

Why Create a Longitudinal Data System?

Understanding the characteristics of the adult education students you serve is key to providing them with effective instruction and services. This requires a data system that can help you answer important questions about these students. For example, can your current data system answer the following questions about adult education students in your state?

- ◆ What is the relationship between intensity of instruction, length of time in adult education, and educational gain?
- ◆ How long do students typically stay in adult education?
- ◆ For students who withdraw from adult education programs, how many re-enroll and how long is the gap between withdrawal and re-enrollment?
- ◆ What characteristics (e.g., age, educational functioning level at entry, program type) distinguish students who stay 1 year or more from those who stay for shorter periods?

A quality longitudinal data system can answer these questions as well as others.



The Benefits of a Longitudinal Data System

This NRS Tips describes some of the benefits of and elements necessary to create a quality longitudinal data system. A longitudinal data system follows students over time. Another NRS Tips (*Setting Up an NRS Data System*) describes more general requirements for a data system, including how to ensure data quality, validity, and reliability.

NRS requires states each year to provide the U.S. Department of Education with data on the past program year (July 1 to June 30). As a result, many states organize and manage their data systems to meet this annual reporting requirement. Meeting NRS requirements, however, does not preclude states designing a system that also provides longitudinal analysis.

Restructuring a data system to facilitate longitudinal analysis may entail higher initial costs, but the benefits are numerous. A longitudinal analysis provides a more accurate and dynamic picture of the adult education population than a single point in time analysis. Analyzing data over time highlights changes from 1 year to the next. For instance, it can shine a light on students who remain for multiple years and the characteristics that distinguish them from those who stay for shorter periods.

Longitudinal analysis also more accurately captures students' educational gain. It allows states to trace educational gain and other characteristics of students regardless of when they enter or leave adult education or how long they stay. This system will also allow states to explore the relationship between instructional variables and educational gain and other outcomes.

Creating a Longitudinal Database

Below are seven tips for creating a quality longitudinal database:

- ✓ **Create a relational database with a unique ID for every student.** Every student in the database should have a unique ID that links to his or her relevant information, while preserving student privacy. This facilitates reorganizing and reanalyzing data from different perspectives and answering unanticipated questions.
- ✓ **Collect all data that you need initially and that you anticipate needing.** Changes in data coding, contents, or structure make finding or calculating measures consistently across years difficult. In addition, making changes after the initial creation of the system tends to be more costly.
- ✓ **Include students' pre- and posttest scale scores.** Clearly indicate the subject area and date of test to facilitate calculating educational gain.
- ✓ **Include dates for all time dependent events, such as entering a program, testing, and goal achievement.** This helps distinguish similar events that occur at different times. One method for doing this is to electronically date stamp records automatically.
- ✓ **Clearly and completely document the variables in your database.** This facilitates consistent treatment and interpretation of variables over time and by different people.
- ✓ **Clearly distinguish between missing data and a negative response.** Designating negative responses with a value (e.g., no = 0) rather than leaving them blank makes it easier to distinguish between a true negative response and missing data.
- ✓ **Create mechanisms to export data by a range of dates.** This aids in analyzing the data over various periods.



Additional Resources

Although the resources below are targeted to a K–12 audience, they contain information relevant to an adult education audience.

Data Quality Campaign (<http://www.dataqualitycampaign.org>). This campaign encourages and supports the creation and use of quality longitudinal data systems. Two documents on its Web site that might be of special interest are *Creating a Longitudinal Data System* and *Measuring What Matters: Creating a Longitudinal Data System to Improve Student Achievement*.

ECS: A Policymaker's Guide to the Value of Longitudinal Student Data (<http://www.ecs.org/clearinghouse/40/21/4021.htm>). This brief overview, directed at policymakers, describes the uses, benefits, and challenges of a longitudinal data system.

A Better Student Data System for California (http://www-stat.stanford.edu/~rag/ed351/better_data.pdf). This document discusses a longitudinal data system in the context of the state of California.

The **National Reporting System (NRS)** is the accountability system for the federally funded, state-administered adult education program. It addresses the accountability requirements of the Adult Education and Family Literacy Act, Title II of the Workforce Investment Act (WIA-P.L. 105-220).

NRS Tips is a quick reference tool for state staff, program directors, and adult education teachers. NRS Tips are written and produced by the staff at the **American Institutes for Research (AIR)**, a nonprofit research and policy organization (see <http://www.air.org>), under contract with the **Division of Adult Educational and Literacy (DAEL)** of the **U.S. Department of Education**.

Visit <http://www.nrsweb.org> for more information. Do you have an idea for NRS Tips? Send it to nrs@air.org.