Forum Data Model Task Force
Product Development and Dissemination Plan
8/4/2006

National Forum on Education Statistics
Sponsored by the National Center for Education Statistics

Introduction

The Plan

This document is the *Product Development and Dissemination Plan* required by the National Forum on Education Statistics in order to create a task force. The task force is being sponsored by the Forum TECH standing committee. The plan will address among other things, rationale for the task force, timelines, deliverables, and expected outcomes for the task force.

After approval of this document, the *Product Development and Dissemination Plan* will continue to be used as a project planning tool and to communicate the goals and progress of the task force.

The proposal builds on previous work done by the Schools Interoperability Framework Association (SIFA) on behalf of the National Center for Educational Statistics (NCES) and delivered by way of the document: *A Comprehensive Pk12 Education Data Model (2005).*

Forum Data Model Task Force

Based on the information gathered in *A Comprehensive pK12 Education Data Model (2005)*, school and state personnel within the National Forum for Educational Statistics identified the need to initiate a new Forum Task Force named "Comprehensive Data Model Task Force".

This task force is different from other Forum task forces in the following ways:

- The task force will include vendors.
- The primary product of the task force will be a comprehensive conceptual and logical model for education data that cannot be adequately represented by a publication document. The primary product will be published as an online database tool.
- The task force will utilize subgroups formed on the basis of content and technical expertise. These subgroups may be supplemented with experts outside of the task force.

Focus of Work

The data model will focus on pk-12 data and will be aligned and synchronized with data standards such as the NCES Handbook, and others. However, the model may include data from other education levels such as higher education or early childhood education.

For example, the data model may include information tracking students from high school into college and the work force. This kind of information will be included because it is of interest to pk-12 information systems and will not represent the universe of data at those levels.

The data model will focus upon information to support decision making at the classroom level. It will include he most granular level of data required of data management systems in order to carry out the education mission. This may include but is not limited to:

- Demographics
- Person Characteristics
- Assessment Information
- Program Participation Information
- Competencies
- Standards
- Predicted Performance
- Outcomes
- School/District/State Characteristics

The data model will support systems that answer questions about:

- Student Progress Over Time
- Student Characteristics and Performance
- Program/Plan Performance
- Course of Study Effectiveness
- Teacher Characteristics and Performance
- School Characteristics and Performance
- LEA Characteristics and Performance
- State Characteristics and Performance
- Parents and the Community
- Operations of Classrooms, Schools and Districts

Scope of Work

1. A Comprehensive Education Data Model: A conceptual and a logical education data model that will first focus upon teaching, learning, and the business of schools districts. The model will take into account data elements, categories of data elements, the education process, definitions and semantics, as well as relationships among data elements.

2. A methodology for utilizing, maintaining and communicating the data model so that the data model will have maximum utility for stakeholders. This may include but is not limited to things such as:
    - Functionality that allows for generating diagrams of the grouping, object, element, and attribute level relationships.

- Leading users through a series of modules or step-by-step guides to building physical data models based on organizational needs.
- Present users with product lists, descriptions, and data model references so that users can identify applications that address different parts of the data model.
- Planning for maintaining the model.

Purpose and Rationale

Today, no comprehensive education data model exists to be used by schools and LEAs to build or guide the selection of instructional delivery systems, data driven decision making systems, operations systems, and reporting systems. Schools and LEAs could use such a model to communicate to vendors their requirements or to classify vendor offerings by the parts of the data model addressed by a particular product. This would allow schools and LEAs to "certify" education applications with respect to relevant parts of the data model and will enhance clarity in the marketplace for product offerings.

A comprehensive local education data model from an LEA perspective could also provide a national standard for schools to evaluate and improve instructional tools, to enhance the movement of student information from one LEA to another, and to inform instruction.

To date, the closest access to data models that schools and states have is in proprietary models developed by vendors and implemented in their software applications. With the majority of districts (more than 10,000) in the US having fewer than 2,500 students, many districts cannot afford these data solutions or they must make purchases which do not allow them to tailor their data utilization to the needs of their educational stakeholders. Most states and school districts cannot make the necessary financial investment or do not have the technical expertise to develop such comprehensive data models.

The next step is for a large-scale stakeholder engagement around the development of just such a model. This deliverable would not only facilitate local decision-making but also add to overall data quality by aligning data to be aggregated from source systems. It would produce the "cleanest" data available. It is critical that this engagement involve all relevant stakeholders in data utilization at the classroom, LEA, state and national levels. This includes educators, policy makers, researchers as well as consultants and vendors.

Target Audience

The target audiences for the comprehensive education data model include:

- School district (LEAs) and state technologists in educational organizations that are designing and planning information systems, data analysis, and decision support systems. This model will allow them to start from a baseline covering most of the needed areas. These technologists can then focus their attention on customization and detail particular to their educational environment. This will save them time and money.
- Educational administrators, Business managers and Technology Directors who are writing and evaluating Requests for Proposals (RFPs). Having a sample model laid out for them as an example to work from will help them to create more effective RFPs. It will also allow them to evaluate vendor responses more rigorously and actually get what they want.
- Vendors that help educational organizations build their data systems. The modules and models that will be included in the comprehensive education data model will allow the vendors to ensure their products serve the core needs of their clients so that the education organizations do not need to backtrack and do more work to cover basic requirements.
- Federal agencies looking for the most efficient and least burdensome way to implement data requirements.
- Policy makers at all levels.
- Researchers.

Target Education Levels:

Currently there are few widely used education data models available for use in schools and districts. However, the greatest need exists at the school and district levels.

- This data model will focus on detailed data at the classroom, school and district levels.

- Although some relevant data collected by other levels (such as higher education and other state and local agencies) will be included in the model, the focus of this model is pk-12.

Products

- A data model rendered in a web-accessible database (primary product). The database will provide search and display functionality. Other functionality will be provided, for example, the ability to choose an education-related question and

then view the data elements or parts of the data model needed to answer the question. The NCES handbooks will serve as a data dictionary for parts of the data model.
- A Forum Publication summarizing the content, capabilities, and usage of the data model.
- One or more PowerPoints overviews targeted to various audiences identified for use at conference presentations.
- A brochure to go to all the districts explaining the data model concept and the benefits to their district.
- Use case and business case templates for use in implementing the data model.
- Summaries from focus groups around identifying best practices by schools and teachers which will be incorporated into the model.

Distribution Mediums

Database
- Website

Forum Publication
- A PDF version will be posted to the Forum/NCES website.
- A print version will be available on request.

PowerPoint Overview
- The file will be posted to the Forum/NCES website.

Brochure
- A print version will be mailed to all districts.
- The file will be posted to the Forum/NCES website.

Use Case and Business Case Templates
- The file will be posted to the Forum/NCES website.

Dissemination Strategy

- Presentations at conferences.
- Emails to appropriate staff at schools and districts.
- Brochures to districts.
- Announcements to vendors at SIFA meetings.
- Articles in publications of organization such as eSchool News, ISTE, etc.

- Partnership activities with organizations such as ISTE, SIFA, etc. Product releases could be aligned with the meetings of these groups.
- Other dissemination strategies on a per state basis.

User Training

- Provide a workbook or worksheet to assist schools and districts in evaluating and extending their systems to conform to the data model framework. The workbook may include places for users to specify access control lists per element and business rules related to elements.
- Provide a description of what a data model is and how to use the data model to develop a local system or how to use the data model to choose a vendor product based upon the model. This could be used in conference presentations.
- Provide user guide content from the Forum Publication to Forum members as well as regional service centers.

Product Testing

- Domain experts review of documents and database. This may include partnerships with other associations and professional organizations.
- Public review of documents and database.
- Focus groups to validate and determine usability with the target audience.
- Review by individual members of the target audience.

Estimate of Product Distribution

- Since the primary product is a web-based database application there will be no associated reproduction expenses. However, there will be website and database maintenance expenses.
- 300 copies of the Forum Document. This assumes more can be generated as needed.
- 15,000 copies of the brochure to be mailed to districts.
- Other paper products will be provided on request.

Product Revision Schedule

Although the data model will be reviewed extensively before release, wider distribution is expected to generate public comment and suggestions. Furthermore, the number of content domains addressed by the data model should be extended over time in order to increase the usefulness and ubiquity of the model.

The data model should be updated on a yearly basis with a periodicity that is synchronized with Handbooks and EDEN. The releases should include release notes. Annually, a group will review the model and update it based upon feedback and legislation.

Resource Needs

Contractor support and associated development and management expenses will be required for the 24 months of work.

Product testing will require at least 2 conference focus groups for which travel expenses must be covered for a pair of presenters selected from task force co-leads, the contractor, or task force members.

There will be eight meetings of the task force over the 24 month period. Expenses associated with these meetings will need to be provided.

Travel expenses should be covered for the convening of a group of experts at least three times during the 24 months to review work products.

We will make contact with established professional organizations in order to recruit teacher, superintendent and other participants in focus groups related to specific content areas.

The yearly product revision and announcement will require additional resources.

Project Timelines

Year	Month	Deliverable or Milestone
	August	Summer deliverables finished. Subgroups complete one organizational meeting and one work session.
2006	September	Finish Conceptual Data Model Spine
	October	Data Model functional requirements complete.
	November	Data Model Architecture complete.

Year	Month	Deliverable or Milestone
	December	
2007	January	Task Force review of data model requirement and architecture.
	February	Beta version of Conceptual Data Model Winter Data Conference
	March	Document the education and business process that determine the information included in the models.
	April	Conceptual Data Model Version 1
	May	Logical Data Model Version 1
	June	Data Visualization Tool beta or version 1
	July	Summer Data Conference
	August	Use and Business Case Templates Complete
	September	Conceptual Model Version 2 including data definitions or tight integration with the handbooks.
	October	Logical Data Model Version 2
	November	
	December	Forum Document Complete Brochure complete
2008	January	Executive Summary and PowerPoint complete
	February	Winter Data Conference
	March	Data Visualization Tool Version 2
	April	
	May	Revised Executive Summary complete Revised PowerPoint complete Announcement
	June	Plan for ongoing maintenance.
	July	Summer Data Conference
	August	

Notes:

- Two to four additional face-to-face meetings, dates to be determined by the task force.
- Focus group meetings will be scheduled aligned to the association meeting opportunities.

Evaluation Methods

NCES could collect comments and forward to the contractor, who then forward to the task force.

Answers to the following questions:

- How many groups are using the model?
- In what ways is the model being used by institutions and vendors?
- Who is using the data model?

- A count of the number of hits to the website.
- Website survey questions.
- Annual review of the model by a review panel.
- Survey of vendors, associations, and institutions around the usefulness and impact of the data model.

Dissemination Coordinator

The workgroup has elected a Dissemination Coordinator. This person from the task force will be charged with maintaining a focus on product dissemination throughout the entire development process. This Dissemination Coordinator should scrutinize all development decisions in light of their impact on the *Product Development & Dissemination Plan*.

Glenn McClain has graciously accepted the position.