



Center for Education Policy

**A Needs-Assessment Regarding the Collection and
Use of Education Data in Massachusetts**

Andrew Churchill
Susan Bowles

July 19, 2004

Acknowledgements

This research was commissioned by Maureen Chew, Chief Information Officer at the Massachusetts Department of Education. The authors thank Maureen, Paula Girouard O’Sullivan, John Celso, and Joia Cicolini at DOE for their guidance and support on this project. We would also like to thank the DOE interviewees, the researcher interviewees, and the many local district personnel who contributed their thoughts to this report through focus groups, interviews, and telephone and email submissions. We would like to offer special thanks to Paul Livingston, Superintendent, Littleton Public Schools; Jeff Comenitz, Technology Coordinator, Amherst-Pelham Public Schools; and Bill Dornbusch, Technology Coordinator, Northampton Public Schools for their significant contributions to our understanding of this complex and interesting topic.

About the Center for Education Policy

The Center for Education Policy, in the UMass Amherst School of Education, was created to put the University’s research capacity to work on important education policy issues in Massachusetts, other New England states, and beyond. The Center conducts studies, convenes conferences, and evaluates programs on topics relating to K-12 education reform and K-16 educational alignment and transitions. Policymakers interested in expert assistance, and faculty and graduate students interested in conducting education policy studies, are encouraged to contact the Center for Education Policy.

For additional information, contact:

Andrew Churchill, Assistant Director

Center for Education Policy

University of Massachusetts

813 North Pleasant Street

Amherst, Massachusetts 01003-9308

Phone: 413-545-0958 Fax: 413-545-3855

Email: achurchill@educ.umass.edu Website: www.umass.edu/education/cep

TABLE OF CONTENTS (Full Report)

Executive Summary	v
Introduction.....	1
Methodology	2
The General Data Context	3
Local Data Needs and Suggestions.....	5
Voices from the Field: Specific Suggestions for Improvement.....	14
State-level Data Needs and Suggestions.....	19
Suggested “Small Fixes”	24
Conclusions/Recommendations.....	27
Appendix 1—Local-level Protocol.....	31
Appendix 2—State-level Protocol	33
Appendix 3 –Danvers Focus Group Notes	35
Appendix 4—Marlborough Focus Group Notes.....	45
Appendix 5—Randolph Focus Group Notes	55
Appendix 6—Sturbridge Focus Group Notes.....	63

EXECUTIVE SUMMARY

The Study. In the context of increased demand for education data for accountability and improvement purposes, the Massachusetts Department of Education (DOE) contracted with the UMass Amherst Center for Education Policy (CEP) to discuss data needs with the major data users at the state and local levels and report on their needs and suggestions for future data system improvements. During the winter and spring of 2004, CEP collected information from a variety of local and state-level data users, including: 14 interviews and group meetings with senior DOE staff; 11 group discussions with approximately 210 local educators; 181 written responses from group discussion participants; approximately 20 additional email, telephone, and in-person exchanges of information with local data users; and five interviews with education researchers.

Types of Data. A variety of types of information are collected under the broad category of “education data,” including student, teacher, organizational, program, and finance data. Discussions of data system needs and opportunities considered all of these information types.

Uses of Data. Education data is collected and exchanged for two key purposes by local districts and state administrators/policymakers: **mandatory reporting** and **data-driven decision-making**. A mutually beneficial state-local data system must serve both of these purposes, at both state and local levels.

SHARED CHALLENGES OF STATE AND LOCAL STAFF. Interestingly, many of the data challenges identified by data users in our study were similar at both the local and state levels.

Multiple systems and processes. At both the state and local levels, data processes have developed in a somewhat piecemeal fashion, in response to particular policy or program requirements. The result is an often-bewildering array of data systems, with overlapping uses and constituencies. Some datasets have begun “talking” to each other—for example SIMS and MCAS databases combine to produce AYP reports—but many continue operating largely separately and with varying platforms and levels of efficiency. In addition to the commonly shared data elements (e.g., SIMS, MCAS, finance), local districts and DOE program staff have a number of additional datasets (e.g., grading, scheduling, transportation, program participants) that they need for their own purposes and don’t want to lose to any comprehensive data system.

Wide variation in data interest and expertise. At both state and local levels, we found a division between those who “don’t know what they want” and those who “can’t get what they need.” Novice and advanced data users have different abilities and preferences for using data. Novice users want standard reports and presentation forms (graphs, charts) for certain predictable uses, and they want help formulating the kinds of questions to answer with data. Advanced users also want to be able to conduct customized analyses as questions come up. As one advanced user put it, “I want access to anything I submit, and to be able to combine it in useful ways.”

Common data needs. We did identify some data needs that crossed categories of expertise, at both state and local levels. In general, respondents wanted (1) better ways of locating existing data, through data “maps” or search engines, (2) user-friendly, web-based, menu-driven ways of

reporting and accessing information, and (3) access to individual student MCAS histories by SASID for appropriate users. We also heard significant discussion of NCLB's Teacher Quality provisions and the resultant need to pull together data on teacher qualifications and staffing patterns.

Capacity constraints and reporting requirements limit data-driven decision-making. The importance of capacity constraints on the data system cannot be emphasized too strongly. At the broadest level, recent budget cuts pit data system expenditures against other important uses of limited funds. Within the data sphere, the resource demands for data reporting and collection processes tend to crowd out capacity for analyzing and using data to improve decision-making and instruction. Therefore, in a time of limited data capacity, streamlining data collection processes to reduce the reporting burden is an important way of freeing up more resources for data-driven decision-making.

Desire for professional development in data-driven decision making. It was suggested that DOE could help both local and state staff to understand what they should know about their data. Topics would include: identifying key data elements, standard charts for key elements, menu-driven templates for formatting and analyzing data, and questions to use in thinking through the implications of data patterns. It was also suggested that DOE program staff could help related district program staff by identifying key data elements, models, and questions for their programs.

Need to enlist the field in developing the state-local data system. The importance of listening to and working with the field outside of DOE was an important message. One of the questions DOE staff had at the outset was whether local districts were interested in a state-provided system or whether they were more attached to their existing systems. We were surprised at the degree of interest in a state-provided system—with the caveat that a state system be phased in over time and designed/piloted in collaboration with local users. In addition, several interviewees suggested that DOE could expand its analytic capacity by developing a research agenda and enlisting outside researchers in carrying out this research agenda.

LOCAL DATA THEMES. In addition to the above, local findings include:

- **Multiple data uses and users.** Superintendents, principals, curriculum directors, IT staff, data entry staff, program staff, and teachers have different data needs and roles. Staffing of roles varies, due to budget cuts, expertise levels, district size, and local allocation decisions. As noted above, there is wide variation in expertise, from novice to advanced users.
- **Multiple data systems.** Districts use databases from multiple vendors for: student information, assessments, personnel, finance, special education, scheduling, grading, transportation, library, cafeteria, health, etc. Data are stored in databases, spreadsheets, and sometimes paper files. Any comprehensive data system would need to accommodate locally useful data elements as well as data required for DOE and NCLB.
- **Capacity/cost constraints.** In addition to budget cuts, Massachusetts districts' relatively small size makes funding professional information management staffs difficult. Maintaining software systems is costly and frustrating; vendors often lag behind state data requirements.
- **Less redundancy and more reporting help wanted.** Consolidation of October 1 and December 1 reports, elimination of March 1 report, improvement of the SIMS error correction process, and clarification of reporting calendar and guidelines were key requests.

- **Quality concerns.** A lack of common definitions of data elements, the qualifications of data entry staff, and the distance between data entry staff and the staff who understand how data are used were mentioned as reasons for data quality concerns. Data audits were suggested.
- **Interest in teacher data.** A number of local educators mentioned the teacher quality pressure they face under NCLB and expressed interest in teacher licensure and staffing information in a single database, analogous to SIMS.

STATE DATA THEMES. State findings include:

- **Staff want to find and access existing data more easily.** Because of difficulty finding and linking separate databases, DOE staff say they often have to build unique solutions to produce reports. This makes data-driven decision-making much more labor-intensive, requires expertise that many staff do not have, and adds to the burden of data personnel.
- **Empowering staff vs. “getting it right.”** Staff are very interested in having access to data analysis but ambivalent about doing it themselves due to lack of statistical expertise. As one put it, “we have generalists—we can do the first level, but you need some statistical expertise to do more in-depth analysis and be sure you’re doing it right.”
- **Data-analysis capacity limitations.** Data personnel are constantly faced with requests for information from federal education staff, state legislative and gubernatorial staff, the media, DOE administrators, DOE program staff, local educators and citizens, and education researchers. While there is a wealth of existing data, data staff have limited time to put the collected data into useful formats. “We don’t have time to do analysis and produce reports that we know would be useful,” one said.
- **Data-analysis partners could increase capacity.** Several interviewees suggested that DOE should develop a research agenda and a means of providing raw data to researchers, and then either fund or encourage outside funding of studies targeted at this research agenda. It was also suggested that a separate entity with DOE oversight could be established/contracted with to service external data requests.
- **Professional development in data use wanted.** First, some staff say that they would like training in/licenses for data manipulation software, such as Access or SPSS, although there is some disagreement on the priority of this, as opposed to simply making data access more web-based and menu-driven. Second, training is desired in how to use and manipulate datasets. Third, interviewees requested help really thinking through what data-driven decision-making means for their department.
- **District information wanted.** Some DOE staff who work with districts felt that other parts of the Department had information about “their” districts that they did not have. Suggestions included (1) a contact log system to keep track of who is working with each district and/or (2) designating education specialists as district liaisons, each responsible for knowing and being a point of contact for one or two districts.
- **Pre-population of program data-collection forms.** SIMS and MCAS data have been used to pre-populate data forms in several programs to reduce the burden on district program staff. DOE program staff report that this innovation has been very well-received.

CONCLUSIONS/RECOMMENDATIONS

A successful state-local data system must accommodate the fact that at both the state and local levels, data processes take place within very complex organizational contexts, face significant capacity constraints due to recent budget cuts, and are carried out by individuals with widely varying needs and abilities.

At the local level, DOE should work to:

1. **Reduce the reporting burden to maximize data quality and data usage** under existing capacity constraints, and
2. **Help local educators become better users of data.**

At the state level, DOE needs to

1. **Help DOE staff become better users of data,** and
2. **Deploy or delegate the appropriate capacity** to perform data collection, support, and analysis roles.

DOE needs to **work with local district staff, researchers and other data partners** to:

1. Develop a vision of what a true state-local data system should look like, and
2. Pilot, refine, and phase in operation of a true state-local data system.

Specific areas for work include:

Create and/or communicate resources for data reporting and data-driven decision-making.

- Inventory all current data collections and data locations and create a data catalog or map.
- Communicate this data map to DOE staff and relevant local district staff.
- Install a better search engine and a data map on the DOE website.
- Post an annual timeline of all data collections on the website.
- Pull together a standard reporting guide, explaining in layman's terms why the data are collected, what the annual data collection schedule is, and how each collected element is defined/counted.
- In each data collection communication, include a brief reminder on how the data are used and how they can be accessed for local decision-making.

Reduce reporting burden to maximize data quality and usage under capacity constraints.

- Consider consolidating Oct 1 and Dec 1 reports, and consider whether Mar 1 report can be eliminated.
- Improve the SIMS error process—program a “summary” step into the submission/ validation process, so local staff can see and easily correct data themselves before final submission.
- Continue developing web-based, menu-driven processes for submitting data.
- Offer/publicize knowledgeable “helpdesk” capability prior to major reporting dates, to help districts with reporting questions, before they submit erroneous information.
- Analyze data-collection inventory to identify redundancies and particularly onerous reporting requirements.
- Where possible, reduce redundancies and onerous collection by eliminating collections, pre-populating forms and databases, and using sampling rather than full collection.

Help state and local staff become better users of data.

- Enable access to MCAS scores by SASID for DOE and local staff with appropriate clearance.
- Provide better MCAS graphics capability and ability to export to spreadsheet.
- Develop web-based, menu-driven process for accessing data in standard and custom formats. Facilitate connection of SIMS, MCAS, and financial data.
- Encourage DOE departments to identify key indicators, standard data charts, and questions to use in interpreting data implications.
- Identify what types of data analysis can be “do-it-yourself” and which require specialized statistical skills. Provide templates and training for “do-it-yourself” aspects and identify staffing and priorities for specialized analyses.
- Organize conferences and summer institutes for local data users to share models, learn about data resources, and receive professional development in data reporting and data use.
- Provide special sections on the website for particular district data roles, with types of information they will need—data submission deadlines, FAQs, types of data questions they should ask, models of data use, etc.
- Explore ability to provide useful data in time for local budget decisions—Dec/Jan ideal.
- Develop an Educator Information Management System to allow analysis of teacher quality, supply, and demand.

Explore research/analysis partnerships to maximize DOE capacity.

- Reduce demands on data staff by developing a research agenda and enlisting outside researchers in producing reports.
- Explore development of a separate research data center to facilitate education research and reduce the number of external information demands on data staff.
- Consider implementing occasional data audits, conducted by an accounting firm, to ensure data quality.

Work with local educators to continue developing a mutually beneficial state-local data system.

- Develop a local/state/researcher data advisory committee to “reality test” ideas for improving current reporting and data use methods.
- Support and work with pilot data warehouse efforts for groups of schools.
- Work toward a system that will work for all state and federal reporting requirements, while allowing districts and DOE programs to maintain other information they need.
- Be aware of the push for value-added assessment and the data management system it would require.
- Explore SIF options for linking databases at DOE and in districts.
- Explore open-source options for reducing software and hardware costs.