How Data Can Be Used to Inform Educational Outcomes
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Classroom-Centric, Longitudinal Data:
A Foundation for Effective and Sustainable
Enterprise-Based, Longitudinal Data Systems

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Introduction

We live in a world where rapid advances in technology are commonplace, and leveraging technology to improve productivity is expected. With the passage of The American Recovery and Reinvestment Act (ARRA) of 2009, there now exists a "once-in-a-lifetime" opportunity to realize dramatic leaps in educational improvement to prepare our children for the future. According to the Data Quality Campaign (DQC, 2010), "the education sector is on the cusp of becoming an information-based enterprise." It follows that the development of enterprise-based data systems are essential for the nation's educational progress.

A true enterprise-based system always has, as its focus, the "product" to be produced. In an education-based enterprise environment, the "product" is student success. An effective education–based enterprise system provides for the creation, storage and use of data from multiple disparate sources. Diverse data collection, combined with the application of effective rules for data management, means that enterprise-based educational systems hold great promise for impacting the school improvement process in a positive manner. Educators at all levels, from local classrooms to district offices to state and federal education agencies, must recognize that true school improvement---the type that is lasting and meaningful---will occur only when school systems and agencies are simultaneously supported via interdependent, classroom-driven longitudinal data systems that provide near real-time, ***appropriately aggregated/disaggregated*** data to students, teachers, parents and other stakeholders, including state and federal agencies.

The evolution of effective enterprise-based education systems will determine whether districts and states will actually be able to create huge improvements in success that these times demand. School improvement must become dynamic, where success is emulated and failure is eliminated. Such effective classroom-based, enterprise-oriented longitudinal data systems can be empowered through the use of emerging technologies (with protection of private data via managed access), so that stakeholders at all levels may better understand the real-time impact of success and failure in our nation's classrooms.

Enterprise-based Longitudinal Data Systems

So, where do we begin? The classroom, of course! There are many educational issues to consider:

- While enterprise systems should be designed to support "any time, any place" learning, where does the majority of student learning occur at this time? Answer: in the classroom.
- Where do teachers and students most commonly interact in support of learning activities? Answer: in the classroom.
- At a minimum, where should educators strive to develop an immediate impact on student learning? Answer: It all begins in the classroom.
- Who can most effectively impact student learning? Answer: the teacher.
- Who among us can best influence students to achieve their potential? Answer: teachers, peers, parents, and mentors---those typically engaged in student support activities.

All education initiatives should be challenged as to what value-add they will bring to the nation's students. It only makes sense that real and effective investment in the national education system must be initiated and measured in terms of individual student growth. Effective learning is personal, sometimes complex and always best supported by quality data analysis that informs instruction on a continuous, near real-time basis. It makes "BIG" sense that statewide longitudinal data systems (SLDS) and their continuous management be inexorably and effectively linked to America's classrooms. Real school improvement in America is contingent on the simultaneous development of seamless, **enterprise-based** longitudinal data systems at classroom, site, district and state levels across the nation that is reflected back to the enterprise system product – in this case, student success.

The United States Department of Education (USDOE) has supported the creation and deployment of SLDS/enterprise-based initiatives in almost all of the states. These efforts need to be integrated and become a very critical aspect of educational improvement activities in all of America's schools. It is crucial that Americans have confidence that public education programs are in fact improving. When there are problems in schools, the public must know that those problems will be successfully addressed. This presents the case for enterprise-based, multi-level school management systems within a state's existing infrastructure. In principle, real school improvement activities must originate at the individual student level. Growth modeling of individual student success over time is absolutely the most valuable tool that local administrators can provide to students, their parents and teachers. If the development and deployment of SLDS architecture continues from a "top-down" perspective without effective evidence of coordinated linkage of student data over time, then how can these efforts ever establish a definitive value-add for instruction?

The Impact

For the future of education, the importance of developing **enterprise-based** *S*LDS solutions is immense. It is the only way to address the issue of high student mobility that currently exists and will continue to increase. Our cohort-driven statistical analyses indicate that the nation may be missing the opportunity to effectively and appropriately educate a large segment of our country's student population (i.e., the mobile students). Some of our findings indicate that mobile students fail academically and drop out of school at twice the rate as non-mobile students. Enterprise-based systems which can support the distribution of near real-time, high-value data that informs instruction are absolutely essential in addressing the mobility problems of America's students. Our data indicates that, over a four year period, more than 50% of our secondary students are mobile. In some districts across the country, the numbers may be much higher. There is no solace to be gained---rather, great danger exists--- when districts or states report that non-mobile students are succeeding academically while the plight of mobile children is ignored.

The investment of millions of dollars in longitudinal data analysis should assist the USDOE and state educational agencies (SEAs) to become more accountable to the American public. However, there are other compelling reasons to use enterprise- based longitudinal data systems, such as establishing near real-time instructional need, and assisting in the delivery of timely instructional supports at the classroom level while creating and distributing student growth model analyses that validate instructional efforts.

Suggested Actions

The Council of Chief State School Officers (CCSSO) and most states have worked to create their own versions of learning standards. Attempts to update learning standards, whether at the federal or state levels, must continue as the scope of knowledge grows. As long as learning standards are modified and assessments are revised, there will always be a need to "bridge the gap" between the "old" and the "new" standards. We cannot afford to rebuild our education system every time learning standards change. There is a critical need in education to establish a common language that simultaneously and definitively describes the scope (what we teach) and methodology (how we teach) of past, current, and proposed instructional efforts at every level. In successful, enterprise-based solutions within corporate environments, the establishment of a "common vocabulary" is recognized and highly valued. We must proactively establish flexible and definitive descriptors of what we will teach our students and then map this common vocabulary to all valued state and national standards of instruction. This process of "setting standards for standards" could greatly improve the flexibility, efficiency and effectiveness of America's school systems, especially for mobile students. Such an effort in the basic core of curriculum needs to be, at a minimum, a PreK-16 effort to support the transition of students at all educational levels.

In most successful companies within the corporate world, when a new vocabulary is introduced, it requires the development and adoption of new "business processes" that will provide new capacities to create, store, and use data more productively. These new business processes also require a review of data transmission at every level of

functional operations. Since there currently is a heightened interest at the federal and state levels to collect academic performance data in the aggregate, and since there is an associated need for school districts/sites to develop academic performance measures at the student level, there should be a concerted effort to study and develop new "rules" for enterprise-based management of educational data.

In summary, it must be noted that the deployment of effective enterprise-based, longitudinal data systems is not widely evident in America's schools. Efforts to improve the transparency of the nation's school systems are dependent on the establishment of enterprise-based longitudinal data systems. Furthermore, other issues such as quality control, performance-based pay, and professional development are dependent on the establishment of enterprise-based longitudinal data systems at every level of education, including the classroom and student levels.

Reference

Data Quality Campaign (DQC), 2010. 2009-10 Progress Report on State Data Systems and Use. Washington, DC: www.DataQualityCampaign.org