Methods for Conducting Post-School Outcomes Follow-Up Studies: A Review of the Literature

Prepared by (in alphabetical order)
Charlotte Y. Alverson
Camilla Bayliss
Jason M. Naranjo
Scott H. Yamamoto
Knowledge Development Assistants
National Post-School Outcomes Center

Deanne Unruh
Knowledge Development Associate
National Post-School Outcomes Center

University of Oregon
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Literature Review Methodologies for Post-School Outcomes Follow-Up or Follow-Along Studies for Youth with Disabilities

Introduction
The purpose of this brief is to summarize the methodologies and outcome measures used in Post-School Outcomes follow-up and follow-along studies of adolescents with disabilities. As a requisite in the Request for Proposal for funding of the National Post-School Outcomes Center (NPSO), knowledge development activities were to include: “Conducting a literature review on the measures and methodologies that are used to collect data on secondary, transition, and postsecondary school outcomes for youth with disabilities.” (Federal Register, June 4, 2004, p. 31592) This literature review was completed with the purpose of providing NPSO and State Education Agencies (SEAs) with information for how to conduct follow-up studies in the most efficient and scientific exacting manner.

The brief contains an overview of the (a) methods used to conduct the literature review, (b) summary of findings for methodologies of collecting post-school outcomes data, and (c) a bibliography of the studies summarized in this review.

Method
The purpose of the NPSO Center is to conduct “…research activities and provide technical assistance to states, schools, communities, and agencies in developing and implementing practical, efficient, cost-effective, and sustainable strategies for collecting and using outcome data to improve secondary, transition, and postsecondary school outcomes.” (Federal Register, June 4, 2004, p. 31592). In light of this purpose, we examined the data collection methods and measures used in publications reporting post-school employment, further education, and/or independent living data. Specific to Indicator 14, states are required to report the:

Percent of youth who had IEPs, are no longer in secondary school and who have been competitively employed, enrolled in some type of postsecondary school, or both, within one year of leaving high school. (20 U.S.C. 1416(a)(3)(B)).

Requisite to collect Indicator 14 data, we used the following questions to guide our review of the methodologies used to collect post-school outcomes data:

- What was the source of information (data)?
- What was the nature of the sample?
- What data collection methods were used?
- What predictor and outcome indicators were used in these studies and how were they operationalized?

Completing the literature review consisted of (a) identifying appropriate studies, (b) coding the studies, and (c) analyzing the findings. The following sections describe these processes.
Identifying Appropriate Studies
We used multiple steps to identify studies (Cooper, 1998). First, bibliographies of “classic” longitudinal and follow-up studies were provided to the NPSO Center by the Division of Career Development and Transition Research committee and the What Works in Transition: Systemic Review Project. Second, NPSO located these studies in electronic databases and reviewed the keywords and major descriptors as assigned by the national cataloging services (e.g., ERIC, PsychINFO). Third, NPSO staff used these common major descriptors as keywords to search electronic databases (e.g., ERIC, PsychINFO, and Dissertation Abstracts) to locate additional studies with characteristics similar to the “classic” studies. Keywords used were disabilities, education outcomes, special education, longitudinal studies, follow-up studies and post-school outcomes. Additionally, we combined the original keywords with specific disability categories (e.g., SLD and post-school outcomes) to form the search term. Fourth, we identified additional studies by using the reference sections of the identified publications. In conjunction with the keywords, we applied the following search parameters: (a) peer-reviewed journal articles, (b) technical reports, (c) dissertations and theses, (d) conference papers and presentations, and (e) date range of 1965 to 2004. This broad search yielded more than 500 publications that we initially screened for the literature review.

The titles and abstracts of the prospective studies were carefully reviewed. We used four criteria for inclusion in our initial coding process:

- Were data reported on at least one post-school outcome domain (i.e., further education, employment, or independent living)?
- Was the study conducted using participants in the United States?
- Were adolescents/young adults with disabilities included as study participants?
- Were data linked to participants leaving a school system?

If the above criteria could not be determined from reviewing the abstract, a paper copy of the publication was obtained and reviewed for appropriateness. In all, we obtained paper copies for 298 publications. We conducted a second review of the full article/report using our same inclusion criteria and reduced the number of appropriate studies to 170.

Coding the Studies
A comprehensive coding protocol was developed in alignment with our guiding methodological questions. The literature review coding protocol was adapted from a coding document developed by NPSO staff to code and analyze each state’s Annual Performance Report for Indicator 14.

The coding team consisted of the Knowledge Development Associate who coordinated the literature review process, a doctoral-level technical assistance (TA) provider, and three doctoral students who serve as Knowledge Development Assistants to the Center. To establish coder reliability, we followed these steps: First, a coding protocol manual was developed operationalizing each of the coding questions and descriptors. Second, a coding training was held to review the coding protocol and the operational
definitions of the coding document. The coding team individually coded two articles and then met to compare codes. Coding discrepancies were discussed. We repeated this process until 90% coding reliability was gained on key coding questions across the team. Third, a consensus coding process was established. All studies were randomly assigned to the three doctoral students and TA provider. Each study was then independently coded. Upon completion of coding each study, the coder completed a confidence rating of the accuracy of the coding. When a low confidence rating was obtained, the study was assigned to a second coder for review. The first and second coder then met and discussed codes until consensus was met. When the two coders could not reach consensus, the Knowledge Development Associate reviewed the coding items in question, and made the final decision about the code to be assigned.

During this coding process, we reduced the number of articles coded for two reasons. First, multiple articles were identified that were written from one study (e.g., the National Longitudinal Transition Study—NLTS2); in these circumstances we identified the article or report that best described the methods used in the study and coded the study; therefore only one publication was retained for the literature review even though multiple publications were written from the study. When it was not clear whether studies shared the same data source or methodology, we retained both studies in the literature review. Second, upon closer review of the identified study, studies that did not meet our initial criteria were excluded. In all, we coded and entered 98 publications into an electronic database created for this project.

Analyzing the Findings
Upon entering the coding protocol into the database, the data were extracted and validated for discrepancies in data format. In addition, categories that had been coded as “other” were reviewed and collapsed, when appropriate, into existing descriptors or new code categories. Simple descriptive statistics were then calculated and summarized as follows.

Summary of Findings
The following summarizes the guiding questions used to identify the methodologies in prior studies of post-school outcomes of adolescents and young adults with disabilities. In most cases, we report the five most frequently occurring descriptors for each question. Percentages are based on the total number of publications in the review, N = 98. Some questions were designed to allow more than one response option. In cases where multiple response options were available, and the total number of responses exceeds 98, we do not present percentages.

Source of Information (Data) Used in the Study
Figure 1 presents the source of information used across the 98 studies. Overall, nearly three quarters (73%) used some type of data collection system created exclusively for the study. Specifically,

- 46 (47%) studies utilized a Data collection system, defined as data collected solely for the purpose of study.
• 25 (26%) studies utilized a **Combination of data collection and administrative records** as the data source.
• 19 (19%) studies utilized an **Administrative records database**, defined as an existing database used for multiple purposes (e.g., Employment Division, Child count database, vocational rehabilitation), as the data source.
• Four (4%) of the publications utilized some “**Other**” source of data (e.g., an SEA database, program evaluation database, or coordinated follow-up studies).
• Four (4%) studies had a data source that was **Unclear or Missing data** for this question.

**Figure 1. Data Source**

- Data collection system
- Combined data collection & administrative records
- Administrative Records
- Other, unclear, or missing

**Data Collection Methods**

A variety of data collection methods were used to gather post-school outcomes indicators across the 98 publications. As described above, some studies used multiple sources of the data (e.g., extant, direct data collection); therefore, the following lists summarize the methods applied to the source of the data. The most commonly reported methods of data collection are listed below.

• 88 studies used **Survey methodology** as a method of data collection.
• 42 studies used a review of **School records** as a method of data collection.
• 9 studies used a review of **Extant data** as a method of data collection.
• 3 studies used a review of **Student IEPs** as a method of data collection.

Of the studies that used **Survey methodologies**, the most commonly reported types of survey methodologies are listed below.

• 54 studies indicated the use of **Interviews** (e.g., phone, or face-to-face) to conduct the survey.
• 20 studies indicated the use of **Any combination** (phone and mail surveys, or face-to-face and mail) to conduct the survey.
• 8 studies indicated the use of a **Mail survey only** to conduct the survey.
Nature of the Sample
The goal of a good sampling plan is to obtain a sample representative of the targeted population. The following information summarizes the sampling frame used to describe the population of interest in the studies reviewed.

- 33 (34%) studies used Part of a state as the sample and included descriptors such as a school district, county, or region in a state.
- 24 (25%) studies used an Entire state as the sample.
- 19 (19%) studies used a School or program level as the sample.
- 10 (10%) used a National sample.
- 7 (7%) used some “Other” sample or had Missing data for this question.
- 5 (5%) of the publications utilized a Multiple state sample.

Predictor Variables
Demographic characteristics/variables were reported in 83 of the 98 (84.7%) publications. Typically multiple demographic characteristics were reported. It must be noted that in most studies the sample sizes were not large enough to use these predictor variables with confidence in measuring differences in post-school outcomes within sub-populations (e.g., disability type). The most commonly used variables are reported below.

- 64 (77.1%) studies used Disability type as a demographic variable.
- 36 (43.3%) studies used Sex as a demographic variable.
- 14 (16.9%) studies used Race/ethnicity as a demographic variable.
- 12 (14.5%) studies used Geographic location as a demographic variable.
- 12 (14.5%) studies used Dropout/early leaver status as a demographic variable.

Transition program service variables were also used as predictor variables in some studies. These variables related to the type of program and/or services individuals received while in high school. Program service predictors were used in 42 of the 98 (42.9%) studies. The most commonly used transition program service predictors are reported below.

- 17 (17%) studies used Vocational training, coursework, or exploration as a transition program service predictor.
- 16 (16%) studies used Competitive employment while in high school as a transition program service predictor.
- 10 (10%) studies used Other (e.g., educational placement, hours in special education, services received in high school, transition planning instituted beginning in 1990, level of service, used community resources, autonomy, peer influence) as a transition program service predictor.
- 9 (9%) studies used Type of program or classes in high school as a transition program service predictor.
- 6 (6%) of the publications used Completion document as a transition program service predictor.
Post-School Outcomes
Measures for post-school outcomes were classified typically by the transition domains: employment, post-secondary education, and independent/quality of life. Figure 2 presents the percent of studies reporting outcomes in each of these broad transition domains. Operational definitions for each transition domain were diverse. No consistent definitions of the three constructs were identified; therefore, we provide no summary of the operational definitions. Overall, employment outcomes were measured in almost all studies (94%), followed by post-secondary education outcomes (69%), and then independent living outcomes (64%). A summary of the types of variables for each broad transition domain is given below.

Employment Outcomes
Across the studies, multiple variables were used to measure the employment status of youth with disabilities. Ninety-two of the 98 articles used some type of employment-related measure. Employment outcome indicators were categorized around the following seven employment-related categories:

- **Income earned or other financial questions**, (e.g., earnings reported by yearly, quarterly, monthly, weekly, hourly, and piece rate);
- **Type or kind of jobs held**, (e.g., competitive, sheltered, retail, food services, etc.);
- **Employment status**, (e.g., paid/unpaid, engaged/unengaged, volunteer services, and unemployment status);
- **Number of hours worked**, (e.g., full- or part-time, and seasonal);
- **Types of Benefits**, (e.g., vacation, retirement, sick leave, and major medical/dental insurance);
- **Job stability**, (e.g., length of time on job, number of jobs, advancements, fired, laid off, and quit);
- **Other or miscellaneous**, (e.g., job satisfaction, military, and how a job was obtained, etc.).

Post-Secondary Education Outcomes
Again, multiple variables were used to measure post-secondary education status of youth with disabilities. Sixty-eight of the 98 studies used some type of post-secondary education measure. Post-secondary indicators were categorized around the following post-secondary education-related categories:
• **Kind of institutions** attended, (e.g., 2- and 4-year institutes, vocational/trade schools, community colleges, and all public institutes of higher education);
• **Enrollment rates**, (e.g., engagement, years attended, and training);
• **Degree/certificate completion rates** (e.g., type degrees sought, and field of study);
• **Other**, (e.g., completion of GED, types of classes taken, and enrolled, but did not pass any classes, etc.).

**Independent Living Outcomes**
Sixty-three of 98 studies used some type of independent living or quality of life measure. Independent living outcome indicators were categorized around the following broad categories:

• **Living status**, (e.g., on own, roommates, family, supervised living, military, dorm, etc.);
• **Community involvement**, (e.g., voting, transportation, etc.);
• **Social relationships**, (e.g., leisure activities);
• **Assistance**, (e.g., public assistance, accessing services, and services received);
• **Finances**, (e.g., ability to pay bills, family income, etc.);
• **Other**, (e.g., legal issues, family status, and satisfaction).

**Lessons Learned**
In summary, lessons learned from this literature review will be targeted to methodological considerations relevant to SEAs as they develop a post-school outcomes data collection system. Data garnered from the data collection systems can then be used to programmatically improve services for youth with disabilities as they transition into adulthood, thereby improving life outcomes for this population. The following are several themes that SEAs may consider when developing their post-school outcomes data collection system.

**Survey Methodology versus Extant Data**
Survey methodology, not the use of extant data, dominated how data were collected in the extant literature. Researchers may have made this decision due to the lack of access to extant data sources on individuals with disabilities. For example, researchers may not have had access to unique student identifiers that could link extant data sources post-exit (e.g., the employment division). That being said, almost 25% of the studies were able to combine a data collection system with some type of extant data. SEAs may want to explore further, or create opportunities, to combine these two methods for reporting post-school outcomes data. For example, can unique identifiers be established for SEAs to link post-school outcomes data of Indicator 14 with Indicators 1 (high school completion), 2 (drop-outs), and 13 (transition goals) data? By linking these data, analyses can be conducted to link in-school transition related programmatic services to performance on post-school outcomes.
In reviewing studies that used survey methodology, interviewing—either face-to-face or by telephone—was the most frequently used survey method with former students. While this method has been attributed to higher response rates and greater accuracy of information, this method of data collection is also resource intensive. Furthermore, based on the time frame of the studies completed (1975-2005), web-based survey technology was not a method of data collection used in the studies reviewed. With these things in mind, SEAs will have multiple options from which to choose when determining the most appropriate method of data collection for them. Decisions must be made based on the benefits versus the costs of each method of data collection.

Static Demographic and Programmatic Variables
In the studies reviewed, demographic variables were commonly reported as aggregates within the sample. For example, a researcher may have collapsed several disability types into a single larger category as opposed to summarizing every disability type. In these studies the sample sizes often were not large enough to examine sub-sample populations with statistical confidence, especially for low incidence disability categories, thus the reason for aggregating the sample. Additionally, in the studies reviewed, programmatic variables were used less often than demographic variables, but when programmatic variables were collected, analyses, at times, were completed to examine if high school services were predictive of specific post-school outcomes.

The purpose for SEA’s use of demographic data is twofold: First, demographic data, can be used to determine the representativeness of the sample to the population; and second, to identify the student group for whom a given program is most, and least, effective. SEAs have been charged with reporting demographic information relevant to disaggregated samples based on disability type, sex, and race/ethnicity. It will be important for states to collect the demographic information recommended by OSEP and then make careful decisions regarding how to collapse these demographic variables for reporting purposes.

Based on the use of both demographic (sex, ethnicity, disability type) and programmatic (vocational services, completion document, etc.) predictor variables in the reviewed studies, these variables may also be used by SEAs to examine program efficacy. SEAs may be constrained by small sub-sample sizes specifically for demographic variables not prevalent in their states (e.g., low incidence disability types, race/ethnicity). However, even with a constrained sample size, effective analyses strategies to examine post-school outcomes demonstrated by demographic variables will be important to assess the efficacy of services provided to various sub-populations. Moreover, as noted before, linking post-school outcomes with the in-school programs will be a challenge for SEAs and will require their further investigation. SEAs may want to explore strategies for the use of a unique student identifier that can transfer to post-school outcomes data collection or use of extant data.

Post-School Outcomes
Post-school outcomes in the studies reviewed were measured across the three broad transition domains: (a) employment, (b) post-secondary education, and (c)
independent living/quality of life. All three measures were defined in a variety of ways without revealing a central operational definition. Often multiple measures within each domain were used to further explore the outcomes of the sample in that domain (e.g., employed, type of job, length of time on job, benefits, etc.). Employment-related variables represented the most frequently reported transition domain measured across these studies, with almost two-thirds of studies also including post-secondary education and independent living outcomes.

Although a combination of competitive employment and post-secondary enrollment is the minimum reporting requirement by SEAs to OSEP, SEAs may find it useful to collect other types of post-school outcomes data to further examine how former students fare in adulthood. For example, independent living/quality of life measures, while not a reporting requirement for states, reveal much about the status of former students with low incidence disabilities. It is possible that the post-school outcomes for former students with moderate and severe disabilities only would be captured with the inclusion of this indicator category. Additionally, SEAs may find it useful to explore operational definitions used by partner agencies (e.g., vocational rehabilitation) within their state to determine a definition that will be meaningful across multiple agencies. For example, a common definition of full-time employment, defined as at least 35 hours per week, would be especially useful when accessing extant data from the State Employment Departments for the purpose of reporting post-school outcomes data.

Summary
The purpose of this literature review is to identify the methodologies used to gather post-school outcomes for individuals with disabilities relevant to employment, post-secondary education, and independent living. To that end, the literature review can only offer guidance to SEAs for “collecting data on secondary, transition, and postsecondary school outcomes for youth with disabilities” (Federal Register, June 4, 2004, p. 31592). It is up to State Departments of Education, as they embark on the task of collecting, analyzing, reporting, and using post-school outcomes data, to examine the optimal practices in light of their resources and decide what information will be most beneficial to them as they develop their data collection and reporting system. It is our hope that the recommendations from our literature review will be considered when making decisions for methods of data collection, choice of measures, analyses, and use of post-school outcomes data.
REFERENCE


NPSO Literature Review Bibliography


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