

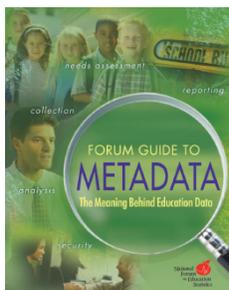
Appendix B

National Forum on Education Statistics

Best Practice Resources

The Forum is sponsored by the National Center for Education Statistics of the U.S. Department of Education and is committed to improving the quality, comparability, and usefulness of elementary and secondary education data, while remaining sensitive to data burden concerns. Forum members include representatives from state education agencies, local education agencies, the federal government, and other organizations with an interest in education data. Our purpose is to plan, recommend, and implement strategies for building an education data system that will support local, state, and national efforts to improve public and private education throughout the United States. Find out more about the Forum at:

<http://nces.ed.gov/forum/index.asp>



Forum Guide to Metadata: The Meaning Behind Education Data



http://nces.ed.gov/forum/pub_2009508.asp

In the complex world of education data, answers to even apparently straightforward questions often depend on highly complicated and technical data. Take, for example, the “simple” question, *How many eighth grade English teachers are in your schools?* On one end of the spectrum, there may not be any full-time certified English teachers teaching an English class to only eighth-grade students in the single middle school in the district this semester. At the same time, 50 or more full- or part-time teachers may be leading reading, writing, or language classes with at least one eighth-grade student at some point during the academic year. Clearly, the “right” answer depends on the context of the question and the data being used to answer it—and metadata provide that context.

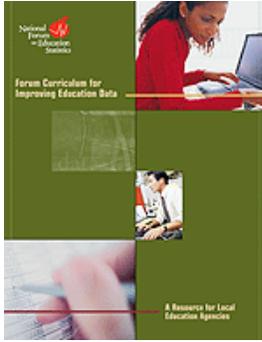
Metadata are defined as “data about data.” A well-managed metadata system ensures that the definitions, parameters, usage instructions, and history of each element are maintained in an accurate and up-to-date manner. Additionally, metadata are essential for bridging programs and databases because they provide the framework for data exchange and communication within and between organizations.

Metadata systems may not have been necessary when data sets were relatively small and simply organized. Under these circumstances, data were usually used by only a handful of people who were intimately familiar with each data element’s definition, source, uses, limitations, and technical characteristics. But the education enterprise has grown in complexity over the past decades, resulting in the seemingly exponential growth of information collected, stored, managed, used, and reported. In the field of education, as with other industries, metadata have become a necessary component of sound data systems.

The purpose of this guide is to empower people to more effectively use data as information. To accomplish this, the publication explains what metadata are; why metadata are critical to the development of sound education data systems; what components comprise a metadata system; what value metadata bring to data management and use; and how to implement and use a metadata system in an education organization. The primary audiences for this guide include technology, program, policymaking, administrative, and data staff in state and local education agencies. It may also be useful to other education stakeholders, including anyone engaged in operations or decisionmaking that depend on accurate, reliable, and timely information.

This publication is available electronically at http://nces.ed.gov/forum/pub_2009508.asp. Instructions for ordering print copies are also available on the National Forum on Education Statistics website.

The *Forum Guide to Metadata: The Meaning Behind Education Data* is a product of the National Forum on Education Statistics. The project was sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education, under the auspices of the National Cooperative Education Statistics System. For more information about the National Forum on Education Statistics, visit <http://nces.ed.gov/forum>.



Forum Curriculum for Improving Education Data: A Resource for Local Education Agencies

http://nces.ed.gov/forum/pub_2007808.asp



This publication is a curriculum designed to support the training of K-12 school and district staff about the issues associated with the production of high-quality education data. It provides informational resources that can be used to prepare instructors to guide lessons and workshops and includes lesson plans, instructional handouts, and resource materials.

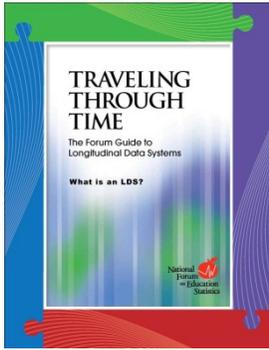
The goal of the curriculum is to present the concepts necessary to help schools develop a culture for improving the quality of their data and to provide opportunities for participants in training sessions to practice some of the skills required for such an effort. Many of the instructional activities and resource materials are designed to enable participants to take an informed lead in the discussions and planning needed to encourage such a culture in their districts and schools.

The *Forum Curriculum for Improving Education Data: A Resource for Local Education Agencies* is divided into two main sections:

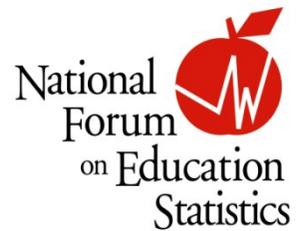
- Part I, “Foundational Data Improvement Lessons,” introduces key concepts in the production of a culture of quality data. It is geared towards all Local Education Agency (LEA) staff members who affect the production of quality data, including board members, superintendents, principals, data coordinators/stewards, teachers, technology support staff, and office staff.
- Part II, “Data Steward/Coordinator Lessons,” is intended specifically for those staff members responsible for overseeing the quality of an LEA’s data. It provides detailed information about the responsibilities of a Data Steward or Coordinator as well as opportunities for LEA staff to plan quality data initiatives for their agencies and to produce materials and documents to support those initiatives.

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Traveling Through Time: The Forum Guide to Longitudinal Data Systems, Book One: What is an LDS?



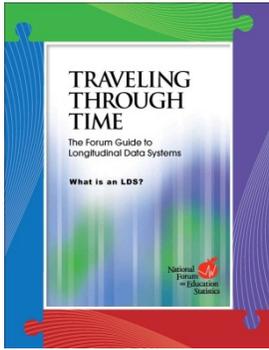
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By facilitating the collection and use of detailed, high quality student- and staff- level data linked over time, longitudinal data systems (LDSs) hold promise for enhancing both the way education agencies use data to serve students and the way they do business, from the policy level to the school office and into the classroom. The *Traveling Through Time: The Forum Guide to Longitudinal Data Systems* series is intended to help state and local education agencies meet the many challenges involved in building robust LDSs, populating them with quality data, and using this new information to improve the education system. With special emphasis on the business-level perspective, this document explores a broad range of issues involved in establishing a successful LDS.

Book One of Four: What is an LDS? is a primer on LDSs, which focuses on the fundamental questions of what an LDS is, what steps should be taken to achieve a sound system, what components make up an ideal system, and why such a system is of value in education. This first book in the guide series focuses on the fundamental questions of what an LDS is (and what it is not), what steps should be taken to achieve a sound system, what components make up an ideal system, and why such a system is of value in education.

Chapter 1 introduces this guide series, discussing its purpose, format, and intended audience. Chapter 2 covers some LDS basics, defining the concept of a "longitudinal data system" and laying out key nontechnical steps to planning and developing a successful system. Chapter 3 presents the technical components that generally comprise an LDS, as well as some additional features that may enhance the system. Chapter 4 addresses some common misconceptions regarding longitudinal data systems. Chapter 5 discusses the overarching benefits of an LDS. Subsequent books in the series will address LDS planning and development, and the effective management and use of longitudinal data.

The *Traveling Through Time: The Forum Guide to Longitudinal Data Systems* series is a product of the National Forum on Education Statistics. The first book in the series was released in July 2010, with the three subsequent books to be released in sequence through the remainder of 2010. The project is sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education, under the auspices of the National Cooperative Education Statistics System. For more information about the National Forum on Education Statistics, visit <http://nces.ed.gov/forum>.



**Traveling Through Time:
The Forum Guide to Longitudinal
Data Systems, Book Two:
Planning and Developing and LDS**

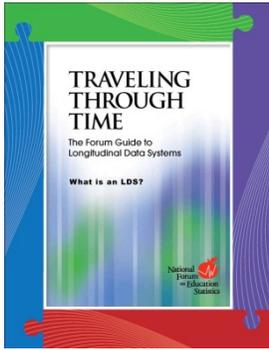


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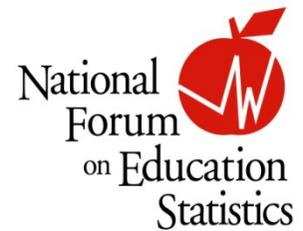
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Book Two of Four: Planning and Developing an LDS delves into the planning, implementation, and evaluation phases of an LDS project. Chapters 1 & 2 introduce the information and systems development life cycles, which are helpful concepts when developing any data system. Chapter 3 discusses the people and processes that characterize effective project management of an LDS development effort. Chapter 4 provides guidance on engaging stakeholders to define the organization's LDS vision, while chapter 5 discusses the critical relationship between the state education agency (SEA) and districts, and offers best practices on how to strengthen these ties. Chapter 6 discusses the self-assessment phase of the effort, during which an agency should identify its current system and functionalities, and chapter 7 presents the concept of "enterprise architecture," which is a helpful framework for planning and evaluating the agency's current and desired data systems. Chapter 8 discusses the needs-assessment phase, during which an agency should define its desired system based on stakeholder requirements, and chapter 9 addresses how to identify the data elements that need to be collected to meet stakeholders' information needs. Chapter 10 covers the important issues of interoperability and portability. Chapter 11 discusses strategies for gaining sustained support for the system, and chapter 12 addresses the need for, and approaches to, promoting the LDS and gaining grassroots support. Chapter 13 discusses the choice between building an LDS in-house and hiring a vendor, addressing some of the pros and cons of each approach. Chapter 14 provides an introduction to effective request-for-proposal (RFP) writing. Chapter 15 addresses system evaluation, during which an agency assesses the "success" of the system based on many criteria.

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**Traveling Through Time:
The Forum Guide to Longitudinal
Data Systems, Book Three:
Effectively Managing LDS Data**



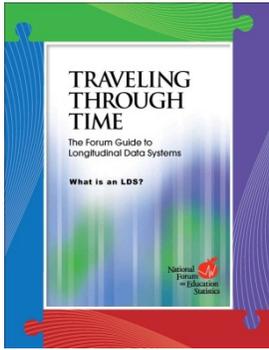
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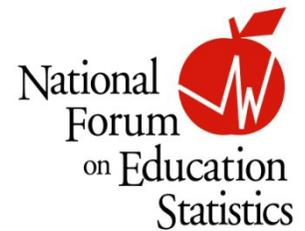
Book Three of Four: Effectively Managing LDS Data discusses organizational issues aimed at moving an LDS project forward and ensuring that the data are of high quality so that users may leverage them with confidence for data-driven decisionmaking. The book's main focus is data governance, for which a practical framework is provided to help education agencies establish a solid foundation for data management and system utilization.

Chapter 1 explains the purpose of book three and describes the conventions used throughout the series. Chapter 2 introduces the concept of data governance, and discusses the benefits of this structure and process for data management. Chapter 3 presents a number of basic steps to establishing effective data governance and chapter 4 describes the key groups and individual roles that may comprise an education agency's data governance structure. Chapter 5 defines "quality" data. Chapter 6 discusses the various organizational processes that facilitate the creation and maintenance of quality data. Chapter 7 discusses the value of data standards, and describes the major sources of such standards. Chapter 8 provides a basic overview of issues and relevant laws regarding the protection of student data. Finally, chapter 9 addresses the need to secure the LDS data to prevent unauthorized access and tampering.

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**Traveling Through Time:
The Forum Guide to Longitudinal
Data Systems, Book Four:
Advanced LDS Usage**



http://nces.ed.gov/forum/pub_2010805.asp

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Book Four of Four: Advanced LDS Usage discusses issues important to the effective use of longitudinal data. The book's focus is on turning student-level longitudinal data into actionable information at all levels of the education system.

Chapter 1 provides a historical look at data use, comparing what was done in the past with what is possible today thanks to detailed longitudinal data. Chapter 2 discusses preconditions necessary for effective data use, including ensuring that users have easy access to, and an understanding of, high quality data; as well as strong leadership and organizational support. Chapter 3 summarizes the many uses of longitudinal data, as well as the ways different stakeholders can access and leverage the information. Chapter 4 presents tips on implementing effective training and professional development programs on the use of longitudinal data. Chapter 5 concludes the overview of longitudinal data use with information on the future of LDS development and use. Throughout the book, case studies provide real-world examples of effective uses of LDSs. Appendices review the entire series, and provide information on additional resources.

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