefulness of this information will have to wait until the data on classroom practices are evaluated. Self-reported data on this topic may prove valuable, but could prove to have significant limitations. This remains to be seen. Since the issue of whether to include students in SASS is addressed in another paper, it is not addressed here (Kaufman, 1996).

Over the three administrations of SASS, NCES has switched the sources for some data (such as teachers' benefits) to improve quality. Overall, it appears that the right questions are now being asked of the right individuals to maximize accuracy. However, since the district questionnaire takes the longest to complete, it is worth considering whether the burden on the districts could be reduced by shifting some questions to the schools. Some district policies would be known at the school level, such as the number of days in the school year or whether or not the district had a choice program (although schools would not know how many students participated). Collecting such data from schools could lead to the problem of reconciling data from multiple schools in the district. Also, it could irritate the school personnel filling in the questionnaire, who might wonder why the questions were being asked of them rather than the district. Finally, some information on district policies would only be available reliably from the districts, such as salary schedules, incentive pay policies, hiring criteria, and policies on retraining. On balance, there does not seem to be much prospect for shifting much of the response burden away from the districts. The most burdensome questions are those that require looking up numbers, such as student enrollments, and the district is the only source of this information.

As a final point, it is worth keeping in mind that the appropriate level to collect data may change in the future with advances in data collection technology. For example, information on enrollments now collected from the schools may be

more easily obtainable from a district or even a state database.

How Much Data Can We Collect?

Issues

Once a survey has been developed, the marginal cost of fielding an additional question is relatively low. It is very tempting to keep adding questions, but the response burden cannot be ignored. Estimated times for completing the surveys (printed on the questionnaire) were as follows: LEAs, two hours; public schools, one hour; private schools, two hours; and principals, 30 minutes. The time teachers took to complete the survey was not estimated, but the average time reported by public school teachers in 1993–94 was 36 minutes. The overall burden on the principal may be considerably greater than 30 minutes depending on how much of the school questionnaire the principal has to complete personally. In a small school with no other administrators, the burden for responding to the school questionnaire and developing the teacher list probably falls on the principal.

A twist on this issue is that the types of questions may be more relevant than the length of time it takes to respond. Respondents may not object to completing a long questionnaire in which the questions are easy to answer, but may balk at a short questionnaire that requires them to look up numbers or that includes questions that are puzzling or difficult to answer. Thus, NCES should pay close attention to the types of questions asked as well as how long they take to answer.

To date, overall response rates have been good, suggesting that the burden is not yet excessive.[4] However, the response rate to the initial mail survey (as opposed to the telephone follow-up) was considerably lower, suggesting that there may already be too many questions for some respondents. Although the response rate has been increased by telephone follow-up, reinterviews have shown that the responses obtained through the mail survey were more reliable (Bushery, Royce, & Kasprzyk, 1994, p. 7).

Recommendations

The major increase in response burden for new data collection to address emerging issues will fall on the teacher. For example, including all the information asked on the TFS in the regular SASS teacher questionnaire would greatly increase the response burden for teachers. A variety of options exist to address this, including the following:

1. ***Assume this is not a problem***, and add to the questionnaire. One could point to the high response rates attained in previous administrations of SASS and argue that more questions could be added without reducing the response rate. This is an empirical question, at least for now, and could be answered with a field test.

2. ***Try to maintain the amount of time that it takes to complete the questionnaire while increasing the number of questions.*** Changes in technology may help make this possible. At some point in the not-too-distant future, most teachers will have access to and be able to use computers. Thus, it may be not only feasible but also very efficient to provide the questionnaires

to teachers in electronic form, at least as an option. A teacher might be able to move considerably more quickly and easily through the questionnaire if he or she did not have to pay attention to skip patterns. Electronic data collection from teachers and schools is already being investigated (Kasprzyk, 1994, p. 3). This could reduce the cost of data collection per teacher (making larger samples feasible) and improve accuracy (by eliminating skip pattern errors, for example). To what extent it would reduce response time enough to permit asking a lot more questions is largely unknown, but bears investigating.

Also, as indicated above, it is not only the number of questions but also their difficulty that affects response rate. If the questions are interesting to teachers and easy to answer, they may not take much longer.

3. ***Eliminate some of the current questions***. It is very difficult to identify items that could be dropped from the teacher questionnaire, but a couple of suggestions are made here. Among the least useful seems to be the detail on what teachers were doing before they started teaching at that school (Questions 6-11). When they first taught and how many years of total teaching experience they had could be sufficient. It may also be unnecessary to include the detail on the number of courses ever taken in various fields because this is a lot of work to figure out and may not be very meaningful or accurate except for recent graduates. Moreover, this may be the type of question that causes teachers to give up. Since they could answer a lot of questions in the time it takes to dig up all that information, the questions on majors and minors may be enough.

4. ***Do not ask all teachers all questions***. This would require increasing the total sample size to continue state- and affiliation-level estimates for all data items. The division of questions would have to be done very carefully to ensure that you did not split data among subsamples that you want to examine together.

5. ***Cycle some questions***. For example, on one survey you might ask about instructional practices and on the next perceptions of school problems or decision making. This means that some questions would only be asked every ten years. In reality this might not be a serious loss. Comparisons of data from 1987, 1991, and 1994 show considerable stability in many areas. However, policymakers and the general public increasingly expect up-to-the-minute data (i.e., ten-year old data have little credibility).

6. ***Use the TFS to collect data for which national estimates are sufficient, to field test new data, or both***. In 1994–95, the TFS is being used to question teachers extensively about their instructional practices. We do not know yet what the quality of these data will be, but if it seems worthwhile to collect similar information again, the TFS may be an appropriate permanent home simply because there may be too many questions to add to the regular teacher survey. The TFS is a good testing ground for new subject areas because the sample is small yet nationally representative.

7. ***Use the SASS sample as a framework for more limited studies***. Metcalf (1995),

for example, has explored the feasibility of incorporating experimental designs into NCES data collection methodologies. If everything we are interested in cannot be addressed in a national data collection, it might still be possible to use SASS as a sampling framework for additional, more specialized studies.

More information is needed to know which of these options (or combinations of options) are most promising. In particular, we need to know how successful the TFS data collection on instructional practices turns out to be as well as the scope of the survey.

Conclusion

My major points can be summarized briefly as follows:

(1) SASS has been an extremely valuable survey, and its current structure of an integrated set of linked surveys is useful and appropriate to meet the purposes of the survey and to provide information on emerging policy issues.

(2) SASS is the best mechanism NCES has for monitoring the implementation and diffusion of many current school reform initiatives.

(3) Given the current focus on measuring quality at the classroom level, SASS needs to reach more extensively into the classroom. This means obtaining detailed information on teacher training and professional development and the knowledge and skills teachers bring to bear (a direction in which the 1993-94 SASS has already moved), and on instructional practices (beginning to be addressed through the TFS).

(4) State- and affiliation-level estimates should be continued, as should the current oversampling of schools with large American Indian/Alaskan Native student populations and oversampling of bilingual/ESL, Asian/Pacific Islander, and American Indian/Alaskan teachers.

(5) No additional types of respondents should be added to SASS.

(6) Because of the interest in focusing on the classroom, the increased response burden will fall mainly on teachers. Simply adding the TFS questions to the next full teacher survey may not be realistic. A variety of options exist to address this problem, but the results of the TFS survey and decisions on survey scope are needed before recommendations can be made.

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1. Two papers presented at the conference on Future NCES Data Collection: Some Possible Directions address this issue. See Scheuren (1995) and Ligon (1995).

2. This is somewhat of an oversimplification of the sample design. For more detail, see NCES and U.S. Department of the Census (in press).

3. Jennings and Stark (1995) recommend that NCES consider studying education reform on a state-by-state basis and issue annual reports on state activities.

4. In the public sector the weighted response rates in 1993-94 were 93.9 percent for districts, 96.6 for principals, 92.3 percent for schools, and 88.2 percent for teachers. In the private sector they were 87.6 percent for principals, 83.2 percent for schools, and 80.2 percent for teachers (NCES and U.S. Bureau of the Census, in press, p. 4).

REFLECTIONS ON THE PAPERS PREPARED FOR THE SCHOOLS AND STAFFING SURVEY SEMINAR SERIES

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Education: n. That which discloses to the wise and disguises from the foolish their lack of understanding.

Ambrose Bierce, The Devil's Dictionary

Preface

The following *Reflections* are offered as a layman's contribution to the ongoing discussion and planning of a "new" Schools and Staffing Survey (SASS) by the National Center for Education Statistics (NCES) beginning in 1998-99. They are based on a review of commissioned papers from the perspective of an (allegedly) educated citizen, familiar to a degree with the work of SASS and NCES but decidedly not a technical expert in statistics or survey research. It is hoped that these *Reflections* will stimulate discussion on the future content and design of SASS.

In what follows some specific criticism of points made in the papers will be ventured. In some (if not most) cases, these criticisms may be misplaced, betraying the author's nonexpert standing. If such there be, these mistakes will indicate where a "layman" has trouble with understanding just what the experts are trying to say. But the ultimate "test" of the work of a public statistical agency is its ability to communicate clearly to the public information relevant to the issues of concern, in this case how the nation's education is faring. Thus, these criticisms are presented "baldly" as signs of the need for greater clarity.

The overall aim, however, is not to argue specific points but to try to explore a "global" perspective on what NCES might do with SASS in light of the extensive technical work done on SASS in the past and in these commissioned papers. In this aspect, the author will probe some assumptions and proposals presented in the papers. Such probing is not intended to be definitive but "framing," in the sense of identifying major points of agreement and disagreement, and of suggesting lines of further inquiry and possible resolution of contentious issues. Above all, the *Reflections* are a starting point, neither conclusions nor definitive recommendations.

Finally, the author apologizes if any of the writers of the commissioned papers believes his or her work has been slighted or maligned in this *Reflections*. The response is simply that the task here is general. It should be clear that a great deal has been learned from these papers and that such value as these reflections may have is due in large part to that learning (or misunderstanding).

SASS and the Public

As is well known, and universally acknowledged by the authors of the commissioned papers, the data needs in education have expanded almost exponentially in the last decade and a half. While there has been a recognition of the need for statistics (literally "state information") since the founding of the nation, this need has been largely confined to small groups of people. And, as the early resistance to a census (and the latest complaints about it) indicates, the public generally has shown less enthusiasm for statistical enterprises. In spite of Americans' love of information (witness the proliferation throughout our history of atlases, encyclopedia, etc.) development of thorough statistical surveys has always proved a difficult sale.

There has been, I believe, a sea-change in attitudes toward the importance of statistics in education. Late this winter, the New Hanover County Schools in North Carolina issued its first "Report Card"--a 14-page newspaper section in the *Wilmington Morning Star* prepared by the school district, giving detailed information about the school district and about each school within the district. Comparisons were made of each school to the district averages for each type of school (elementary, middle, and high) as well as comparisons of the district to both state and national data in some areas.

Though obviously limited in many ways, the "Report Card" was extensive and, most importantly, has struck a responsive chord in the community. I was particularly taken by a letter to the editor, praising the paper for publishing the publication and noting "I have always wanted to know how my children's school was doing and now I am beginning to find out." While the usual issues of school politics dominate the upcoming school board elections in New Hanover County, I have been struck by the fact that in public forums some citizens have asked questions stemming from the release of the "Report Card."

The near identification of improvement in education with enhanced economic well being (if not survival) is now commonplace. The entire "Ideas" section of the Sunday, April 21, 1996, Greensboro, NC *News & Record* was devoted to education, under the general heading "Will future 'State of the South' rise? Our fate awaits school bells." While some of us may view such claims as far too simplistic, the plain fact is that in some fundamental way the claims have taken hold and the public is demanding that schools do a better job. And in all this, the value of good statistical information is being recognized.

Herein, of course, lie grave difficulties. The public (including you and me) is fickle. Worse, in education, the most outstanding feature is the rise and fall of fads. We all want the solution, and, especially if it concerns our own children, "We want our Maypo and we want it now." Statisticians and serious social science researchers are painfully aware of the dangers of responding merely to the latest fad. Instant polling and immediate reporting of political trends clearly demonstrate how even well-designed instruments yield misleading information. And given the rapidity with which education fads change, we know that

designing surveys to provide that Maypo now is worse than useless.

But the fact remains that there is a public need for timely and reliable and valid data on education. The early success of SASS in responding to a concern ("teacher shortages") demonstrates that a survey program of real quality can arise from an immediately pressing need and advance the public understanding of the issue. Such work can advance that understanding and open new avenues of inquiry.

My first point, then, is that there is a pressing public need for more information on just how schools are faring. Though seemingly trite, this point has, I believe, an important implication for thinking about SASS: attention must be paid to what the public wants and needs to know.

Well, of course, you may reply, but so what? Put as strongly as possible, in all our deliberations, the ultimate touchstone is whether the information will make sense to the public! Put another way, we need constantly to ask, "Would I, as a parent and citizen, gain information from SASS that will make a difference in how I approach my children's education and that of all the children in my community?"

A noble thought, but how can we seriously address the public at large? Notice that I have insisted that we take making sense to the public as a touchstone for work in SASS. By that I do not mean that SASS should become the *USA TODAY* of the education world. For while public concerns are the basis for the work, it is to the public policymakers that the work must be primarily addressed. It is the policymaker, the politician (in the best sense of that term), who must respond directly to the public needs and desires. And it is thus to that audience we must turn in asking what SASS can be as an important part of the public debate about education.

But, again, I want to insist that keeping in mind what the public wants and needs to know are central to the enterprise. That danger in focussing on policymakers is that we fail to remember that they are especially subject to the whims of public opinion and pressure groups. Without a touchstone, we risk merely pleasing the "masters" without addressing the public needs.

Policymakers as Audience

While there appears to be general agreement that policymakers are the primary audience for SASS, it is not clear just what that entails. Policymakers no less than the public at large primarily want *to do something--now*. As NCES's experience with the National Educational Goals Panel shows (at least through 1994), policymakers are impatient with the limitations of statistical information--both in scope and timeliness. In many instances, NCES was able to persuade the Panel that these limitations be accepted. That experience (at least for me) demonstrates the value of carefully designed surveys and studies and the ability of policymakers to grasp that value.

What is needed, I suggest, is the kind of approach set forth in general terms in Professor Boe's paper (pp. 185-212) for this seminar. In it, you will recall, he argues for three "guidelines" for selecting

aspects of the educational enterprise to include in SASS data collections. I paraphrase from Boe's paper (p. 190):

(1) Select topics that have been subject to major policy action in the recent past that focus on "fundamental aspects of schooling."

(2) Select topics that are subjects of recent analyses and debates but not of major policy action.

(3) Select topics of major public concern.

These guidelines and Boe's discussion of them capture the core of what I think should be SASS's approach. His argument is simple and straight-forward: one cannot do everything but one can take what are basic public concerns, as reflected in policy actions and debates, and in general public discussions. As Boe notes (p. 192), what needs to be focussed on are those aspects amenable to policy intervention.[1]

Boe also reminds us of the importance of distinguishing between monitoring what is happening in education and specifically advocating any particular policy action (pp. 187-189). While a well-rehearsed slogan of the work of NCES, this distinction is often lost on the audience and even occasionally within the statistical community.[2] Frustrating as it may be, the desire to satisfy specific policymakers' concerns must be resisted. Professor Boe offers good counsel on this issue.

The upshot here is that something like Boe's classification of fundamental aspects of schooling must be explicitly and carefully set forth. I do not argue for or against the particulars he sets forth but for the general approach and especially for the need to keeping such a classification at the forefront of thinking about SASS.

Which Policymakers?

Boe argues that policymakers at all levels should be the primary audience. In many ways there is little to disagree with in his claim. However, as Choy notes, "Education is primarily a state and local responsibility, and the current trend is away from federal involvement and uniformity at the national level, not towards it" (p. 221). The situation is further complicated by the fact that, among the states, there is great variance in the level of state versus local control in education.[3] The fact remains, I believe, that it is primarily state and local policymakers that should be the focus.

If this be conceded, the suggestion in Blank's paper needs to be taken seriously, namely, that NCES should work closely with state education information personnel. He draws a useful parallel to the way in which the Common Core of Data was improved with the Cooperative Statistics program. In any event, it seems to me that the value of SASS will ultimately be realized only if it addresses education at the state and local level. The *federal* needs must be secondary except in so far as a federal role in providing some level of uniform national data so that states can make meaningful comparisons.

What about Educators?

If SASS is truly successful in providing a rich picture of schools and staffing, surely this information would be of value to those who formulate and implement specific educational policies. Blank urges that data must be of more use than just for monitoring the enterprise (p. 166). His argument is mainly based on the practical considerations of retaining teacher/ administrator cooperation in data collection. If we want the best data we will need that cooperation, so his point is well taken.

There is, however, a danger in concentrating on this point in the general design of SASS. That danger parallels the one mentioned earlier about following mere fads in the public concerns. While appreciating the practical argument of securing participation (and surely his suggestions about communications with participants are sound), I caution against taking this point as a central focus. Instead, we need to think about the usefulness of SASS for teachers and school administrators, but more in terms of what such a survey would provide for research studies that can be of use to teachers.

(I do want to note that if teachers are seen as a more direct audience than I have argued, Stodolsky's paper raises some important issues about what should be involved in such a survey. Of special import is her account of needing to know about what teachers really understand reform to be. Perhaps for policymakers including something about teachers' understanding of reform initiatives would be of value. Note, too, her point about the diverse understanding of the terms in which reforms are discussed--a point that parallels the one Choy makes as noted[1].)

Researchers and SASS

In the argument above, I have stressed the view that SASS is primarily for education policymakers, and particularly for state and local authorities in education. But, it should be noted, SASS (and indeed all of NCES's work) has always been conceived as providing data for educational research as well as for policymaking.

In some ways there is a false dichotomy here. Data useful for policy debate and formulation are not devoid of value for research purposes. And clearly, research can inform the means for collecting and analyzing data for policy uses. More importantly, I think it important to distinguish between designing a survey for informing policymaking and designing one for research purposes. Large scale surveys are not essential for research, though their existence provide a context for it. For example, as Stodolsky notes, large-scale surveys have been valuable but finally are no substitute for observational studies and other research activities in examining curriculum and instruction (p. 5). On the other side, the importance of using research to design an effective survey is unmistakable.

To consider ways in a large-scale survey that research can be conducted is of course sensible. But not at the cost of limiting survey data to the research hypotheses. Thus, while Stodolsky argues that to understand the new developments in teaching ("the constructivist approach") SASS should include elements to examine

this phenomenon (or link with other studies), to do so would, I am concerned, muddle the role of SASS as a general monitor. Something like Boe's distinction between policy monitoring and policy advocacy needs to be made here. Sometime we just must say no.

In several of the papers mention was made about how limited has been the research work based just on SASS. I am not certain that this fact constitutes a major criticism. I acknowledge there are technical issues about how readily the data in SASS can be linked to other data, etc., but I do not see these as of primary concern in the sense that these needs should shape major directions of SASS.[4] If the earlier discussion has any merit, the value of SASS for policy monitoring far outweighs any direct research limitations. And, as suggested, we may not have a real either/or here.

The Big Issue

The above discussion has left one major issue hanging and gives an air of "abstractness" to the discussion. While there are many aspects of schooling that are of interest to the public, the heart of the matter is whether students are learning what supposedly they are being taught. That is, student achievement, the outcome of prime importance in education, has not been discussed.

To lay the cards on the table, though one can talk about the many outcomes that schooling may have, it is for the purpose of formal academic instruction that schools have been established. Some of us are prepared to argue that society has gone astray in creating too many nonacademic roles for schools to perform. Robert Spillane has often argued that if you could get all the other roles out, the school would do much better in their academic mission. In any event, any serious redesign of SASS must address ways to explore ways to relate the conditions in schools and staffing with academic achievement.

What parents and public want to know is how well are the schools doing in academic achievement. And, as all our seminar writers seem to agree, a well-designed SASS can be an important component of the database to answer this question. Further, with such information about the conditions of schools and staffing, richly elaborated, our knowledge of "what works" in teaching and learning could be greatly enhanced.

Kaufmann has explored ways that SASS could be shaped and/or related to NAEP, NELS, and other studies of student outcomes. Detailed discussion of his proposals is beyond my competence. McLaughlin's *Comments* on Kaufmann[5] deserve our attention, and I eagerly await that discussion.

One issue raised by McLaughlin needs emphasis: the linkages that are being developed through NAEP and developing state assessment systems (McLaughlin,[6] pp. 4-5). Consistent with the position Blank takes, McLaughlin's proposal for linking state-produced school-level achievement data with SASS data on those schools is promising. Clearly, the states are now forging ahead with reforms and data collections including achievement data. SASS can offer information that

provide the states with contextual information that is genuinely useful to states. The key here, as McLaughlin stresses, is that the focus must be on providing "school dynamics data to states for use in research, *by states* [emphasis added] ..." (McLaughlin,[7] p. 5).

A key technical question that must be settled is whether McLaughlin is right that aggregate and cross-sectional student data is sufficient for addressing important SASS-related questions concerning student achievement. If he is, the approach he proposes is worthy of pursuit.

One issue to keep in mind, especially when addressing an educated citizen who wants to see schools improve: when most parents express concerns, they are fundamentally focussed on how his or her child or children are doing. Nothing in SASS can answer that concern directly, of course. But SASS, in the context of developing state assessment and reporting programs, can provide useful information. Forging links between SASS and state agencies, as both McLaughlin and Blank suggest, not only provides a practical reason for cooperation with data collection but makes SASS an integral part of a truly *national* data system for education.

Some Passing Thoughts

I do not want to slight papers not mentioned in the above discussion, but my purpose has been to focus on what I take to be the heart of the matter. Let me make a few comments about some of the other papers, noting some points of interest and/or concern.

- Fulton and Gilford each argue for some detailed considerations of distinct aspects of schooling--technology and professional development activities in school, respectively. Without discussing the details of their presentations, let me suggest that these topics represent just the sort of items about which we need the prior thought about how *fundamental* (in Boe's sense) these activities are to an understanding of what is happening in schools. Is technology just a fad? More importantly, without linkage of SASS to student achievement data, information about technology is vacuous. (Without a doubt nearly everyone now looks to technology as a kind of *deus ex machina* in education, but there are a few of us Luddites left.) Professional development activities strike closer to home in my view, and Gilford's suggestions may prove useful in certain aspects of the teacher survey.

- Ross's paper demonstrates my concern about a too narrow focus on particular federal programs and reform that, as his own presentation makes plain, is understood in so many different ways. To be sure, there have been federal programs in support of magnet schools, but I do not see much value in any detailed survey of this phenomenon in SASS. One place that some of the concerns herein expressed might be explored is in the resource aspects of the survey, especially if some of what Chambers suggests prove of use.

- Chambers' paper reminds us that merely gathering fiscal data may offer us very little real information. Dollar allocations are in themselves sterile. His suggestion to tie those dollars to real activities is on the mark.

- Zheng argues for the continued use of questions about teacher and principal perceptions of school conditions. But Chambers reminds us that objective measures of events, activities, and behaviors are far better sources of information. After all, as Chambers notes, "If schools do not maintain reporting mechanism on certain student behaviors or activities, then one might question whether or not the activity is really a serious problem" (p. 182).

- Baker's paper deserves much more attention than I have given it. I have not yet sorted out all the aspects of his claim a new view of organizations would provide. Intuitively, the idea of looking at organizational processes rather than structures seems right. But, with Choy, I worry that the complexity of these processes would render any general survey data so general as to be useless. Baker's view is just the sort of thing I mean as a research contribution to the SASS design. Whether he is right, he asks us to consider a different theory of organizations and how it might provide insight into what all acknowledge as the complex interactions that formal education represent.

Final Thoughts

In the above I have argued for a vision of SASS as an integral part of a developing national data system in education by being a tool for use by state and local educational agencies.[8] I have also argued that the primary focus should be in providing school and staffing data, linked to student/school achievement data, most useful to state and local policymakers. I also have insisted that such a focus dictates restraint in thinking about how much of a research instrument SASS should be. There are many things researchers would like to know, that would be important and interesting to know, but that are not feasible in a survey designed for the purposes I have suggested. That the SASS design be *informed by* the best research available, and that SASS provide data useful to researchers, is without doubt. It should not be, in itself, a research instrument.

Nor should SASS be seen as a federal instrument to monitor and evaluate federal education programs. SASS can provide, as it has, data on special populations that may be useful for federal and state programs, but the focus should always be on what is happening fundamentally in the schools and how that is related to student achievement. In this light it is useful to keep in mind Boe's point about identifying genuinely fundamental aspects of schooling and keeping these at the center of attention.

Without such a strict focus, SASS may become the perennial "Christmas tree," resembling more a congressional appropriations bill than a serious survey instrument.

On Learning

Learning is a painful experience because we learn from mistakes, which are painful, and because in learning we give up something of ourselves, some old belief or action. Thinking is unpleasant not because it demands effort and concentration (so does love) but because our thoughts come trailing wisps of anxiety--we might learn something. It is not surprising that alternatives to taking thought are attractive, especially if they present themselves not as thoughtlessness but as conclusions of profound and proven reflections. The fallacy embedded in this pattern may be called sloganizing.

Abraham Kaplan
***In Pursuit of Wisdom**, p. 146*

1. Susan Choy has an interesting discussion of "emerging issues" (pp. 215-217) consistent with Boe's guidelines. She rightly reminds us that in addressing such issues real problems of common understanding of terms are present. See, for example, her point about what 'tech prep' means.

2. There is a special aspect of this issue having to do with the role of researchers as users of NCES data that will be discussed later in this paper.

3. In its initial reports the National Education Goals Panel used statements about how much funding comes from federal, state, and local sources for education, citing the average figures. As NCES pointed out, these average figures masked a great variation among the states in the level of support from local funds. Deep Throat said, "Follow the money." Always sage advice!

4. Well, to be fair, there is one critical issue, discussed below--linking to student outcomes.

5. Discussion of Kaufmann's proposals is contained in McLaughlin, D., *Comments on Linking Student Data to SASS: Why, When, and How*, (unpublished paper), American Institutes for Research, Palo Alto, CA.

6. *Ibid.*

7. *Ibid.*

8. I have not spoken at all of private education. I do not mean by this omission to imply that there is no role for a private sector SASS. Indeed, I would argue that the private system is part of an overall public educational system. States charter private schools, and in many states "charter schools" are becoming an explicit part of public education. I predict that in the years ahead much more of this sort of schooling will emerge. And this will be the result of public policy decisions. Thus, SASS will need to be open to this sort of development as well as continuing its more narrowly defined private school dimension.

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