The Complexities of Integrating Data-Driven Decision Making into Professional Preparation in Schools of Education: It's Harder Than You Think

Ellen B. Mandinach, WestEd
Edith S. Gummer, Education Northwest
Robert D. Muller, CNA Education

Report Summary

Data-driven decision making has become a national education priority, and Education Secretary Arne Duncan (2009) has commented about the pressing need for educators to gain knowledge and skills in data use to inform practice. John Easton (2009), Director of the Institute of Education Sciences (IES), has also acknowledged that data use and data analysis are fundamental elements for the improvement of schools and districts. Further, the American Recovery and Reinvestment Act (2009) specified the use of data to inform educational practice as one of its four pillars. Nearly $516 million of federal funding has been expended on developing states' technological infrastructure to support data-driven decision making through the Statewide Longitudinal Data System (SLDS) Grants Program (National Center for Educational Statistics, 2010). Districts' information technology infrastructures are also evolving (Means, Padilla, & Gallagher, 2010).

Schools of education play an important role in developing the capacity of educators to understand, analyze, and use data. According to a National Council for the Accreditation of Teacher Education (NCATE) Blue Ribbon Panel (2010), teacher preparation must provide "the opportunity to make decisions and to develop skills to analyze student needs and adjust practices using student performance data while receiving continuous monitoring and feedback from mentors" (p. 10). To date, two sets of standards address using data in teacher and administrator preparation: the Interstate Teacher Assessment and Support Consortium Model Core Teaching standards (Council of Chief State School Officers [CCSSO], 2011) and the Interstate School Leaders Licensure Consortium (ISLLC) principal standards (CCSSO, 2008). The National Board for Professional Teaching Standards (NBPTS; 2010) provides information on what experienced teachers should know and be able to do.

However, evidence of implementation in teacher preparation in measuring educator knowledge and skills and in accountability has remained elusive (Aguerrebere, 2009). States are making slow progress in requiring data preparation as part of certification. Researchers and policymakers know very little about the nature of the training in understanding and using data received by pre-service teachers and administrators, or about training provided in the field. Researchers, teacher educators, and policymakers must be able to define data-

driven decision making and data literacy. They must be able to identify and operationalize the knowledge and skills that comprise data literacy at different levels across the education system. This fundamental knowledge is required before a comprehensive approach to formal coursework, in-service activities, professional development, and continuing education around data-driven decision making can be developed.

The Spencer Foundation Initiative on Data Use and Educational Improvement and the Genesis of the Conference

The Spencer Foundation recognizes the importance of effective data collection, analysis, and use to educational improvement. The Foundation has launched its Initiative on Data Use and Educational Improvement to support scholarship on the environmental conditions and factors that influence the use of data and information by educational organizations. The Initiative funds research that examines the conditions, contexts, and underlying factors and processes that affect how educational organizations use data and information for improvement. These efforts are intended to connect the fragmented nature of the research base and focus on an analytic framework of the conditions under which data-driven decision making is successful rather than a normative framework that espouses data use in general or a particular data use practice.

The Initiative's goals are to:

> ...create new knowledge about the conditions, contexts, and other factors that affect how data are used; stimulate additional attention to what happens after data are gathered and shared; and advance theory about data use, all as part of an effort to ensure that the promise of data use for educational improvement does not go unfulfilled (Spencer Foundation, 2011).

The conference on which this paper is based was designed to examine the issues that undergird educator preparation in data use for decision making. Throughout the design and implementation of the conference ran the concern expressed in the Spencer Initiative (2011) that the ways in which data use are being defined is problematic for the field. The following Spencer Foundation Initiative questions formed the basis for the conference summarized in this paper:

- How do the kinds of data and the forms in which they are presented affect how data are used?
- What skills and dispositions are needed for professionals in elementary and secondary education, and in higher education, to interpret, understand and use data to enable improvement in practice and outcomes?
- What sorts of training or professional development and workplace norms are needed to help education practitioners use data and information more effectively?
- What organizational cultures or structures influence how people make sense of data/information in their particular professional contexts?
- How do principals, deans, and teachers take data and then apply this information in decision making about instruction, resource allocation, course design, and other pertinent concerns? (Spencer Foundation, 2011)

The Role of Schools of Education: An Important Convening Opportunity

On February 7, 2011, CNA Education, Education Northwest, and WestEd convened a symposium to discuss what role schools of education might play in helping to build educators' capacity to use data effectively. The meeting brought together representatives from schools of education, researchers, policymakers from professional credentialing organizations, and individuals who currently provide professional development around data-driven decision making.

The meeting began with a description of some of the complexities and the highly systemic nature of the issue of implementing data-driven courses into schools of education, and a call to "push the envelope" about how to infuse data into teacher preparation. The group's objective was to gain an understanding of the challenges regarding the development, introduction, and provision of learning experiences on data-driven decision making to students at the undergraduate and graduate levels, and for teacher and administrator candidates. Further, different perspectives were sought regarding the multiple meanings of data-driven decision making and the skills involved in educational decision making.

The meeting resulted in weaving the diverse perspectives of attendees into a cohesive set of findings that could be shared with schools of education and relevant stakeholders to help embed data-driven decision making content more firmly into programs at institutions of higher education. The themes that emerged from the conference were:

- Lack of clarity in terminology around data-driven decision making whereby multiple definitions create the potential for confusion;
- Multiple knowledge and skill sets (depending on one's role in the education system) shape perspectives regarding data-driven decision making;
- Standards for data-driven decision making are complex and integrated throughout multiple areas of educator expertise;
- The knowledge and skills that teachers and administrators need to learn form a developmental continuum rather than a set body of knowledge;
- The context in which data-related content can be provided to educators can be structured in multiple ways;
- Organizational capacity to teach data-driven decision making is not widely established; and
- Integrating and implementing preparation in data use content across the contexts in which educators work present a highly systemic set of challenges.

Other issues emerged from the meeting as well. A number of areas lack strong research and adequate information. Successful examples of effective data-driven decision making and successful training in data literacy skills need to be identified, disseminated, generalized, and scaled to other venues and situations. Finally, there is a need for additional policy and practice work that enables the field to differentiate how expert and novice educators use data to inform their practice.

The conference engaged participants in a spirited discussion of how schools of education can respond to the need to build human capacity around data-driven decision making. It also

explored the knowledge and skills educators need to best use data in their educational practices. Given the time available and complexity of these questions, the group did not identify specific course components in detail. It is hoped that the issues discussed in the full proceedings document will provide a sound basis for schools of education to revisit and investigate the degree to which data-driven decision making is infused across their programs.

Recommendations

Recommendations and take-away messages from the meeting focused on four topics:

1. The research needed to support the building of human capacity;
2. Required changes to educational practice;
3. The need for a better understanding of the developmental continuum of educators at various stages of their careers; and
4. The need to strengthen the discourse about teacher preparation.

1. Research Needed

First and foremost, the group observed that is no systematic evidence about the pervasiveness of courses on data-driven decision making in institutions of higher education. It was clear from discussion at the meeting that there is need for a scientific and comprehensive inventory of courses and requirements, and the extent to which data-driven practices are integrated into existing courses. Additionally, it is necessary to understand how SEAs are supporting teacher and administrator data needs. The information from such a comprehensive survey and inventory will provide fundamental data from which policy organizations and schools of education can build and respond. Educators also need to understand the theories of action that impact the use of data. In parallel to the need to understand the theories of action, another related line of research that is needed is to understand the impact on student achievement of training teachers to use data.

2. Changes in Practice

There are several issues that impact practice that need to be addressed and better understood. There needs to be an alignment between what districts, schools, and educators actually do and need, and the actions that schools of education might take to integrate data-driven practices into educator preparation programs. Such changes should be based in consultation with the ultimate stakeholders and end users – the local education agencies (LEAs). Schools of education must be responsive to those needs, whether adapting their course offerings or providing outreach through continuing education opportunities.

Further inquiry should examine the role the federal government might play beyond making public policy statements about the need for educators to be data literate. Might there be provisions for helping to train the current cohort of educators, rather than placing the onus on already overburdened LEA budgets? What else can the U.S. Department of Education do? Study of the role that SEAs can play in setting policy and developing and mandating licensure and certification requirements for all educators needs to be better understood. Can and will the SEAs require that educator preparation programs offer training in data use? Will schools of education be held accountable for their graduates to show evidence of data literacy? Can and will testing organizations introduce components of assessments that measure data use and data literacy?

3. Understanding Developmental Needs of Educators

Much of the discussion during the meeting revolved around trying to understand the needs of diverse groups of educators in terms of preparation for data-driven practice. Pre-service teacher candidates have different needs from masters' level students. Administrators have different needs from teachers. It is possible that administrators at the school, district, and state levels also have different needs. Course offerings, therefore, need to accommodate the diversity of needs around the learning progressions. There is no one-size-fits-all model for data-driven decision making – hence a need for further investigation about how needs along the developmental continuum translate into potential course offerings.

4. Strengthen Discourse about Educator Preparation

One clear message from the brainstorming meeting is just how complex an issue it is to try and introduce data-driven courses into educators' preparation. First, there was no agreement regarding where and how data-driven courses can and should be integrated into course work. This is, in part, because of different needs in pre-service and in-service, of teachers and administrators. Second, the location and venue for such courses will differ, depending on the student. In many institutions of higher education, pre-service teacher preparation occurs in a department outside of a school of education, as do continuing education courses. Third, there is no empirical base for understanding the current state of the field. That is, investing in a survey of current practices in institutions of higher education to determine if there are courses or not, related requirements, and the role of SEAs in stimulating universities to respond to requirements would be advised. Fourth, schools of education are relatively autonomous, making it almost impossible to introduce a new line of courses unless there is a perceived pressing need. Fifth and foremost, because of the complexity of the issue, it is possible that little will transpire until there is a stronger mandate that requires educators to demonstrate data literacy for which schools of education are then held accountable.

Next Steps

The February 7 meeting provided a surface view of the issues of the role of teacher preparation programs in data driven decision making. It is clear that more work is needed. Future convening should be considered to bring together the same perspectives, extended to include state and district representatives. It also calls for additional engagement from the U.S. Department of Education. Bringing together stakeholders who can make action happen is not inexpensive. The outcome would be the development, engagement, and implementation of a systemic strategic plan, rather than haphazard, tactical, and reactive action. If the field is left to a piecemeal approach to action, little, if any, progress will be realized. This issue requires buy-in from many stakeholders, with different needs, at different levels, and from varied organizations. Obtaining that buy-in requires leveraging at the appropriate sources of influence. It will not be easy because of the interdependencies and complexities, but it is possible.

References and the full symposium report are available upon request.