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AUTHOR McGrew, Kevin S.; And Others
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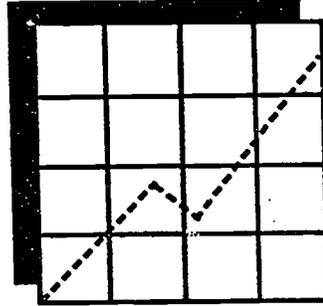
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ABSTRACT

This investigation mapped the correspondence between indicators at the post-school level included in the comprehensive system of educational outcomes and indicators developed by the National Center for Educational Outcomes (NCEO) and indicators included in select national data collection programs. The NCEO model articulates outcomes and indicators seen as appropriate for all students, including students with disabilities. The study found that approximately one-half of important post-school outcomes for all students are represented in 10 national data collection programs. On the average, there was less than one national data collection program represented per outcome indicator. Post-school outcome indicators for students with disabilities were less available than those found at the school completion level. Recommendations are provided to revise national data collection programs in order to produce useful policy-relevant information regarding post-school completion outcomes for students with disabilities. They are: attention needs to be directed to the development of indicators in all NCEO post-school outcome domains; the NCEO conceptual model of outcomes should be reviewed for ideas on new outcomes or indicators to include in ongoing or future national studies; individuals and organizations developing instrumentation for national data collection programs should review the instruments and methodology reports of the National Longitudinal Transition Study of Special Education (NLTS) for ideas on how to develop strategies for measuring outcomes for all students. The following data collection programs were evaluated: (1) NLTS; (2) National Adult Literacy Survey; (3) National Household Education Survey; (4) National Health Interview Survey; (5) National Survey of Family Growth; (6) National Crime Survey; (7) Current Population Survey; (8) National Household Survey on Drug Abuse; (9) Monitoring the Future; and (10) National Longitudinal Alcohol Epidemiologic Survey. Figures and tables present the NCEO model and the mapping of outcomes/indicators with the data collection programs. (Contains 26 references.) (DB)

Technical Report 17



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National Center on Educational Outcomes

The College of Education
UNIVERSITY OF MINNESOTA

in collaboration with

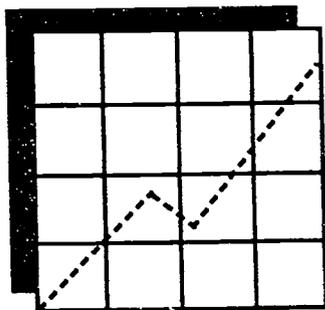
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Technical Report 17



Matching Information in National Data Collection Programs to a Model of Post-School Outcomes and Indicators

Prepared by:
Kevin S. McGrew, Michael L. Vanderwood,
Hyeonsook Shin, and Martha L. Thurlow

National Center on Educational Outcomes

The College of Education
UNIVERSITY OF MINNESOTA

October, 1995

The National Center on Educational Outcomes (NCEO) was established in October, 1990 to work with state departments of education, national policymaking groups and others to facilitate and enrich the development and use of indicators of educational outcomes for students with disabilities. It is believed that responsible use of such indicators will enable students with disabilities to achieve better results from their educational experiences. The Center represents a collaborative effort of the University of Minnesota, the National Association of State Directors of Special Education and St. Cloud State University.

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NCEO Core Staff:

Robert H. Bruininks
Judy L. Elliott
Ron Erickson
Patricia Grafstrom
Kevin S. McGrew
Dorene L. Scott
Patricia Seppanen
Martha L. Thurlow
James E. Ysseldyke

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Publications Office
NCEO
350 Elliott Hall
University of Minnesota
75 East River Road
Minneapolis, MN
55455

Abstract

Educational reform initiatives are shifting the focus toward outcomes and quantifiable data and, with increasing frequency, are being evaluated using data drawn from the nation's existing data collection programs. This investigation mapped the correspondence between indicators included in the NCEO comprehensive system of Educational Outcomes and Indicators for Individuals at the Post-School Level and indicators included in select national data collection programs. We found that approximately one-half of important post-school outcomes for all students are represented in ten national data collection programs. On the average, there was less than one national data collection program represented per outcome indicator. Additional analysis showed that post-school outcome indicators for students with disabilities are less available than those found at the school completion level. These findings, together with the significant exclusion of students with disabilities from data collection programs and the variable or nonexistent identification of such students in the final data sets, mean that it is all but impossible to produce comprehensive reports about the status of students with disabilities. Recommendations are provided to revise national data collection programs in order to produce useful policy-relevant information regarding post-school completion outcomes for students with disabilities.

Matching Information in National Data Collection Programs to a Model of Post-School Outcomes and Indicators

The National Center on Educational Outcomes (NCEO) for students with disabilities was established in October, 1990 to work with state departments of education, national policy-making groups, and others to facilitate and enrich the development and use of indicators of educational outcomes for students with disabilities. It is believed that responsible use of indicators will enable students with disabilities to achieve better results from their educational experiences.

One of the four major strategic goals of NCEO is to enhance the availability and use of outcomes information in decision making at federal and state levels. A variety of activities are subsumed under this goal. Two of the activities focus on reviewing the characteristics of major data sets in the national education data system as a prelude to secondary analysis of the data sets. The purpose of these activities is to determine the feasibility of extracting quality and credible policy-relevant information on the educational status and performance of students with disabilities (McGrew, Spiegel, Thurlow, Ysseldyke, Bruininks, & Shriner, 1992). The results of this critical review process will contribute to the NCEO strategic goals by:

1. Determining the extent to which the current national data collection programs consider students with disabilities when planning and implementing data collection.
2. Reviewing the extent to which students with disabilities are included or excluded in national data collection programs as a result of sample design and inclusion/exclusion procedures.
3. Reviewing the inclusion and exclusion procedures used in national data collection programs.
4. Determining the depth and breadth of outcomes included in national data collection programs and the extent to which these outcomes approximate a conceptual model for a comprehensive system of indicators.
5. Reviewing the means by which national data collection programs describe the functional characteristics of students with disabilities.

Secondary data analysis will be completed using existing data. It is hoped that the results of the review process indicate that sufficient quality data exist in the nation's data collection system to support credible analyses. The completion of these analyses will contribute to other NCEO strategic goals by providing information to include in the NCEO synthesis reports on the educational outcomes of children and youth with disabilities.

NCEO findings related to the first three goals listed above have been reported (McGrew, Algozzine, Spiegel, Thurlow, & Ysseldyke, 1993; McGrew, Thurlow, Shriner, & Spiegel, 1992; McGrew, Thurlow, & Spiegel, 1993). In addition, the extent to which the indicators included in the NCEO comprehensive system of Educational Outcomes and Indicators for Students Completing School (Ysseldyke, Thurlow, & Gilman, 1993a) (Goal number 4) has already been reported (McGrew et al., 1994). This report focuses on additional NCEO activities related to goal number four; the extent to which the indicators included in the NCEO comprehensive system of Educational Outcomes and Indicators for Individuals at the Post School Level (Ysseldyke, Thurlow, & Gilman, 1993b) are included in national data collection programs. The purpose of this activity is to: (a) highlight potential gaps in the current national education data collection system, a system that has not had the benefit of evolving from an a priori conceptual model, and (b) provide an organizational framework from which to conduct secondary analysis (McGrew, Spiegel, et al.,

1992). The identification of information gaps in the current data collection system may serve to stimulate the modification of current data collection programs. It also may stimulate the development of new data collection programs that provide for more comprehensive conceptually-based national data. Hopefully, such data will provide useful, policy-relevant information for all children.

The Current Context: Measurement-Driven Education Reform

Our nation is becoming "increasingly dependent on statistics for policy analysis and decision making" (Andrew, 1984, p. 51). Furthermore, "school reform has riveted national attention on the numbers" (Hanford & White, 1991). Reform initiatives throughout the entire educational system are shifting the focus toward outcomes and quantifiable data. With increasing frequency, the data needed to monitor and evaluate these reforms are being drawn from databases in the nation's existing education data collection system.

The current national goals and educational indicators movements have produced a flurry of activity to identify databases that include indicators to help monitor progress toward goal attainment. The Special Study Panel on Educational Indicators (1991) reported that the success of educational reform depends on the development of a "comprehensive education indicators information system capable of monitoring the health of the enterprise, identifying problems, and illuminating the road ahead" (p.6). Similar calls for the improvement of the existing national education data system and the development of new components to include in the system have been echoed in reports by the National Education Goals Panel (1991a) and the National Education Statistics Agenda Committee of the National Forum on Education Statistics (1990). Each of these groups has turned toward national data collection programs for indicators to monitor progress during the current wave of reform.

For example, in its report Measuring Progress Toward the National Education Goals: Potential Indicators and Measurement Strategies, the National Education Goals Panel (1991a) reports on how to measure progress toward the six national education goals by recommending the use of indicators from such data sets as the National Educational Longitudinal Study (NELS) and the National Assessment of Educational Progress (NAEP). The National Education Statistics Agenda Committee (1990) also recommended using indicators from NELS and NAEP, as well as other data sets, to improve the data provided by the national education data system. Other groups looking for indicators from existing national databases as a means to measure progress of children and youth include the Council of Chief State School Officers, Joining Forces (a coalition of the American Public Welfare Association and the Council of Chief State School Officers), Kids Count (Annie E. Casey Foundation 1995), and NCEO, to name but a few.

In addition to the general education reform movement, recent reform initiatives in special education (Skrtic, 1991) are producing increased interest in analysis of existing national databases. Since the passage of PL 94-142 in 1975, there has been over a decade of evaluation studies that have focused primarily on the issue of educational access for students with disabilities and implementation of the processes embodied in the law. Increasingly the question of "where's the beef?" has been asked from both within and outside of special education. Focus has recently turned toward evaluating the outcomes of special education, or, "where's the data?" on effectiveness (DeStefano & Wagner, 1991).

The NCEO Conceptual Model of Outcomes And Indicators

Secondary analyses of large extant databases "have enormous potential for policy analysis and evaluation research" (Meyers & Rockwell, 1984, p. 5) and such analyses are on the increase. Analysis of indicators from national education data sets have produced policy-relevant reports such as NCES's The Condition of Education, OERI's Youth Indicators, Hispanic Education: A Statistical Portrait 1990 (De La Rosa & Maw, 1990), the 1990 Chartbook: Services for People with Disabilities (Amado, Lakin, & Menke, 1990), and the annual National Education Goals Report (National Education Goals Panel, 1991b, 1992, 1993, 1994, 1995). These and other similar reports have as their major thrust the communication of information to critical decision makers in the policy arena. Such policy-relevant reports are only possible through the secondary analysis of a number of data sets.

An eight step process is used to guide NCEO secondary analysis activities (McGrew, Spiegel, et al., 1992). The second step in this process is the development or use of a conceptual framework to guide the analyses. A conceptual framework serves to guide the analyses and insure that the informational needs and research questions are answered (DeStefano & Wagner, 1991).

The NCEO Conceptual Model of Outcomes (Ysseldyke et al., 1993b) is serving this purpose for the NCEO secondary analysis activities. The NCEO model was designed to reflect outcomes that apply to all students, not just students with disabilities. Hundreds of educators, policymakers, and parents participated in a structured consensus building process (Vanderwood, Ysseldyke, & Thurlow, 1993) that resulted in the current model (Gilman, Thurlow & Ysseldyke, 1992; Ysseldyke et al., 1993b). The NCEO Post-School Conceptual Model of Outcomes is presented in Figure 1.

The conceptual framework depicted in Figure 1 shows the complete educational model, with Educational Resources (Inputs and Contexts) influencing Educational Opportunity and Process. These in turn, influence Outcome Domains, which have a return influence on both the resources and opportunity/process. The inclusion of two of the outcome domains (i.e., Presence and Participation; Accommodation and Adaptation) in the model has been controversial. At the post-school level, outcomes in the Accommodation and Adaptation domain were viewed by stakeholders as integrated within all other domains. The unshaded diamond indicates that this domain is not measured separately at the post-school level. A detailed discussion of issues surrounding the development and ongoing refinement of the NCEO model is presented in Ysseldyke et al. (1993b).

The conceptual model is extended by the identification of outcomes within each outcome domain and indicators of the respective outcomes. Outcomes are the results of interactions between the students and the education system. Indicators are numbers or other symbolic representations that can be used to determine whether desired outcomes are achieved. Figures 2 through 9 present the outcomes and outcome indicators for each outcome domain for the NCEO model developed for individuals at the post-school level (Ysseldyke et al., 1993b).

The outcomes and indicators presented in Figures 2 through 9 served as the basis for the analyses summarized in this report. This investigation mapped the correspondence between the indicators of outcomes in the NCEO post-school model and indicators contained in recurring national data collection programs.

Figure 1. Design of Domains, Outcomes, and Indicators in Model

Conceptual Model of Outcomes Post-School

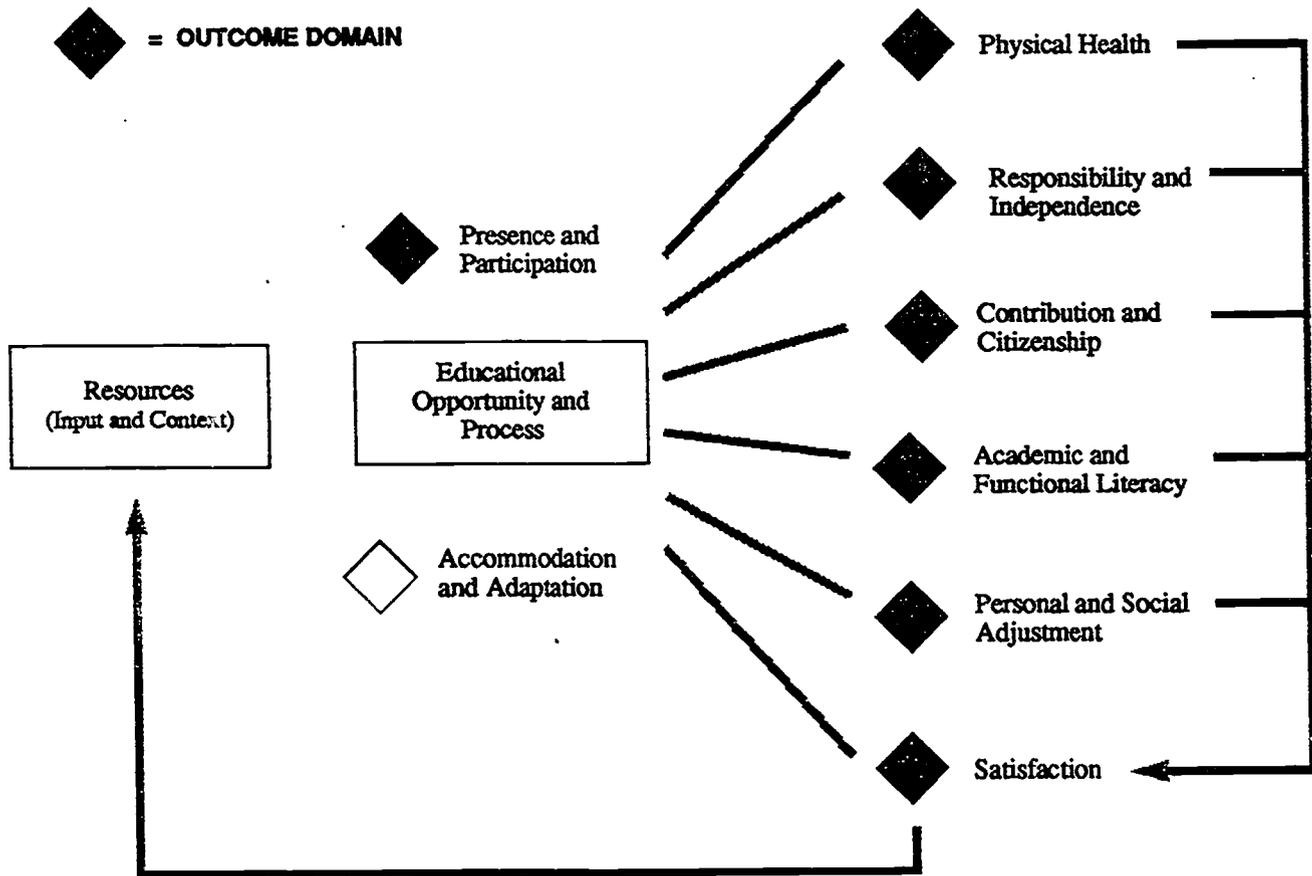


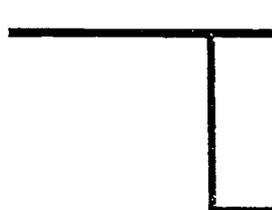
Figure 2.

● = OUTCOME

▲ = INDICATOR

Presence and Participation

● Is in community



Percent of individuals living in regular community settings (differentiated by type -- living with parents/family of origin, semi-independent residence, independently)



Percent of individuals in postsecondary schooling (differentiated by type -- 4 year college, 2 year college, vocational training, adult basic education)

● Participates in community



Percent of individuals regularly participating in community-based activities, groups, and organizations

● Is employed



Percent of individuals in the work force (differentiated by full-time, part-time, homemaker)



Percent of individuals whose employment is partially subsidized by non-employer funds

Figure 3.



Outcomes and indicators in this domain were considered during the consensus-building process. Participants recommended that no separate outcomes be identified in this domain at the Post-School level. Rather, outcomes and indicators reflecting accommodation and adaptation should be incorporated within other domains.

This domain was considered very important at earlier developmental levels. For example, at the School Completion level stakeholders identified two important outcomes in this domain:

- Makes adaptations, accommodations, or compensations necessary to achieve outcomes in each of the major domains
- Demonstrates family support and coping skills

Readers should refer to the document entitled *Educational Outcomes and Indicators for Students Completing School* to see the kinds of indicators stakeholders identified in this domain.

Figure 4.

Physical Health

● = OUTCOME

▲ = INDICATOR



Figure 5.

● = OUTCOME

▲ = INDICATOR

Responsibility and Independence

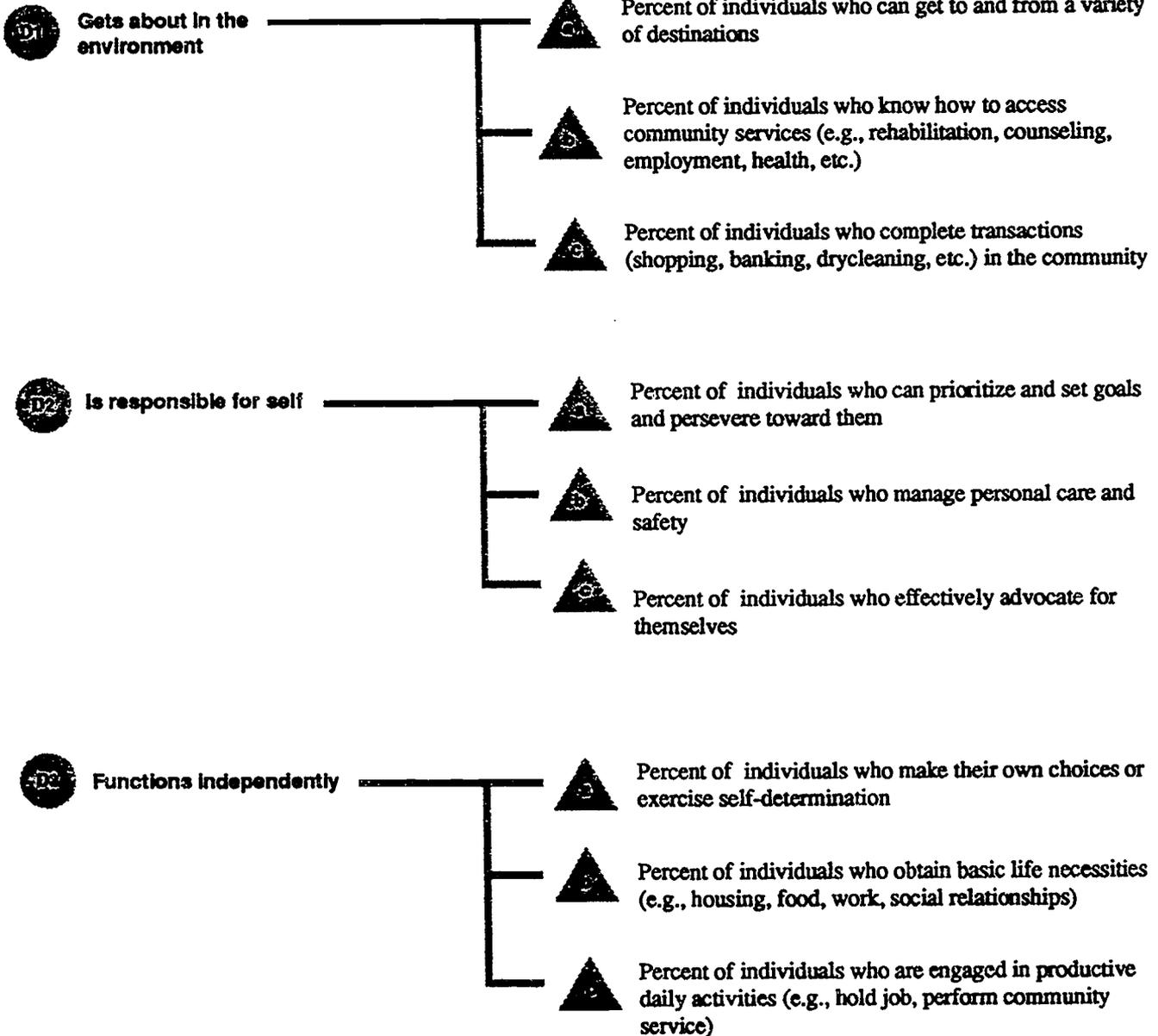


Figure 6.

● = OUTCOME

▲ = INDICATOR

Contribution and Citizenship



● E1 Complies with community rules ————— ▲ E2 Percent of individuals convicted in the criminal justice system or courts

● E2 Votes ————— ▲ E3 Percent of individuals who vote

● E3 Volunteers ————— ▲ E4 Percent of individuals who volunteer time to help others and improve community resources through school, civic, community, or nonprofit activities

● E4 Pays taxes ————— ▲ E5 Percent of individuals who pay taxes

Figure 7.

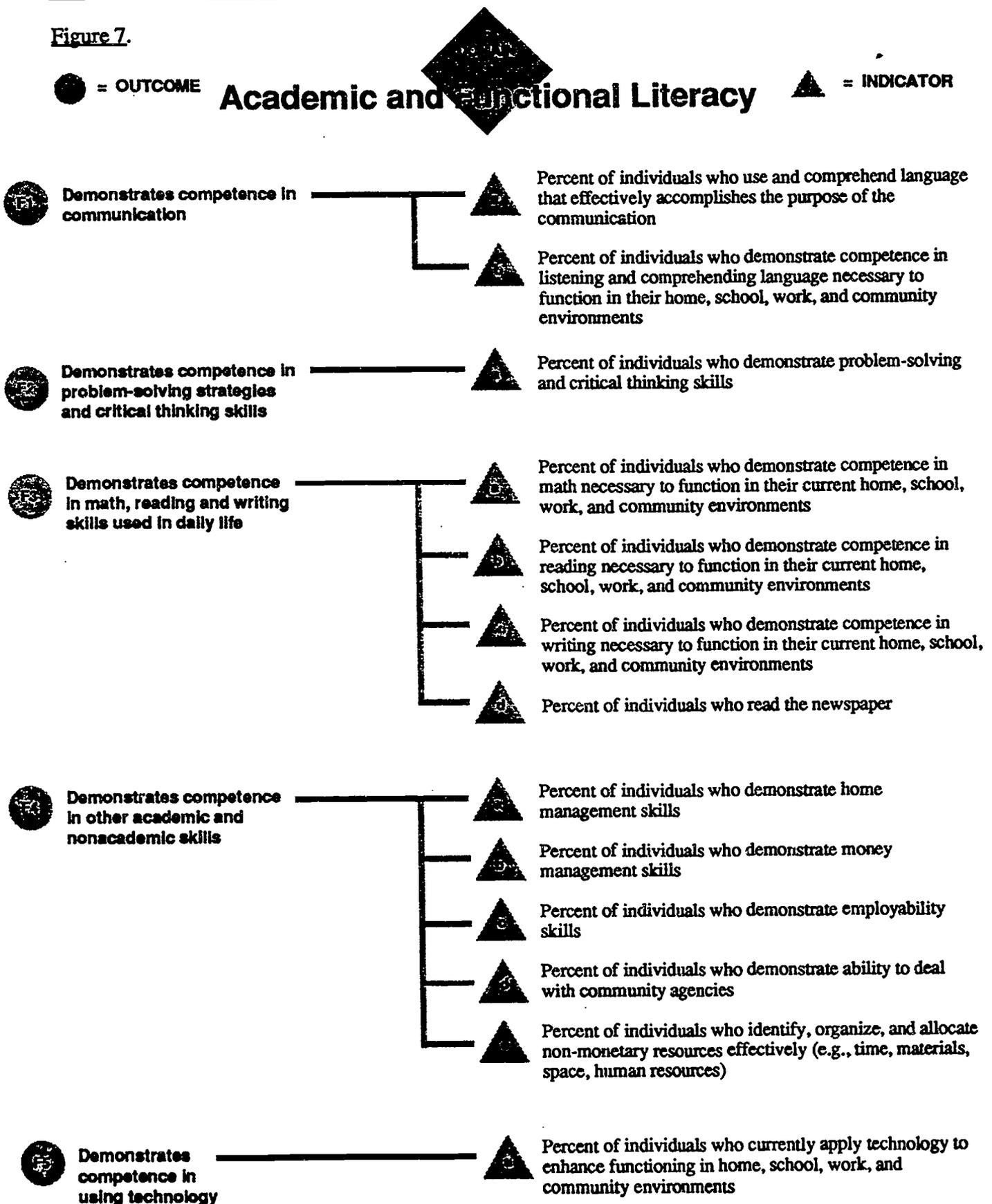


Figure 8.

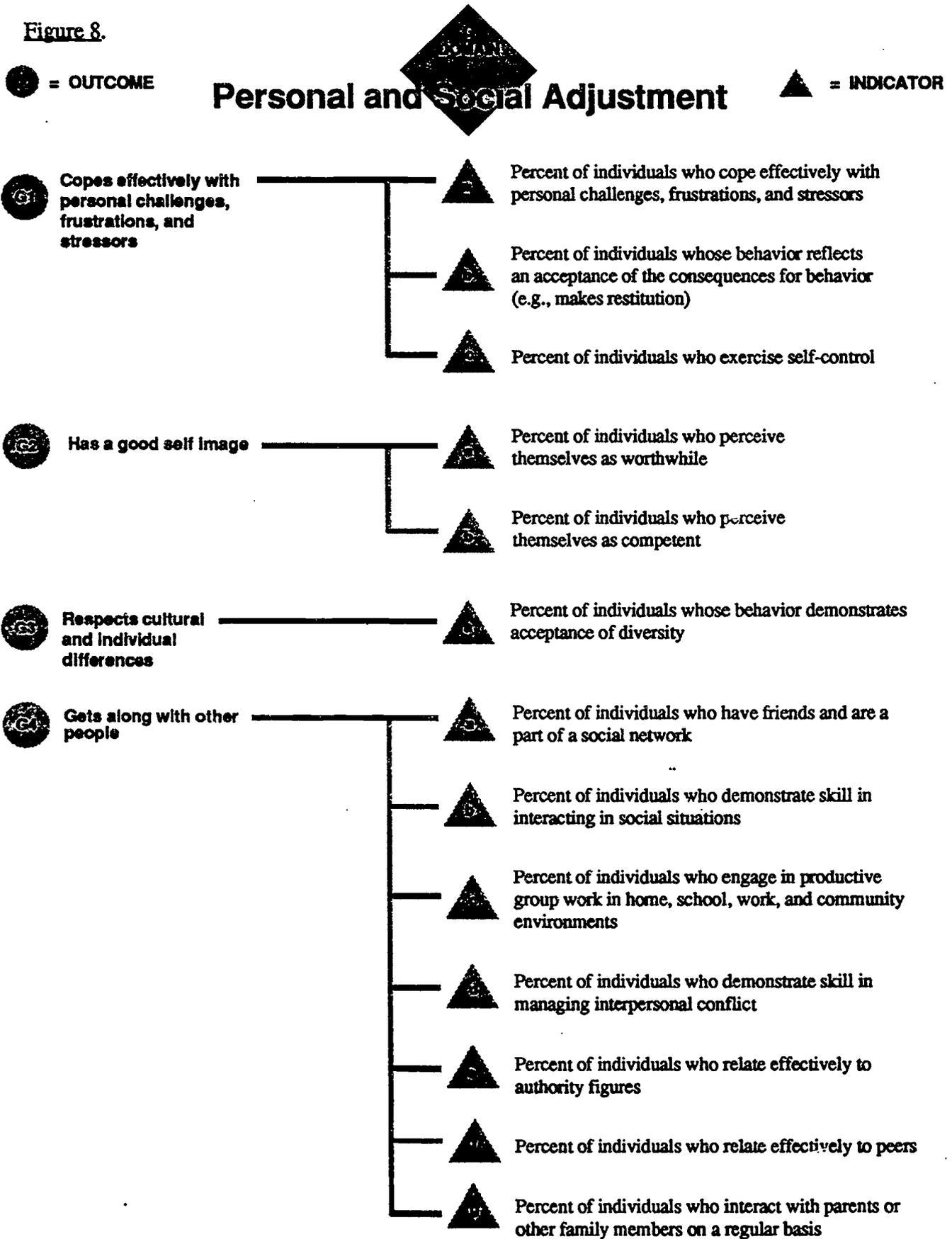
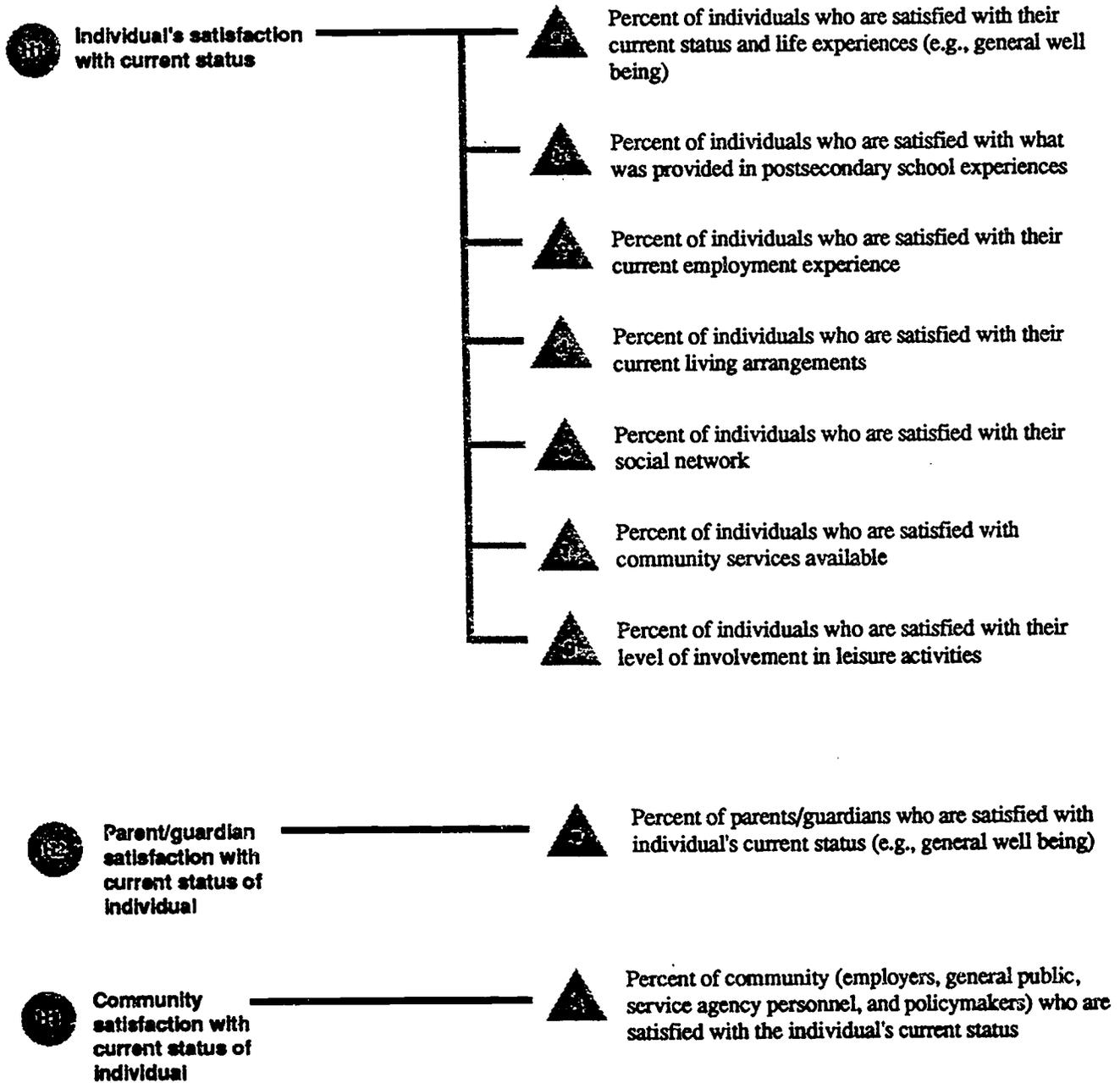


Figure 9.

● = OUTCOME

Satisfaction

▲ = INDICATOR



Method

Selection of Data Collection Programs

Ten national data collection programs were analyzed in the current investigation. These data collection programs represent a subset of 28 national data collection programs identified by NCEO as being potentially useful in the extraction of policy-relevant information on the educational status and performance of students with disabilities (McGrew, Thurlow, et al., 1992). The complete set of 28 data collection programs was targeted based on each program's: (a) potential usefulness in providing indicators of outcome domains in the NCEO conceptual model of educational outcomes for children and youth with disabilities (Ysseldyke et al., 1993b), and (b) prominence in current efforts to monitor progress toward the attainment of national education goals.

The ten data collection programs included in the current investigation are briefly described in Table 1. Since the purpose of this investigation was to determine the extent to which the NCEO post-school outcomes and indicators are included in recurring national data collection programs, only those data collection programs that currently occur, or are planned to occur, on a regular basis were selected. In addition, only those data collection programs that included individuals of post-school age were included.

For example, the National Household Education Survey (NHES), Current Population Survey (CPS), and National Health Interview Survey (NHIS) are data collection programs that occur on a regular basis and include individuals of this age group in their samples. These three data collection programs were included in this study. This contrasts with other data collection programs that may contain important outcomes and indicators but are not recurring programs.

There was one exception to the above selection criteria. The National Longitudinal Transition Study (NLTS) of Special Education Students was the exception. Although a fixed duration longitudinal data collection program, NLTS represents the first large-scale national survey of students with disabilities. It is important to determine the extent to which similar specialized national data collection programs of the future, or other data collection programs that might incorporate some of NLTS's variables, result in broader coverage of the NCEO outcomes and indicators. The National Educational Longitudinal Study of 1988 (NELS:88), which gathered post-school information, could not be included due to the lack of a published technical or methodology report for the third follow-up at the time of this investigation.

The relevant methodological and technical reports for each data collection program were obtained from the sponsoring agency. The section of each data collection program's codebook or user manual that presented the assessment instruments served as the source documents for the subsequent analyses.

Analysis of Data Collection Programs

The individual items in each data collection program's assessment instruments were compared to each NCEO outcome and outcome indicator listed in Figures 2 through 9. The goal was to identify assessment items that corresponded closely to the NCEO outcome indicators. If one or more survey items in a data collection instrument were judged to be a close match to an NCEO outcome indicator, the data collection program was classified as providing potential indicators for that outcome in the NCEO Conceptual Model. Two individuals completed this review process for each data collection program.

Table 1. Descriptions of National Data Collection Programs Included in Investigation

National Longitudinal Transition Study of Special Education Students

(Department of Education)--NLTS:90

A nationally representative longitudinal study of special education students who were in grades 7-12 during the 1987 base year sample. By collecting a wide array of information from parents/guardians, school records, and school administrators, this data collection program provides descriptive information regarding the transition of youth with disabilities from secondary school to early adulthood, and seeks to identify factors that contribute to effective transition of youth with disabilities. The first follow-up was completed in 1990.

National Adult Literacy Survey

(Department of Education)--NALS:92

A nationally representative cross-sectional study designed to collect information on the types and levels of literacy skills of adults and how these skills are distributed across major subgroups. This study assessed the prose, document, and quantitative literacy of young adults in 1992.

National Household Education Survey

(Department of Education)--NHES:91

A nationally representative cross-sectional sample of households was surveyed in 1991 to provide national data regarding early and adult education issues. The 1991 base year survey targets information on the care and education of 3-to-8 year old children, and the participation of adults in education activities.

National Health Interview Survey

(Department of Health and Human Services)--NHIS:91

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 Survey of Family Growth

(Department of Health and Human Services)--NSFG:86

A nationally representative cross-sectional sample drawn from households involved in the National Health Interview Survey (NHIS). The 1986 cycle included women from 15-44 years of age who were included in the 1986 NHIS. The study provides national data on the demographic and social factors associated with childbearing, contraception, adoptions, and maternal and child health.

National Crime Survey

(Department of Justice)--NCS:86-89

A nationally representative cross-sectional sample (collected on a three year cycle) of household members age 12 and above. The study is designed to collect data on personal and household crime victimization.

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 occurring annually since the 1940s.

National Household Survey on Drug Abuse

(Department of Health and Human Services)--NHSDA:93

A nationally representative cross-sectional study designed to collect information on the use of tobacco, alcohol, illicit drugs, and nonmedical use of prescription drugs. Data collection in this program has been occurring on a biennial basis since 1971.

Table 1, continued. Descriptions of National Data Collection Programs Included in Investigation

Monitoring the Future

(Department of Health and Human Services)--MF:94

A nationally representative longitudinal study designed to collect information on drug use and attitudes about drugs, views about personal lifestyles, confidence in social institutions, intergroup and interpersonal attitudes, concerns about conservation and ecology, and other social and ethical issues. High school seniors have been the base year sample for this annual survey since 1975. Follow-up surveys are conducted annually for each class for up to fourteen years.

National Longitudinal Alcohol Epidemiologic Survey

(Department of Health and Human Services) - NLAES:92

A nationally representative longitudinal study of individuals 18 years of age and older. The study is designed to determine the incidence and prevalence of alcohol use disorders and their associated disabilities.

As is often the case, the variables and indicators of concepts included in data collection programs typically do not provide an exact match to the indicators needed for secondary analysis (McGrew, Thurlow et al., 1992). Given that secondary analysts must often use less than perfect "surrogate" measures that were originally developed for different purposes, conceptually similar or approximate indicators were considered to be a "match" with an NCEO outcome, when so judged by group consensus. Discrepancies between the reviewers were resolved by group consensus, and/or by review by a third individual. A more detailed discussion with examples can be found in McGrew, Spiegel, Thurlow, & Kim (1994). When difficult model-indicator mapping decisions were necessary, the final criterion used to make judgments was whether the NCEO staff would feel comfortable in using the variables as proxies for the NCEO outcome indicators in secondary data analysis.

Results

The results of the mapping process are presented by NCEO Post-School outcome domains in Tables 2 through 8.

In the NCEO domain of Presence and Participation, each of the five NCEO indicators is present in at least one of the data collection programs reviewed (see Table 2). The indicator representing employment participation (A3a) was present in all ten data collection programs. Given that post-school employment has been the focus of much research, it is not surprising that the employment indicator was present in all the reviewed databases. Participation in postsecondary schooling or training (A1b) was next in frequency (present in four of the ten data collection programs). With the one exception of the MF:94 data collection program, the three remaining indicators (A1a, A2a, A3b) were only present in NLTS:90, a special purpose and non-recurring data collection program focused just on individuals with disabilities.

Eight of the ten (80%) NCEO Physical Health indicators had measures available (see Table 3). With the exception of indicators in four data collection programs for "percent of individuals who have abused alcohol or drugs in the past year" (C1b), most of the accounted for indicators were present in two to three data collection programs. Indicators reflecting awareness of first aid and emergency health care procedures (C2e) and when, where, and how to access health care (C2d) were not present in any of the reviewed data collection programs. Not surprisingly, two data collection programs sponsored by the Department of Health and Human Services (NHIS:91; MF:94) provided the broadest coverage (seven of the ten) of the Physical Health outcome indicator domain.

Table 2. Mapping of NCEO Post-School Level Presence and Participation Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLTS 90	NALS 92	NHES 91	NHIS 91	NSFG 86	NLAES 92	NCS 86-89	CPS	NHSDA 93	MF 94
A1 Is in community										
(a) Percent of individuals living in regular community settings	X									
(b) Percent of individuals in postsecondary schooling	X	X						X		X
A2 Participates in community										
(a) Percent of individuals regularly participating in community-based activities, groups, and organizations	X									X
A3 Is Employed										
(a) Percent of individuals in the workforce	X	X	X	X	X	X	X	X	X	X
(b) Percent of individuals whose employment is partially subsidized by non-employer funds	X									

- * NLTS: 90 = National Longitudinal Transition Study of Special Education Students, 1990 Follow-up
- NALS: 92 = National Adult Literacy Survey (1992)
- NHES: 91 = National Household Education Survey (1991)
- NHIS: 91 = National Health Interview Survey (1991)
- NSFG: 86 = National Survey of Family Growth (1986)
- NLAES: 92 = National Longitudinal Alcohol Epidemiologic Survey
- NCS: 86-89 = National Crime Survey (1986-89)
- CPS = Current Population Survey
- NHSDA: 93 = National Household Survey of Drug Abuse (1993)
- MF :94 = Monitoring the Future (1994)

Note: "X" indicates database includes a possible indicator.

Table 3. Mapping of NCEO Post-School Level Physical Health Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLT 90	SALS 92	NHES 91	NHIS 91	NSFG 86	NLAES 92	NCS 86-89	CPS	NHSDA 93	MF 94
C1 Makes healthy lifestyle choices										
(a) Percent of individuals who make good nutritional choices				X						X
(b) Percent of individuals who have abused alcohol or drugs in the past year				X		X			X	X
(c) Percent of individuals who indicate they have had unprotected sex in the past year				X	X					
(d) Percent of individuals who elect to participate in sports, recreation, and/or exercise activities	X			X						X
C2 Is aware of basic safety, fitness, and health care needs										
(a) Percent of individuals who are aware of basic safety precautions and procedures	X									X
(b) Percent of individuals who are aware of basic fitness needs				X						X
(c) Percent of individuals who are aware of basic health care needs				X						X
(d) Percent of individuals who know when, where, and how to access health care										
(e) Percent of individuals who are aware of first aid and emergency health care procedures										
C3 Is physically fit										
(a) Percent of individuals who are physically fit				X					X	X

Note. "X" indicates database includes a possible indicator.

*See Table 2 for identification of data collection programs.

With the exception of nine of the ten data collection programs including an indicator of involvement in productive daily activities (D3c--see Table 4), the outcome domain of Responsibility and Independence was unrepresented in the reviewed national data collection programs. The one remaining indicator ("percent of individuals who can get to and from a variety of destinations"--D1a) was only present in NLTS:90, a non-recurring national data collection program. Thus, eight of nine (89%) of the NCEO Responsibility and Independence outcome indicators were not present in the recurring national data collection programs reviewed in this investigation.

In the domain of Contribution and Citizenship, three of the four indicators (75%) had measures available in two to three data collection programs (see Table 5). Payment of taxes (E4a) as an indicator of Contribution and Citizenship was not present in any of the ten reviewed data collection programs. In contrast, the Academic and Functional Literacy domain was very under-represented across the ten data collection programs (see Table 6). Five of the thirteen academic and functional literacy indicators were available only through NALS:92, with one additional indicator (F4b) being present in NLTS:90. No indicators of the subdomains of problem-solving strategies and critical thinking skills (F2) or the use of technology (F5) were located in any of the data collection programs.

In the domain of Personal and Social Adjustment, seven of the eight indicators (88%) were present in at least one data collection program (see Table 7). Most all of these indicators were found either in the non-recurring NLTS:90 or MF:94 data programs. When the non-recurring NLTS:90 data collection program is excluded from consideration, eight of the thirteen (61.5%) Personal and Social Adjustment indicators are not represented in recurring national data collection programs. No coverage is found for the subdomains of effective coping with personal challenges, frustrations, and stressors (G1).

Finally, the NCEO domain of Satisfaction is (with one exception) not measured in the current sample of national data collection programs (see Table 8). A sole indicator was found that could serve as a proxy for an individual's satisfaction with his or her current status and life experiences (H1a).

Table 9 presents a summary of the availability of NCEO Post-School Completion outcome indicators across the reviewed data collection programs. Overall, the coverage is moderate, with 57% of the NCEO indicators represented in at least one of the ten data collection programs reviewed. When the NLTS data collection program (the only program specifically focused on individuals with disabilities) is excluded from the table, this percentage drops to under half (46%). The database/indicator ratios presented in Table 9 indicate that the breadth of coverage (average number of data collection programs per indicator) is the greatest in the NCEO post-school outcome domains of Presence and Participation (2.0) and Physical Health (2.0). The outcome domains of Contribution and Citizenship and Personal and Social Adjustment have half the breadth of coverage (i.e., database to indicator ratios of 1.0) of Presence and Participation and Physical Health. The domains of Responsibility and Independence, Academic and Functional Literacy, and Satisfaction are poorly represented by average database to indicator ratio values of 0.0.

Table 4. Mapping of NCEO Post-School Level Responsibility and Independence Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLTSNALS 90	NALS 92	NHES 91	NHIS 91	NSFG 86	NLAES 92	NCS 86-89	CPS	NHSDA 93	MF 94
D1 Gets about in the environment										
(a) Percent of individuals who can get to and from a variety of destinations	X									
(b) Percent of individuals who know how to access community services (e.g., rehabilitation, counseling, employment, health, etc.)										
(c) Percent of individuals who complete transactions (shopping, banking, dry-cleaning, etc.) in the community										
D2 Is responsible for self										
(a) Percent of individuals who can prioritize and set goals and persevere toward them										
(b) Percent of individuals who manage personal care and safety										
(c) Percent of individuals who effectively advocate for themselves										
D3 Functions independently										
(a) Percent of individuals who make their own choices or exercise self-determination										
(b) Percent of individuals who obtain basic life necessities (e.g., housing, food, work, social relationships)										
(c) Percent of individuals who are engaged in productive daily activities (e.g., hold job, perform community service)	X	X	X	X	X		X	X	X	X

Note. "X" indicates database includes a possible indicator.

*See Table 2 for identification of data collection programs.

Table 5. Mapping of NCEO Post-School Level Contribution and Citizenship Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLTS 90	NALS 92	NHES 91	NHIS 91	NSFG 86	NLAES 92	NCS 86-89	CPS	NHSDA 93	MF 94
E1 Complies with community rules										
(a) Percent of individuals convicted in the criminal justice system or courts	X								X	
E2 Votes										
(a) Percent of individuals who vote	X	X								X
E3 Volunteers										
(a) Percent of individuals who volunteer time to help others and improve community resources through school, civic, community, or nonprofit activities	X	X								X
E4 Pays taxes										
(a) Percent of individuals who pay taxes										

Note. "X" indicates database includes a possible indicator.
 *See Table 2 for identification of data collection programs.

Table 6. Mapping of NCEO Post-School Level Academic and Functional Literacy Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLTS 90	NALS 92	NHE 91	NHIS 91	NSFG 86	NLAES 92	NCS 86-89	CPS	NHSDA 93	MF 94
F1 Demonstrates competence in communication										
(a) Percent of individuals who use and comprehend language that effectively accomplishes the purpose of the communication		X								
(b) Percent of individuals who demonstrate competence in listening and comprehending language necessary to function in their home, school, work, and community environments										
F2 Demonstrates competence in problem-solving strategies and critical thinking skills										
(a) Percent of individuals who demonstrate problem-solving and critical thinking skills										

Table 6, continued. Mapping of NCEO Post-School Level Academic and Functional Literacy Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLT	SNALS	NHE	NHIS	NSFG	NLAES	NCS	CPS	NHSDA	MF
	90	92	91	91	86	92	86-89		93	94
F 3 Demonstrates competence in math, reading and writing skills used in daily life										
(a) Percent of individuals who demonstrate competence in math necessary to function in their current home, school, work, and community environments		X								
(b) Percent of individuals who demonstrate competence in reading necessary to function in their current home, school, work, and community environments		X								
(c) Percent of individuals who demonstrate competence in writing necessary to function in their current home, school, work, and community environments		X								
(d) Percent of individuals who read the newspaper		X								
F 4 Demonstrates competence in other academic and non-academic skills										
(a) Percent of individuals who demonstrate home management skills										
(b) Percent of individuals who demonstrate money management skills	X									
(c) Percent of individuals who demonstrate employability skills										
(d) Percent of individuals who demonstrate ability to deal with community agencies										
(e) Percent of individuals who identify, organize, and allocate non-monetary resources effectively										
F 5 Demonstrates competence in using technology										
(a) Percent of individuals who currently apply technology to enhance functioning in home, school, work, and community environments										

Note. "X" indicates database includes a possible indicator.

*See Table 2 for identification of data collection programs.

Table 7. Mapping of NCEO Post-School Level Personal and Social Adjustment Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLTS 90	SALS 92	NHES 91	NHIS 91	NSFG 86	NLAES 92	NCS 86-89	CPS	NHSDA 93	MF 94
G1 Copes effectively with personal challenges, frustrations, and stressors										
(a) Percent of individuals who cope effectively with personal challenges, frustrations, and stressors										
(b) Percent of individuals whose behavior reflects an acceptance of the consequences for behavior (e.g., makes restitution)										
(c) Percent of individuals who exercise self-control										
G2 Has a good self image										
(a) Percent of individuals who perceive themselves as worthwhile						X				X
(b) Percent of individuals who perceive themselves as competent										X
G3 Respects cultural and individual differences										
(a) Percent of individuals whose behavior demonstrates acceptance of diversity										X
G4 Gets along with other people										
(a) Percent of individuals who have friends and are a part of a social network										X
(b) Percent of individuals who demonstrate skill in interacting in social situations	X									
(c) Percent of individuals who engage in productive group work in home, school, work, and community environments										
(d) Percent of individuals who demonstrate skill in managing interpersonal conflict										
(e) Percent of individuals who relate effectively to authority figures										X
(f) Percent of individuals who relate effectively to peers	X									
(g) Percent of individuals who interact with parents or other family members on a regular basis	X									

Note. "X" indicates database includes a possible indicator.
 *See Table 2 for identification of data collection programs.

Table 8. Mapping of NCEO Post-School Level Satisfaction Outcomes and Indicators with Select National Data Collection Programs

Outcomes/Indicators	Data Collection Programs*									
	NLTS 90	NALS 92	NHES 91	NHIS 91	NSFG 86	NLAES 92	NCS 86-89	CPS	NHSDA 93	MF 94
H1 Individual's satisfaction with high school experience										
(a) Percent of individuals who are satisfied with their current status and life experiences (e.g., general well being)										X
(b) Percent of individuals who are satisfied with what was provided in postsecondary school experiences										
(c) Percent of individuals who are satisfied with their current employment experience										
(d) Percent of individuals who are satisfied with their current living arrangements										
(e) Percent of individuals who are satisfied with their social network										
(f) Percent of individuals who are satisfied with community services available										
(g) Percent of individuals who are satisfied with their level of involvement in leisure activities										
H2 Parent/guardian satisfaction with current status of individual										
(a) Percent of parents/guardians who are satisfied with individual's current status (e.g., general well being)										
H3 Community satisfaction with current status of individual										
(a) Percent of community (employers, general public, service agency personnel, and policymakers) who are satisfied with the individual's current status										

Note. "X" indicates database includes a possible indicator.

*See Table 2 for identification of data collection programs.

Table 9. Availability of NCEO Post-School Level Outcome Indicators in Select National Data Collection Programs

NCEO Outcome Domains	Number of Indicators in domain	Number of indicators for which data may be available in reviewed databases ¹	Percent of indicators for which data may be available in reviewed databases ¹	Database to indicator ratio ²
A. Presence and Participation	5	5	100%	2.0
C. Physical Health	10	8	80%	2.0
D. Responsibility and Independence	9	5	56%	0.0
E. Contribution and Citizenship	4	3	75%	1.0
F. Academic and Functional Literacy	13	6	46%	0.0
G. Personal and Social Adjustment	13	8	62%	1.0
H. Satisfaction	9	1	11%	0.0
All NCEO Outcome Domains	63	36	57%	0.5

¹ The databases that were reviewed are: National Longitudinal Transition Study of Special Education Students (NLTS) 1990 Follow-up, National Survey of Family Growth 1986 (NSFG), National Longitudinal Alcohol Epidemiologic Survey 1992 (NLAES), National Adult Literacy Survey 1992 (NALS), National Crime Survey 1986-89 (NCS), National Household Education Survey 1991 (NHES), Current Population Survey (CPS), National Health Interview Survey 1991 (NHIS), National Household Survey of Drug Abuse 1993 (NHSDA), Monitoring the Future 1994 (MF).

² This number represents the average (median) number of data collection programs with measures for each indicator in an outcome domain. Thus, for example, there are an average of 2.0 data collection programs with measures of each indicator in the Presence and Participation domain.

Discussion

Indicators of important post-school completion outcomes for all students are represented in a portion of our national data collection system. Across ten national data collection programs that include individuals after they leave secondary schools, slightly over half (57%; 36 of 63) of the NCEO post-school outcome indicators are represented by at least one measure. When the non-recurring National Longitudinal Transition Study of Special Education Students (NLTS) is excluded, the coverage is approximately 10% less (46% of the NCEO outcome indicators are represented). With approximately half of the NCEO post-school outcome indicators present in our recurring national data collection system, the potential exists for producing partial information regarding the status of all students after they leave school. A comparison to a similar analysis at the school-completion level (McGrew et al., 1994) finds that post-school indicators are less available than indicators available at the end of school. In contrast to the 57% coverage found at the post-school level, McGrew et al. found 91% coverage of the NCEO outcome indicators at the school completion level.

As would be expected given the different purposes of data collection programs, the availability of measures that approximate the NCEO indicators varies widely. The MF:94, NLTS:90, and NALS:92 data collection programs are the most promising data sets for providing information regarding the NCEO post-school outcome domains. However, these data sets still only provide for coverage for approximately 15% to 30% of the NCEO post-school outcome indicators. It is clear that analysts who seek to provide information regarding the complete post-school NCEO model will need to draw indicators from nearly all of the ten data collection programs reviewed in this study.

The conceptual and technical problems typically encountered when comparing and/or merging information from different data collection programs (McGrew, Spiegel, Thurlow, Ysseldyke, Bruininks, Deno, & Shriner, 1991) will most likely make the final percent of usable NCEO indicators less than the 57% figure reported in this investigation. Given the certainty that some of these single indicators will be unusable due to the technical and methodological problems encountered in secondary data analysis (McGrew et al., 1991), the final percent of NCEO post-school indicators available for analysis will be under 50%.

The database/indicator ratios for the different NCEO outcome domains suggest that the potential problem of unusable indicators may be most significant in the areas of Responsibility and Independence (0.0), Academic and Functional Literacy (0.0), and Satisfaction (0.0), and to a lesser extent Contribution and Citizenship (1.0) and Personal and Social Adjustment (1.0). Outcome domains that are likely to still be represented by usable indicators after indicator attrition due to technical problems are Presence and Participation (2.0) and Physical Health (2.0).

Even if the problems in comparing and combining information from different databases can be resolved, the ability to extract useful information regarding students with disabilities may be all but impossible. Students with disabilities are often missing from national data collection programs, and if present, they cannot be consistently identified for analysis. An investigation of the exclusion of students with disabilities in national data collection programs found that in educational data sets, 40% to 50% of the population of students with disabilities typically is excluded (McGrew, Thurlow, & Spiegel, 1993). In noneducational data collection programs, students with disabilities are included to a greater degree. However, even when present in the samples, individuals with disabilities often cannot be identified with any consistency due to the lack of disability-specific identifying variables or the use of different disability categories across data collection programs (McGrew, Algozzine et al., 1993).

In conclusion, the potential exists for producing partial policy-relevant information on the post-school outcomes of students with disabilities. However, the potential is much less than that found at the school-completion level where a much larger number of NCEO outcome indicators was found to be in recurring national data collection programs (McGrew et al., 1994). The bad news is that even this partial potential cannot be tapped currently to analyze and generate reports about students with disabilities. The exclusion of significant numbers of students with disabilities from recurring national data collection programs and the variable or nonexistent disability-specific variables used to identify students in these data collection programs makes it all but impossible to use all the outcome information that is currently available at the national level.

Recommendations

The inability to extract comprehensive national outcome information at the school completion (McGrew et al., 1994) and post-school levels for students with disabilities is only partially due to a lack of potential indicators in our national data collection programs. The exclusion of significant numbers of students with disabilities from many national data collection programs and the variable identification of these students by type of disability in these programs are the greatest impediments to the production of recurring national reports on the school completion status of students with disabilities. Recommendations to address these two concerns have been presented elsewhere (McGrew, Thurlow & Spiegel, 1993; McGrew et al., 1992).

However, improvements still can be made in the types of items included in national data collection programs. The goal of these improvements would be to increase the breadth of information on all students. Individuals and organizations charged with the design of national data collection programs are encouraged to review the following general suggestions, many which were also made by McGrew et al. (1994) when discussing the school-completion analyses.

1. Attention needs to be directed to the development of indicators in all NCEO post-school outcome domains. Most pressing is the need to develop or employ existing outcome indicators related to accepting the consequences of one's behavior (responsibility and independence), academic and functional literacy, personal and social adjustment, and satisfaction.
2. The NCEO conceptual model of outcomes should be reviewed for ideas on new outcomes or indicators to include in ongoing or future national studies. Consideration needs to be given to the development of variables to better measure outcomes related to all the NCEO post-school outcome domains.
3. Individuals and organizations developing instrumentation for national data collection programs should review the instruments and methodology reports of the National Longitudinal Transition Study of Special Education Students (NLTS) for ideas on how to develop new indicators or strategies for measuring important outcomes for all students.

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