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An Investigation of the Exclusion of Students with Disabilities in National Data Collection Programs

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Abstract

This investigation examined the extent to which students with disabilities are involved in a select sample of national data collection programs that are playing a pivotal role in the measurement-driven educational reform movement. Nine data collection programs that are receiving significant attention in current educational reform initiatives were reviewed. The results suggest that approximately 40% to 50% of school-age students with disabilities are excluded from some of the most prominent national educational data collection programs. In contrast, students with disabilities are included to a greater degree in noneducational data collection programs that do not require participation in direct assessment activities. This study reports on the extent of exclusion, how and why exclusion occurs, and the impact of this exclusion on policy research. Preliminary recommendations for addressing the significant exclusion of students with disabilities from certain national data collection programs are presented.

Calls for reform in American education during the past decade have resulted in raised expectations, attempts to develop uniform and “world class” standards, and increased emphasis on school accountability and the measurement of educational outcomes. The desire to evaluate the results of education and to progress toward national education goals has resulted in a national thirst for quantifiable data that tell us how well we are doing in educating children and youth.

The United States has long recognized the value of large-scale federally funded studies to assess student progress. Data collection programs such as the National Assessment of

Educational Progress (NAEP, the "Nation's Report Card"), the National Longitudinal Study (NLS), High School and Beyond (HSB), and the National Education Longitudinal Study (NELS) are some of the most recognizable efforts. A variety of groups (e.g., Council of Chief State School Officers; National Center for Education Statistics; National Education Goals Panel; National Forum on Education Statistics; National Governors' Association; Special Study Panel on Education Indicators) have recently turned to these and other national data collection programs in search of indicators to monitor progress during the current wave of education reform.

Reports from many of these groups (e.g., National Education Goals Panel, 1991; National Forum on Education Statistics, 1990; Special Study Panel on Education Indicators, 1991) have highlighted the need for better data on students. Students considered to be disadvantaged and students from specific cultures (e.g., Hispanic, African American, Native American) have been specifically targeted for special attention in many of these reports. Although mentioned in a few of these reports, the need to disaggregate data for students with disabilities who are served by the nation's special education system has received less attention.

Students with a wide array of disabilities fit within this population, including those with learning disabilities, emotional disabilities, and speech and language impairments, as well as those with sensory disabilities such as hearing and visual impairments, and those with multiple and more severe disabilities, typically involving significant mental impairments. Given the magnitude of federally mandated educational programs for students with disabilities, "the lack of adequately designed national studies of handicapped youth is particularly alarming" (Allen, 1989, p. 469). The one exception to this lack of data is the federally sponsored National Longitudinal Transition Study of Special Education Students (NLTS) (Wagner, Newman, & Shaver, 1989). Although providing valuable indicators across a broad array of outcome domains for students with disabilities, NLTS is a fixed-duration data collection program that will not provide recurring data on a long-term basis.

The purpose of this investigation was to examine the extent to which students with disabilities are participating in national data collection programs that may provide useful information for evaluating the educational outcomes of students with disabilities.

Method

Data sets that were considered for review were identified through a process that focused on two considerations. First, a major activity of the National Center on Educational Outcomes (NCEO) is the development of a conceptual model of educational outcomes for children and youth with disabilities (Ysseldyke et al., 1992). As a result of this model development process, major outcome domains relevant to the assessment of outcomes for students with disabilities have been identified. National data sets that contain indicators of these outcome domains were identified (McGrew et al., 1992).

Second, the current national goals and educational indicators movements have identified databases that include indicators that will help monitor progress toward goal attainment. The reports of the major national groups (e.g., National Education Goals Panel, National Forum on Education Statistics, Special Study Panel on Education Indicators) that

are either developing comprehensive systems of indicators or making recommendations on how to improve the national education data system were reviewed to identify those national data collection programs that are receiving significant attention.

Contacts were made with the sponsoring agencies for the targeted data collection programs to request all relevant methodology and technical reports. The documents for each targeted data collection program were subjected to a detailed "disability sensitivity review" process that extracted information on each data collection program's descriptive characteristics, sources and methods of data collection, sample characteristics, and domains of indicator variables (McGrew et al., 1992). The analysis of sample characteristics was of interest in the current investigation and included information on (a) the disability-related exclusion guidelines used in the data collection program, (b) who makes the inclusion and exclusion decisions during data collection, and (c) the rates of exclusion of students with disabilities in the sample.

Results/Discussion

Targeted Data Sets

The 29 national data collection programs listed in table 1 were identified. Not unexpectedly, the largest number of data collection programs are sponsored by the Department of Education and are directed by the National Center for Education Statistics (NCES). The second largest number of identified data sets (8) are under the direction of the Department of Health and Human Services.

Table 1. Preliminary List of Targeted National Data Collection Programs

Department of Education
Baccalaureate and Beyond
Beginning Postsecondary Student Longitudinal Study
High School and Beyond
Integrated Postsecondary Education Data System
National Adult Literacy Survey
National Assessment of Educational Progress: 1988, 1990
National Assessment of Educational Progress: Trial State Assessment
National Education Longitudinal Study
National Household Education Survey
National Longitudinal Transition Study of Special Education Students
Transcript Studies
Young Adult Literacy Survey
Department of Commerce
Current Population Survey
Survey of Income and Program Participants
Department of Labor
Workplace Literacy Assessment
Workforce Participation Survey

Department of Justice
 National Crime Survey
 Department of Health and Human Services
 National Adolescent School Health Survey
 National Health and Nutrition Examination Survey
 National Health Interview Survey
 National Household Survey of Drug Abuse
 National Survey of Family Growth
 National Survey of Personal Health Practices and Consequences
 Monitoring the Future
 Youth Risk Behavior Surveillance System
 National Science Foundation
 Longitudinal Study of American Youth
 Survey of Earned Doctorates
 American Council on Education
 General Education Development Testing
 The College Board
 Advanced Placement Tests

For this preliminary investigation, a subsample of nine data collection programs was selected. The nine data collection programs were not selected on a random basis to represent all the agencies listed in table 1. Instead, data collection programs were selected that included important indicators of outcome domains related to individuals with disabilities (e.g., National Health Interview Survey [NHIS]) (McGrew et al., 1992; Ysseldyke et al., 1992) or those that are highly visible and are playing a prominent role in the current wave of educational reform (e.g., Current Population Survey, NAEP, National Adult Literacy Survey). Given the prominence of the Department of Education's data collection activities in current educational reform activities, a deliberate decision was made to include more data collection programs sponsored by this department. Finally, several data collection programs were not selected either because they were too new and had limited documentation available for review (e.g., Baccalaureate and Beyond) or because they were not recurring programs or were relatively dated (e.g., HSB) and had been replaced with newer programs (e.g., NELs). The nine data sets that were selected for review are listed and described in table 2.

Table 2. Descriptions of Nine Data Sets

National Adult Literacy Survey (Department of Education)—NALS

A nationally representative cross-sectional study designed to collect information on the types and levels of literacy skills adults living in the United States possess and how those skills are distributed across major subgroups. This study assessed the prose, document, and quantitative literacy of approximately 15,000 adults (16 to 64 years of age) in 1992.

National Assessment of Educational Progress: 1988 (Department of Education)—NAEP:88

National Assessment of Educational Progress: 1990 (Department of Education)—NAEP:90

National Assessment of Educational Progress: Trial State Assessment Program (Department of Education)—NAEP: Trial State

NAEP is a nationally representative cross-sectional study designed to monitor the knowledge, skills, understanding, and attitudes of the nation's children and youth. This data collection program began in 1969 and currently assesses different curriculum areas (e.g., reading, writing, mathematics, science, citizenship, U.S. history, geography, social studies, art, music, literature, career, and occupational development) in grades 4, 8, and 12 every 2 years. Two years (1988 and 1990) as well as the voluntary state program started in 1990 (the Trial State) were reviewed for this report. The Trial State provided state-level mathematics data for eighth graders for 40 participating jurisdictions.

National Education Longitudinal Study of 1988 (Department of Education)—NELS:88

A nationally representative longitudinal study designed to assess the baseline experiences of eighth-grade students and to relate these experiences to current academic achievement and to later achievement in school and life. The 1988 base year data collection program gathered data in a variety of areas such as work status, values, school characteristics, school atmosphere, school work, school performance, guidance, special programs, after-school supervision, involvement with community, after-school activities, educational and occupational life goals, and financial assistance. Follow-up assessments are being completed every 2 years from 1990 to 1996.

Current Population Survey, March Supplement (Department of Commerce)—CPS

A nationally representative cross-sectional study designed to collect information on the employment situation and demographic status of the complete U.S. population (birth through adulthood). The March Supplement is specifically designed to gather data on work experience, income, noncash benefits, and population migration. Data collection in this program has been conducted annually since the 1940s.

National Health Interview Survey (Department of Health and Human Services)—NHIS

A nationally representative cross-sectional study designed to provide information on the health of the civilian noninstitutionalized U.S. population (birth through adulthood). This survey has been completed annually since 1957. While the same basic demographic and health-related information is collected each year, additional information on special health topics (e.g., AIDS, aging, etc.) may be covered in any one survey.

National Health and Nutrition Examination Survey, NHANES Epidemiologic Follow-up Study (Department of Health and Human Services)—NHANES, NHEFS

A nationally representative longitudinal study designed to (a) provide information on the prevalence of health conditions and risk factors, (b) monitor changes over time in health, functional status, and utilization of hospitals, and (c) track the incidence of various medical conditions in the U.S. population (birth through adulthood). The base year data are drawn from the National Health and Nutrition Examination Survey 1 (NHANES 1), with the follow-ups in 1982–1984, 1986, 1987, and 1991.

Longitudinal Study of American Youth (National Science Foundation)—LSAY

A nationally representative longitudinal study of 7th and 10th graders designed to assess student attitudes toward science and mathematics as areas of study and possible career choices. Base year data collection started in 1987, with annual follow-ups.

Analysis of Exclusion Criteria

The information presented in table 3 summarizes the different disability-related exclusion guidelines and procedures used by the nine selected national data collection programs. A number of conclusions can be drawn from this information.

Table 3. Decision Makers and Guidelines Used in Exclusion Decisions for Students with Disabilities in Selected National Data Collection Programs

Sponsoring agency/data collection program	Who makes the decision	Disability-related exclusion guidelines
Dept. of Education (National Center for Education Statistics)		
National Assessment of Educational Progress, 1988 (NAEP:88)	School staff	Students on sampling roster who were deemed to be untestable and unable to participate meaningfully in the assessment. Disability-related ineligibility categories used were: <ul style="list-style-type: none"> • Mild retardation (educable) • Functional disability
National Assessment of Educational Progress, 1990 (NAEP:90)	School staff	Students on sampling roster who were deemed to be untestable and unable to participate meaningfully in the assessment. Disability-related ineligibility categories used were: <ul style="list-style-type: none"> • Student in special education with an IEP and mainstreamed less than 50% of the time in academic subjects and judged incapable of participating meaningfully in the assessment, or • Student in special education with an IEP and the IEP team or equivalent group has determined that the student is incapable of participating meaningfully in the assessment.
NAEP Trial State Assessment Program, 1990	School staff	Same as NAEP:90 above
National Education Longitudinal Study of 1988 Base Year (NELS:88)	School staff	Students on sampling roster designated eligible if determination was made that student was capable of completing the survey instruments, and designated ineligible if student judged incapable of doing so. Disability-related ineligibility categories used were: <ul style="list-style-type: none"> • Severe mental disability • Physical disability
National Adult Literacy Survey, 1992 Base Year (NALS:92)	Interviewer	Only individuals excluded were those who refused to participate. Those unable to complete the assessment activities were excused from completing them; however, their scores (imputed values assuming incorrect answers) were included in the final sample.
Dept. of Health and Human Services (National Center for Health Statistics)		
National Health Interview Survey, 1989 (NHIS:89)	NA	No disability-related exclusion guidelines since individuals with disabilities are not systematically excluded. Information regarding individuals with disabilities who

National Health and Nutrition Examination Survey I (NHANES I) NHANES Epidemiologic Follow-up Study, 1986 (NHEFS:86)	NA	are included on the sampling roster collected through adult proxies. Same as NHIS:89 described above
Dept. of Commerce (Census Bureau) Current Population Survey (CPS)	NA	Same as NHIS:89 described above
National Science Foundation Longitudinal Study of American Youth, 1987 Base Year (LSAY:87)	School staff	No formal disability-related exclusion guidelines reported. Only mention of exclusion of students on sampling rosters was in regard to students who declined or refused to participate.

First, there is considerable variability in the extent to which exclusion guidelines are operationalized and reported in the different data collection programs. In data collection programs that require only the completion of an interview protocol (viz., NHIS, NHANES Epidemiologic Follow-up Study [NHEFS], Current Population Survey [CPS]), exclusion is not a significant issue since third-party informants or proxies can provide the necessary information for individuals who have disabilities that preclude their own communication with interviewers. In the case of these data collection programs, no exclusion guidelines are specified, nor are they needed.

This contrasts with data collection programs that require individuals to independently respond to test or survey instruments (viz., NAEP, NAEP Trial State Assessment, NELS, National Adult Literacy Survey [NALS], Longitudinal Study of American Youth [LSAY]). In these data collection programs there is an expressed concern about not submitting individuals with disabilities to a very stressful and often futile attempt at data collection, a situation that may also produce results of questionable quality.

Although there is generally a common ground in the reasons stated for exclusion and for who makes the exclusion decisions (local school staff), little common ground is found across the sampled data collection programs in operational guidelines. At one extreme was the inability to find any formal documentation of disability-related exclusion guidelines for LSAY:87. In contrast, NAEP:88 and NELS:88 each suggested two possible exclusion categories. Reflecting changes in methodology, the more recent NAEP:90 and NAEP Trial State Assessment Program of 1990 used exclusion guidelines tied to students (a) having an active Individualized Educational Plan (IEP) that stated that they should not participate or (b) being mainstreamed for less than 50% of their academic classes and judged by school officials to be incapable of participating.

NALS:92 used a different approach to address the issue of exclusion. Individuals unable to complete the background questionnaire or literacy exercises were not administered the complete survey, but were included in the sample through an imputation procedure that assumed they answered the questions incorrectly. Only those individuals refusing to respond were excluded.

In summary, national data collection programs vary markedly in the disability-related exclusion guidelines used during data collection. Some of this variability can be attributed to differences in data collection methods, with those not requiring respondents to independently complete survey instruments specifying no exclusion rules. However, even among those data collection programs that use similar data collection methods (e.g., tests), significant variability is noted in exclusion guidelines for individuals with disabilities.

Analysis of Exclusion Rates

Information on estimated exclusion rates for the nine data collection programs is presented in table 4. Similar to the dichotomy observed in the nature of the disability-related exclusion guidelines, the data collection programs appear either to exclude relatively few individuals with disabilities (e.g., NALS:92, NHIS, NHEFS, CPS) or to exclude approximately one third to one half of individuals with disabilities.

Table 4. Inclusion Rates for Individuals with Disabilities in Selected National Data Collection Programs

Sponsoring agency/data collection program	Estimated percent of individuals with disabilities excluded ^a
Dept. of Education (NCES)	
National Assessment of Educational Progress, 1988 (NAEP:88)	Average exclusion rate for total sample of approximately 5.7%, which includes students excluded with limited English proficiency (LEP). Assuming that one third of the excluded students were LEP, ^b 3.8% of the originally sampled students excluded due to disability-related guidelines. <i>Approximately 40% of students with disabilities excluded from total sample.^c</i>
NAEP Trial State Assessment Program, 1990 (NAEP: Trial State)	Average exclusion rate across samples of approximately 4.4% for students with IEPs. <i>Average of 52.7% of students with IEPs selected for the samples excluded.</i>
National Assessment of Educational Progress, 1990 (NAEP:90)	Average exclusion rate for total sample of approximately 5.5%, which includes students excluded with limited English proficiency (LEP). Assuming that one third of the excluded students were LEP, ^b 3.7% of the originally sampled students excluded due to disability-related guidelines. <i>Approximately 40% of students with disabilities excluded from total sample.^c</i>
National Education Longitudinal Study of 1988 (NELS:88)	Exclusion rate for total sample of approximately 5.4%, which includes 1.9% students with limited English proficiency (LEP). 3.4% of the originally sampled students excluded due to disability-related guidelines. <i>Approximately 36% of students with disabilities excluded from total sample.^c</i>
National Adult Literacy Survey, 1992 (NALS:92)	No estimates reported since only those who refused to participate were excluded. Incorrect answers imputed for those individuals unable to complete the activities. After imputation, any exclusion is probably of a negligible amount.

Dept. of Health and Human Services (National Center for Health Statistics)	
National Health Interview Survey, 1989 (NHIS:89)	No figures reported since no disability-related guidelines are used (see table 1). Any exclusion is probably of a negligible amount.
National Health and Nutrition Examination Survey I (NHANES I) NHANES Epidemiologic Follow-up Study, 1986 (NHEFS:86)	Same as NHIS:89 described above.
Dept. of Commerce (Census Bureau)	
Current Population Survey (CPS)	Same as NHIS:89 described above.
National Science Foundation	
Longitudinal Study of American Youth, 1987 Base Year (LSAY:87)	No figures reported since no disability-related guidelines are documented. Given the type of data collection instruments used, any informal/formal exclusion guidelines that were in operation most likely resulted in exclusion rates for students with disabilities similar to those reported for programs with similar data collection instruments (e.g., NAEP, NELS).

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- a. Estimates reflect only exclusion of student population attending regular schools (do not reflect students with disabilities in separate facilities).
 - b. 1988 and 1990 NAEP technical reports provide exclusion figures only as a total and do not report a breakdown by different exclusion categories. The use of the one third figure for LEP students is drawn from the rate of LEP exclusion reported for the NELS:88 study, which occurred at approximately the same time.
 - c. Estimate of total percentage of individuals with disabilities excluded calculated by comparing reported exclusion percentage (for disability-related reasons) in total sample with average percentage of student population with disabilities (not inclusive of separate facilities). Since average values reported during recent years indicate that approximately 10% of the student population can be classified as having a disability, and since approximately 7% of this population receives services through separate facilities, a value of 9.3% was used in these calculations.

With the exception of NALS:92 and LSAY:87, for which figures are either not reported or not yet available, all data collection programs listed in table 4 that require direct testing of students (NAEP, NAEP Trial State Assessment Program, NELS) exclude approximately one third to one half of all school-age students with disabilities. As noted in table 4, these estimates are based only on that portion of the school-age population with disabilities that is receiving special education services through regular education, resource room, or separate special education classes. These figures do not reflect the additional exclusion of students with disabilities that occurs as the result of data collection programs starting with a sampling universe that excludes separate special education facilities (e.g., residential, home-bound, hospital, separate school settings). Although not a large portion of the total student population (approximately 0.7%), approximately 7% of the school-age population of students with disabilities (approximately 315,000 students) receive special education services in such separate environments.

Many students in residential settings are capable of participating in standardized testing programs, and often do so on a regular basis (National Association of State Directors of Special Education, [NASDSE, 1988]). Regardless of the exact proportion of students in

separate facilities who could participate in data collection programs (even if this number were quite small relative to the entire sample size), the important point is that a significant portion of the student population with disabilities (i.e., all students in separate facilities) are ignored in much of the national education data collection system as currently designed. The undercoverage of the total school-age population of students with disabilities in many national educational assessments is estimated to be 40% to 50%.

Variability in Implementation of Exclusion Guidelines

Information from two of the data collection programs (viz., NAEP Trial State Assessment; NELS) suggests that there may be significant variability in application of exclusion guidelines within education data collection programs. As reported in table 4, approximately 52.7% of all selected students with IEPs were excluded from the 1990 NAEP Trial State Assessment data collection. State-by-state exclusion figures (Houser, personal communication, February, 1991) found exclusion rates for students with IEPs to be as low as approximately 33% (Minnesota) and as high as approximately 71% (Arkansas), with even a high rate of 87% for the District of Columbia. Given that the same design procedures and exclusion guidelines were used in both the national and the state 1990 NAEP assessments, one would assume that similar exclusion rates would prevail. An analysis by Spencer (1991) suggests that this is not the case, since roughly twice as many students with IEPs were tested in the state NAEP assessments. It appears that there is considerable variability in the implementation of disability-related exclusion guidelines within and between the national and state NAEP assessments.

A follow-up study on a sample of students determined to be ineligible for the NELS base year data collection (NELS:88) provides important insights into the exclusion process (Ingels, 1991). In the case of NELS, as well as the other data collection programs listed in table 1 that use exclusion guidelines, exclusion guidelines are typically applied by local school staff. In the directions to local staff during NELS base year data collection, schools were asked to apply the exclusion guidelines on an individual basis and not to exclude students categorically. In the case of uncertainty, school personnel were asked to include the student.

Preliminary results from the NELS 88: Base Year Ineligibles Study found that despite these directions, schools frequently resorted to the categorical exclusion of students (Ingels, 1991). Further evidence of arbitrary exclusion is reported in preliminary results from the NELS 88: Base Year Ineligibles Study first follow-up survey (S. J. Ingels, personal communication, June 25, 1991). Of the approximately 94% of the NELS base year (1988) ineligible sample that were studied during the first follow-up (1990), over half (58.5%) were reclassified as eligible. More importantly, approximately 94% of those reclassified as eligible were able to successfully complete the data collection instruments. Unfortunately, the preliminary information available at the time this report was being written did not provide for a disaggregation of the ineligible follow-up results just for those excluded due to disability-related guidelines (e.g., the data also include students excluded due to limited English proficiency). The NELS 88: Base Year Ineligibles Study suggests that significant numbers of students who were deemed ineligible during base year data collection due to

a specific disability should not have been excluded and apparently can successfully participate in these types of data collection activities.

Summary

The current investigation analyzed the extent of exclusion of students with disabilities in nine national data collection programs. Generalizing from the conclusions of this study to all national data collection programs must be done with some caution since a relatively small number of programs were reviewed, and these programs were selected on a nonrandom basis. Still, the preliminary results raise a number of important issues.

The Nature and Context of Exclusion

As currently designed, a number of existing national data collection programs exclude large portions of the student population with disabilities. It is estimated that 40% to 50% of all school-age students with disabilities are excluded from some of the most prominent national education data collection programs (e.g., NAEP, NELS). On the positive side, exclusion is minimal in a number of noneducational data collection programs (e.g., NHIS).

The ability to extract useful policy-relevant information on the outcomes of students with disabilities is hampered by the significant exclusion of portions of this population in a number of these data collection programs. Given the current assessment technology, some exclusion of students with unique needs is understandable and cannot be avoided. Unique testing accommodations may not be able to address all disability-related problems in large-scale national assessment programs. However, the current review of national data collection programs suggests that a sizable portion of excluded students should not have been excluded and could readily participate (some with testing accommodations; others without). Contributing to this problem is the significant variability in the different types of exclusion criteria used in national data collection programs. As indicated by the NELS Ineligible Study and the state NAEP results, even when exclusion criteria are in place, implementation of the criteria is variable.

When and How Exclusion Occurs

A review of the sample selection and exclusion procedures for NELS:88 illustrates survey design and data collection points (shaded boxes) where students with disabilities frequently may be excluded from some national data collection programs (see fig. 1).¹

First, a significant proportion of the student population with disabilities is excluded when separate schools for individuals with disabilities are excluded from the sampling frame. Second, the use of school rosters based on grade placement also results in the exclusion of any students in ungraded special education classes. Additional exclusion occurs through the application of formal exclusion criteria at two other decision-making points (roster ineligibility decision, sample updating). The final exclusion point may occur when the assessment instruments are administered if students are observed to experience difficulty completing the instruments independently.

Of the possible exclusion points highlighted in figure 1, the last three are those for which data are typically gathered for reporting exclusion rates, and are those that have been the

focus of this investigation. These reported exclusion rates represent only the percentage of students with disabilities who are excluded from the selected sample and most likely underrepresent the total number of students excluded from the total population of students with disabilities. This number is already lowered when entire schools are excluded and when students are in ungraded programs.

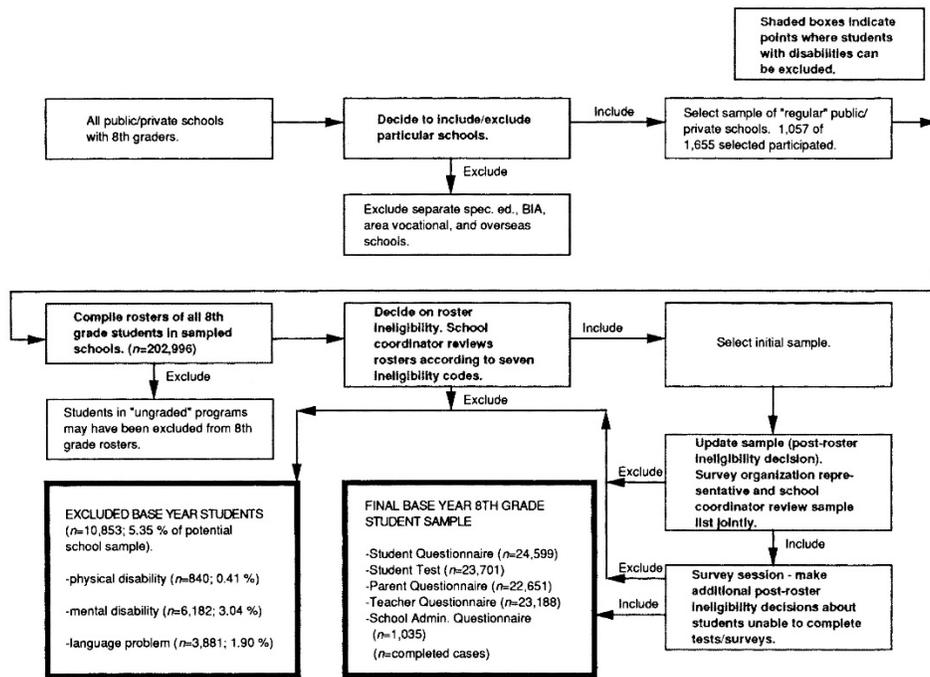


Figure 1. NELS:88 base year sample selection/exclusion decision making.

Stated and unstated reasons for exclusion range from a concern over the inability to provide proper accommodations (e.g., in test administration, in response mode, in flexible time or setting) to a concern about the potential aversiveness of the assessment situation for the student. Exclusion criteria are typically implemented by local school personnel. As noted by Ingels (1991), the specification of formal exclusion criteria by no means guarantees accurate implementation. Local variability in implementation appears to be commonplace. It is possible that many local school staff who make these decisions, who understandably are most concerned about their immediate setting, do not appreciate the "bigger picture" of state and national testing and therefore do not incorporate into their decisions the usefulness of such information for school improvement and the development of education policy.

Impact of Exclusion

Sensitivity analysis of the 1990 NAEP Trial State Assessment suggested that the exclusion of students with disabilities, as well as the exclusion of students with Limited English Proficiency (LEP) may have important impact on state and national statistical estimates (Spencer, 1991). Under one model, Spencer estimated a change of 0.19 standard units in mean scores and an average change in state ranks of approximately 1.7. For some individual states, the changes were considerably larger. Spencer concluded that the current exclusion practices in the NAEP Trial State Assessment can have important effects on state-to-state and state-by-state NAEP comparisons. A similar conclusion was reported by the National Academy of Education (1992) in its evaluation report of the 1990 NAEP Trial State Assessment. The academy concluded that differential exclusion rates of students with disabilities can "affect the rankings of the states" (p. 13).

In addition to the possible error that exclusion practices may introduce into the completion of accurate policy studies (Ingels, 1991), difficulties also arise in sample comparability among data collection programs, studying small subgroups of individuals with disabilities, and estimating standard errors of the estimate for statistics for the small subgroups (McGrew et al., 1992). Finally, the treatment of most students with disabilities as "outliers" in our national data collection programs is a concern from an equity and philosophical perspective. The categorical exclusion of students with disabilities "perpetuates the myth of inherent differences. It makes students with handicaps non-students and perhaps non-people" (NASDSE, 1988, p. 10).

Recommendations

Educational programs for students with disabilities receive considerable federal and state support that reflects the priority accorded this population in our society. It is time that this implied value be matched by the commitment of resources to address the numerous political and technical hurdles that must be overcome in order for these students to more fully participate in state and national data collection programs. Although additional research is needed before it is possible to produce a comprehensive set of detailed guidelines for including more students with disabilities in assessment programs, it is possible to make some initial recommendations.

Seven recommendations are presented here. This list is not exhaustive and is continually being modified and expanded as part of ongoing NCEO activities:

1. *Develop broader and more uniform definitions of sample eligibility.* The need for a broad and inclusive definition of sample eligibility that would be uniform across data sets has been pointed out by others (Ingels, 1991). With a common system of disability definitions and categories (McGrew, Algozzine, Ysseldyke, Thurlow, & Spiegel, 1993), it would be possible not only to make comparisons across data sets but to integrate information from different data sets.

2. *Increase adherence to inclusion guidelines.* The decision not to allow many students with disabilities to participate in large-scale data collection programs is often grounded in the desire not to force these students to participate in a difficult and distasteful activity. However, this assumption is not specific to just students with disabilities. Recent research has

found that a sizable number of students without disabilities, typically those considered to be "low achievers," may have similar negative attitudes and feelings about participating in large-scale assessments (Paris, Lawton, Turner, & Roth, 1991). Should large numbers of low achieving students without disabilities also be excluded for the same reason? We think not.

Monitoring systems and incentive programs need to be developed to ensure greater adherence to the uniform implementation of the "if in doubt, include" component of inclusion guidelines in many national data collection programs. Also, in the case of the educationally related data collection programs, contacting school staff who have the most direct knowledge about students with disabilities (e.g., special education teachers instead of school office personnel) may result in more consistent and appropriate inclusion decisions (Ingels, 1991).

3. *Develop sampling frames that are more inclusive.* Many students with disabilities are never considered for inclusion in some educationally related data collection programs due to sampling plans that routinely exclude individuals residing in separate schools. Yet many of these schools serve students who are able to complete standardized assessment instruments. The use of grade-based school rosters can also result in the exclusion of students in ungraded special education programs. Efforts need to be directed toward ensuring the inclusion of these excluded portions of the student population in data collection sampling plans. One cost-effective solution might be to sample students with disabilities at a lower rate than other students, with the data subjected to more statistical modeling than is currently completed (Spencer, 1991). Increased use of matrix sampling methods could also reduce the response and time burden for students with disabilities who can meaningfully participate.

4. *Include follow-up studies and special analyses of ineligible students as a standard component of data collection programs.* Greater efforts should be directed to studying the characteristics of students with disabilities who are excluded from a data collection program:

The analysis ought to compare the characteristics of excluded and nonexcluded students, so that persons analyzing the assessment data will understand which kinds of students are being excluded. The analysis also ought to reassess the validity of the exclusion criteria and to investigate the reliability with which the criteria are applied (Spencer, 1991, p. 26)

The NELS Ineligible Follow-up study is an excellent example of attempts to systematically address the issue of exclusion of individuals from data collection programs. These analyses are essential in order to accurately estimate the effect of exclusion on important statistical estimates and to allow reentry into the sample when the data collection program is longitudinal.

5. *Increase partial participation in data collection programs.* Given current assessment technology, it is unreasonable to expect that all students with all forms of disabilities will be able to participate in the same way in all components of national data collection programs. Yet there are opportunities for the collection of partial information that are overlooked in many data collection programs. Typically, a student with a disability is excluded from all

components of the data collection program if the student is unable to participate in those components requiring independent completion. Yet these data collection programs often collect additional information from third party proxies (e.g., teachers or parents) or administrative records on important outcome variables. The ability to gather data on persons with disabilities through the use of proxies is feasible as demonstrated by the relatively minimal exclusion of these individuals in some noneducational data collection programs. Attention needs to be directed to ensuring that these data collection opportunities are not lost for students with disabilities.

6. *Include students with disabilities during instrument development.* The inclusion of students with disabilities, particularly those for whom an assessment may be relevant and appropriate, during the initial stages of instrument development is encouraged. Through such involvement, those responsible for the development of assessment instruments may discover items, questions, tasks, or procedures that need to be eliminated or modified in order to allow these students to participate in the data collection activities. For example, students with disabilities were included in the statewide piloting of the Arizona Student Assessment Program (ASAP). The experience of assessing students with special needs resulted in the generation of "mediated assessment" guidelines specific to ASAP (Koehler, 1992). A similar approach could be tried when piloting large-scale national data collection programs.

7. *Develop assessment modifications, accommodations, and alternatives.* Probably the most critical barrier to the inclusion of more students with disabilities in large-scale data collection programs is our limited knowledge of what modifications or accommodations can be made to current assessment tools (Thurlow, Ysseldyke, & Silverstein, 1993). The research on assessment accommodations and modifications is relatively sparse; the largest body of empirical literature consist of studies completed by the American College Testing (ACT) Program and the Educational Testing Service (Thurlow et al., 1993). Systematic research and development activities must focus on investigating the extent to which modifications or accommodations can be made to existing instruments used in large-scale data collection programs without destroying the basic psychometric properties of the instruments. A variety of modifications and accommodations need to be studied, including flexible scheduling, flexible settings, revised test formats, revised test directions, revised response formats, and the use of aids (NASDSE, 1988). In addition, research and development activities need to focus on the development and use of alternative assessment methodologies (e.g., computer- and multimedia-based testing; use of item response technology) (Educational Testing Service, 1992) and the use of procedures for statistically adjusting scores given under nonstandard conditions (Wainer, 1993). Both of these would allow greater numbers of students with disabilities to more fully participate in large-scale assessment programs.

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Note

1. NELS:88 is used only for illustrative purposes and is not being singled out as “the” example of exclusionary practices. In fact, the NELS:88 survey is probably the most prominent example of recent attempts to address the issue of exclusion of students with disabilities from survey samples. Even though exclusion rules were used during the collection of the base year data for NELS:88, extensive follow-up studies are being completed to reassess the continued status of excluded students and, where appropriate, to add such students back into the study at subsequent follow-ups (Ingels, 1991). The sample exclusion process of NELS:88 shown in figure 1 is used only as an example to identify those points where students with disabilities may be systematically excluded from large-scale sampling plans.

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