

**Reference Desk Response No. 186:
Comprehensive Data Systems**

Description of Request:

The requestor would like information on “model data systems, basic requirements and structures for comprehensive data systems, best practices for developing a data system and getting various entities on board” and so on. According to the requestor, a “comprehensive data system for the territory” is a current initiative of the USVI Governor and the First Lady. This data system “will allow USVI to handle data in a comprehensive way, to identify key data that is compiled by several entities—education, social services, health, etc—and to make it readily available for planning and assessment in areas such as early childhood intervention, population trends, etc.”

Question:

1. Are there existing data systems that serve as a good model for other states or districts?
 2. What are the basic requirements and structures for comprehensive data systems?
 3. What are the best practices for developing a data system and getting various entities on board?
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Report:

Following an established REL-NEI Reference Desk research protocol, we conducted a search for research reports as well as descriptive and policy-oriented briefs and articles in this area. The sources included federally funded organizations, additional research institutions, several educational research databases, and a general Internet search using Google and other search engines. We also searched for appropriate organizations that may act as resources on this issue. We have not done an evaluation of these organizations or the resources themselves, but offer this list to you for your information only.

Our Researchers have found that several states and local governments are implementing or have implemented comprehensive & longitudinal educational data systems that involve collaboration among multiple educational agencies and serve the purpose of tracking students from preschool through college (Krueger, 2006; L’Orange, 2003; Data Quality Campaign, 2008; see resources below). One state’s model, the Colorado Growth Model, is currently being implemented as a pilot in 17 other states (Colorado Department of Education, 2009; see resource below). However, far fewer states and local governments are involved in implementing data systems to link educational data to social service data, health data, and so on. One resource we found specially addresses the topic of linking education data systems to social service data systems. This resource gives three examples of jurisdictions that are doing just that (Smith et.al, 2007; see resource below).

Questions:

1. Are there existing data systems that serve as a good model for other states or districts?

1.1. P-16 Collaboration in the States. *Krueger, Carl; June 2006; Education Commission of the States; 19p.*

Source: Education Commission of the States

(<http://www.ecs.org/clearinghouse/69/26/6926.pdf>)

“Policymakers in the states are increasingly looking for ways to raise student achievement in kindergarten through high school, and improve college access and success. To do this, states and local communities are trying to create an integrated system of education in which all levels of

education – pre-kindergarten through college – coordinate, communicate and educate as one system instead of several. These efforts have been named most commonly K-16, P-16 and P-20...Regardless of the type of system a state or local community chooses, it is important to note that the goal is the same: to create system of education which begins in early childhood and ends after college that promotes access, standards, accountability and life-long learning...Currently, 30 states are engaged in some kind of P-16 activity.” This resource provides a snapshot of the 30 states that are involved in a P-16 data system.

1.2. Data Quality Campaign Announces 3-Year Progress. *November 2008; Data Quality Campaign; 6p.*

Source: Data Quality Campaign

(http://www.dataqualitycampaign.org/files/news-dqc_marks_3_years-111508.pdf)

According to this resource, states are making “impressive gains in building longitudinal education data systems” and six states “have all 10 elements of a comprehensive data system that can track student progress from preschool through college...” These six states are: Alabama, Arkansas, Delaware, Florida, Louisiana, and Utah. In Arkansas, “the information the state provides can help shape...decisions to ensure every student leaves high school prepared for the challenges of our increasingly demanding economy...”

1.3. Focus on P-16 Partnerships. *L'Orange, Hans P.; August 2003; Network News, v22 n1; 9p.; ED482114*

Source: ERIC, abstract only

(http://www.eric.ed.gov/ERICWebPortal/Home.portal?_nfpb=true&ERICExtSearch_SearchValue_0=ED482114&searchtype=keyword&ERICExtSearch_SearchType_0=no&_pageLabel=RecordDetails&accno=ED482114&_nfls=false)

“This issue of "Network News" takes a look at emerging P-16/K-16 partnerships and data systems. The first article, "P-16 Data and Accountability Systems," by Hans L'Orange and Rick Voorhees (an adaptation of a policy brief) looks at data being used for accountability within P-16 systems and provides some general characteristics of these systems. The article also offers a closer look at data systems in both the K-12 and postsecondary environments. The next article, "Partnerships and Promising State Practices," looks at three promising state programs in this area, discussing: (1) the large data repository of Texas; (2) Florida's education data warehouse; and (3) the importance of K-16 partnerships in development areas in Maryland. An introduction is then provided to the State Higher Education Executive Officers (SHEEO) project "Building Statewide K-16 Systems for Student Success." The issue concludes with a few recommended resources in this area...”

1.4. U.S. Department of Education Approves Use of The Colorado Growth Model In NCLB Pilot. *January 8, 2009; Colorado Department of Education-Communications Office; 3p.*

Source: Colorado Department of Education, found using general internet search

(<http://www.cde.state.co.us/communications/download/PDF/20090108growthmodel.pdf>)

“U.S. Secretary of Education Margaret Spellings today announced approval of the Colorado Growth Model as part of a pilot measuring adequate yearly progress (AYP) under the federal No Child Left Behind (NCLB) school accountability system...Fifteen states have now been approved for the pilot since 2006... Minnesota, Pennsylvania and Texas were also approved today...The Colorado Growth Model provides a common understanding of how individual students and groups of students progress from year to year toward state standards based on where each individual student begins. The model focuses attention on maximizing student progress over time and reveals where, and among which students, the strongest growth is happening and where it is not.”

2. What are the basic requirements and structures for comprehensive data systems?

2.1. Creating a Longitudinal Data System: Using Data to Improve Student Achievement. *2006; Data Quality Campaign; 24p.*

Source: Data Quality Campaign

(http://www.dataqualitycampaign.org/files/Publications-Creating_Longitudinal_Data_System.pdf)

This resource identifies the 10 essential elements of a longitudinal data system. They include: “1. A unique statewide student identifier. 2. Student-level enrollment, demographic and program participation information. 3. The ability to match individual students’ test records year to 3. The

ability to match individual students' test records from year to year to measure academic growth. 4. Information on untested students. 5. A teacher identifier system with the ability to match teachers to students. 6. Student-level transcript information, including information on courses completed and grades earned. 7. Student-level college readiness test scores. 8. Student-level graduation and dropout data. 9. The ability to match student records between the P-12 and postsecondary systems. 10. A state data audit system assessing data quality, validity and reliability." The resource goes on to describe each of these elements in detail. It also recommends fundamentals for constructing a longitudinal data system, including privacy protection, data architecture, data warehousing, interoperability, portability, professional development around data processes and use, and researcher access. Lastly, the resource addresses the "future directions of state data systems."

2.2. How Can My State Benefit from an Educational Data Warehouse? *Bergner, Terry and Smith, Nancy J.; September 2007; Data Quality Campaign; 8p.*

Source: Data Quality Campaign

(http://www.dataqualitycampaign.org/files/Publications-State_Benefits_from_Data_Warehouse-090107.pdf)

This policy brief details "what an educational data warehouse is; the benefits of developing and using a data warehouse; and design and implementation recommendations from leading states." Three states that provide recommendations are Delaware, Maryland, and Wyoming, selected "because of the varying ages of their data warehouses and their history of data collection and use." There are 11 recommendations in all, such as "Include stakeholders/users of the data in the planning process," "Address security issues up front" and "Create and implement training and professional development."

3. What are the best practices for developing a data system and getting various entities on board?

3.1. Linking Education and Social Services Data To Improve Child Welfare. *Smith, Susan, Staub, Deborah, Myslewicz, Mary, and Laird, Elizabeth; October 2007; Data Quality Campaign; 16p.*

Source: Data Quality Campaign

(http://www.dataqualitycampaign.org/files/meetings-dqc_quarterly_issue_brief_091807.pdf)

"Multiple agencies, including child welfare, juvenile justice, higher education and employment services, seek to improve child outcomes, but they often pursue these goals in isolation, with little information and few data systems bridging these supportive service systems. For a variety of reasons, including actual or perceived barriers under state and federal privacy laws, agencies often are reluctant to share information needed to improve educational outcomes. Although social services often target the neediest students, creating linkages between education and social services will give decisionmakers appropriate access to the comprehensive information needed to improve the educational outcomes and welfare of every student." This brief includes "next-generation issues for states to consider immediately; political and technical issues related to creating linkages within and across public agencies; issues of student confidentiality" and "further reports and resources on creating critical linkages to improve overall child welfare." It also provides examples of three jurisdictions that are "creating linkages between education and social services" including the Florida Department of Education, the San Diego County Office of Education, and the Utah Department of Human Services.

3.2. The Right Data to the Right People at the Right Time: How Interoperable Data Help America's Students Succeed. *Collins, Laurie, Fruth, Larry, Sessa, Michael, and Laird, Elizabeth; June 2007; Data Quality Campaign; 12p.*

Source: Data Quality Campaign

(http://www.dataqualitycampaign.org/files/Meetings-DQC_Quarterly_Issue_Brief_061307.pdf)

"Many education data systems are not able to share information due to incompatibilities in technology and lack of human capacity, which together inhibit the quantity and quality of longitudinal data. Fortunately, interoperable systems, defined as an environment in which diverse data systems seamlessly exchange information with little or no additional effort, are becoming more prevalent." This policy brief addresses how interoperability "improves data-based decisionmaking," "the current status of interoperability in education," and "case studies on entities at all levels that are building and leveraging interoperable data systems..." Case studies include

the Naperville (IL) Community Unit School District 203, the Virginia Department of Education, and the Indiana Commission for Higher Education.

3.3. Student Follow-Up Using Automated Record Linkage Techniques: Lessons from Florida's Education and Training Placement Information Program (FETPIP). *Pfeiffer, Jay J.; May 1994; Florida Department of Education; 22p.*

Source: Data Quality Campaign

(http://www.dataqualitycampaign.org/files/publications-florida_education_and_training_placement_information_program-050194.pdf)

“Florida’s Education and Training Placement Information Program (FETPIP) is a statewide system linking the administrative databases of certain state and federal agencies to collect follow-up data on former students or program participants. The databases...include those of the Florida Department of Corrections; Florida Department of Education...; U.S. Department of Defense; U.S. Office of Personnel Management; U.S. Postal Service; Florida Department of Administration; and Florida Department of Labor and Employment Security. FETPIP provides follow-up services to 75 programs and organizations on more than 1.8 million former students, participants, ex-convicts and trainees. This article provides guidance to states who may be considering similar programs in the areas of: (1) collecting data by computer matching; (2) recognizing the ownership of individual data; (3) taking the initial steps (i.e., determine interest and receptivity, determine conditions under which administrative records can be linked, review wage record and student/participant record structure and content, involved the agency responsible for administering the state’s unemployment insurance program, and determine who does what); (4) developing interagency agreements; and (6) cultivating ideas for the future direction of the system.”

Additional Organizations to Consult

- **Data Quality Campaign**

(<http://www.dataqualitycampaign.org/>)

“The Data Quality Campaign (DQC) is a national, collaborative effort to encourage and support state policymakers to improve the availability and use of high-quality education data to improve student achievement. The campaign will provide tools and resources that will help states implement and use longitudinal data systems, while providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focused on improving data quality, access and use.”

Key words and search strings used in the search:

“comprehensive data system” OR “comprehensive data warehouse” OR “statewide data system” OR “integrated data system”

Search databases and websites:

Sources For Rigorous Research Reports: Regional Educational Laboratory Program (REL); What Works Clearinghouse (WWC); Doing What Works (DWW); National Center for Education Statistics (NCES); Institute for Education Sciences (IES); The Campbell Collaboration; Data Quality Campaign; IES Practice Guides. The Assessment and Accountability Comprehensive Center; The Center on Innovation and Improvement; Common Core of Data (CCD); Center for Data-Driven Reform in Education (CDDRE); National Center for Research on Early Childhood Education; National Center for Research on Evaluation, Standards, and Student Testing; Access Center for Improving Outcomes for All Students K-8; Education Commission of the States; Regional Comprehensive Centers; Equity Centers; Regional Resource Centers

Additional Data Resources: Education Development Center; WestEd; American Institutes for Research; The Education Trust; SRI International; ERIC; EBSCO Databases; Education Index Retrospective; FirstSearch (OCLC); ProQuest; Educator’s Reference Complete; HeinOnline; Education Daily; Government Executive; <http://www.google.com>; <http://www.gogolescholar.com>; general internet search

REL Northeast and Islands

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