1 Transforming to a Data-Informed Culture

The future is not a result of choices among alternative paths offered by the present, but a place that is created—created first in mind and will, created next in activity. The future is not some place we are going to, but one we are creating. The paths are not to be found, but made, and the activity of making them changes both the maker and the destination.

—John Schaar

If you don't have a clear sense of where you are going, it is easy to lose your way. If the vision within an organization cannot be translated into practical terms, it will also lose its way. Given there is a desire to change the way we use data to increase student achievement, Ambrose suggests there are key ingredients that lead to systemic change—a set of elements that guide the path for change (Ambrose, 1996). The elements include a shared **vision** in the organization and people in the organization who are **skillful** enough to realize what the vision implies in practical terms. It is necessary that there be an **incentive** for doing the work, the required **resources** available, and an **action plan** that provides confidence the work will proceed and not just be another false start.

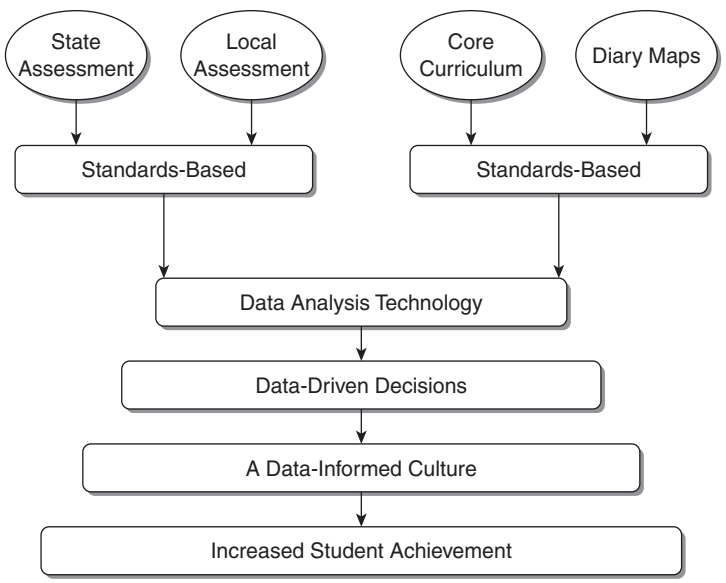
In this chapter we will consider the need for a shared vision and then examine the resources required to realize the vision. We follow with an action plan that includes building the skills of the educators as well as

attending to necessary resources. We also place special attention on the role of technology, as it is a critical resource for accomplishing this work.

CREATING A VISION

Imagining what is possible and aiming for the most positive vision of what should be done to create a data-informed culture is a necessary first step. The vision provides clarity about where the district is going and why it is purposefully moving in that direction. In our work, we use Figure 1.1 to represent a vision of the intersection of assessment and curriculum data that will lead to making better decisions about how to increase student achievement.

Figure 1.1 Graphic Representation of a Vision



In Figure 1.1, the vision is divided into five clear statements:

- We may start with a foundation of standards-based assessment and curriculum data from multiple perspectives.
- We must use technology as a tool to help us.
- Data will drive our decisions.
- Informed decisions (based on that data) will ultimately be made about assessment and curriculum.
- The end goal is increased student achievement.

Our graphic suggests that improvements in student achievement can never be attributed to any one single factor or any one program. Instead, there are clusters of factors that build upon one another to contribute to sustained improvement. It is not assessment and curriculum in isolation, but a combination of people, technology, and processes that will ultimately achieve the goal. The vision is a diagram of process that shows the movement from assessment and curriculum data that are standards-based on to the intersection of the data in which assessment and curriculum are analyzed and ultimately provide the basis for informed decisions that will increase student performance.

Our experience tells us that making this vision operational requires

- specific, observable, and measurable proficiencies;
- a sustained collection of performance data and analysis of those data horizontally, vertically, and longitudinally among the people responsible for instruction;
- adjustments to curriculum, instruction, and assessment based on the analysis;
- planning time on a regular basis for review of student performance among the people who share the care and instruction for the target population;
- sufficient time to allow for sustained growth among the students.

This list should be taken into consideration when administrators develop a school improvement plan. In addition to a clear vision, the plan must be certain to address the **professional development** needs teachers might have to develop skills for the analysis of data; the **technology** resources required to provide a good summary of information from the data entered; a **clear understanding** among the professional staff about why and how this work will benefit themselves and ultimately students; and a monitoring system tied to an **action plan** so that modifications can take place in a timely fashion. If a district puts all these key factors in place for school improvement, it is poised for creating the necessary changes needed to improve student performance.

CURRICULUM MAPPING AS A DATA SOURCE

Over the past 15 years there has been a shift in the typical approach for developing and maintaining curriculum. Schools have always had curriculum guides, which we will refer to as the **written curriculum**. The assumption has been that the guides are followed. However, many teachers, by necessity or by choice, redesigned the curriculum to fit their own classroom and the needs of their students. Curriculum committees made

decisions based on representatives from various grade levels and courses. Those decisions were usually more impressionistic than data driven. We typically did not report to each other about what was changed and why those decisions were made. As a result, teachers were often unaware of what was taking place in another teacher's building or classroom.

As schools began to audit their curriculum for accreditation, they realized there was often a difference between the **written curriculum** and the **taught curriculum.** Teachers made decisions individually about what was to be taught and when it was to be taught. Heidi Hayes Jacobs addressed this issue and provided a process—curriculum mapping—for developing a dynamic curriculum, one that takes into account the discrepancies that might occur between the written and the taught curriculum (Jacobs, 1997).

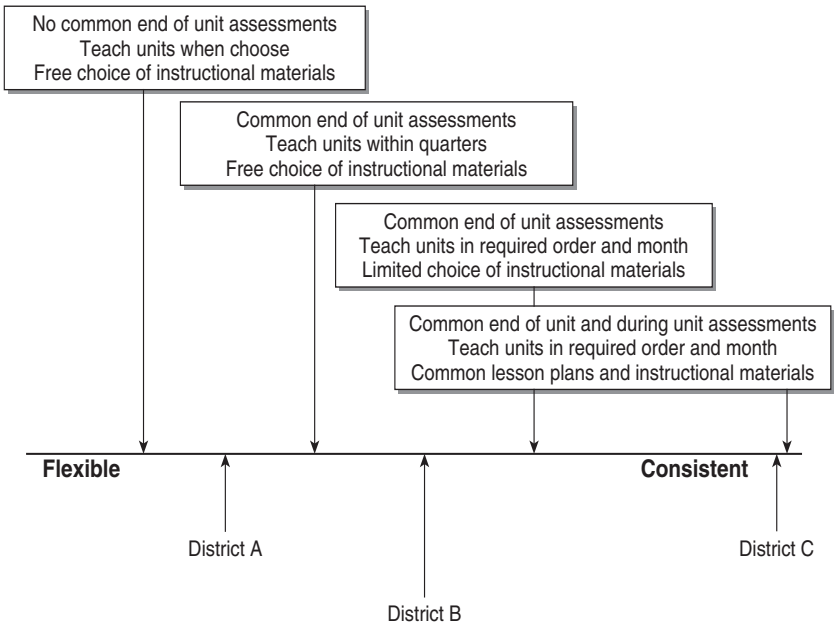
Jacobs has defined critical aspects of mapping and provided a key set of principles. Her model suggests that curriculum is mapped according to the calendar year and reflects the operational or taught curriculum. This ensures the curriculum is revised based on authentic data. Assessment data offer a lens for examining the learned curriculum. The mapping process requires that teachers address the continuity of curriculum from grade to grade, building to building, year to year. Each teacher maps his or her own classroom curriculum, and then engages in the process of comparing those maps to the maps of other teachers. Through this type of review, we develop a clear picture of what our students are exposed to. The process of comparing what the written curriculum states with what the operational curriculum reflects usually leads to the discovery of many gaps and repetitions, and has resulted in powerful conversations among teachers about the pedagogical values that are underpinning curricular decisions.

Key to all mapping is the dynamic way that curriculum will continuously be reviewed, revised, and renewed. However, as mapping practices have evolved, districts determined their own entry points for mapping. Many schools started by having teachers individually map their operational curriculum. Then, through an extensive "Read Through" process, teachers came to consensus about what was essential for a course of study. They developed maps named Consensus, Essential, or CORE that became the points of agreement for teachers in the district. All teachers teach what has been deemed CORE; however, flexibility within CORE is determined by the way the teacher responds to the students in her classroom. The flexibility of curriculum is usually expressed through lessons, assessments, enhancements, and modifications.

Most districts have already been revising their curriculum based on standards. As a result, when embarking upon a curriculum mapping initiative, many believed they had already started to build a CORE curriculum. These schools began mapping by first recording the CORE curriculum, as determined by a representative team of educators. The

recorded CORE curriculum is then enhanced through teacher-centered diary mapping efforts. Figure 1.2 shows a range of possible ways districts have determined what is CORE.

Figure 1.2 A Range of Possible Decisions to Determine Core Curriculum



ASSESSMENT RESULTS AS A DATA SOURCE

Curriculum mapping, regardless of approach, provides a forum for exchanging information about practices based on real classroom data. This data, when taken into account with assessment data, can be the basis for informed decisions to improve student learning. Traditionally, assessments have been an afterthought to curriculum. In many instances, assessment was considered separate from curriculum. Schools had a director of assessment who might not even meet with curriculum directors. Teachers would instruct and then announce a test to their students. Assessments were considered the caboose of the train rather than the engine that fueled curriculum and instruction.

Educators quickly learned that initiatives to improve student achievement cannot be based on a once per year test. In addition, as we place a greater emphasis on using data, educators begin to realize that there is very little comparable data to examine beyond standardized or state tests. Classroom teachers usually design their own assessments, so the

results from class to class in a given course might vary. Although everyone may claim they are teaching to the standards, measures of performance are not often tied to the standards with any specificity. This issue has led to the development of benchmark assessments, tied to standards that are given to all students in the course or grade level. These assessments provide a district with more information than their state assessment. For example, as assessment items are individually aligned to standards and the information is readily available, item-analysis reports and efforts can yield a more in-depth perspective of student performance. At this point, most schools understand the significance of monitoring valid, standards-based local assessments to develop predictive strategies, and to help determine changes in curriculum and classroom instruction.

USING AN ACTION PLAN TO MONITOR PROCESS

One of the biggest challenges in education is ensuring that our key initiatives do not lose their way due to changes in administration or just poor planning practices. Given the busy schedules of most schools, an action plan can serve as a discipline for staying on track. It also serves as a clear statement of who is responsible for what, so that progress can be celebrated and the momentum for improvement is sustained. At a minimum, the following elements are key to the development of an action plan:

1. An action plan should be a tangible document monitored throughout the planning process. It should be a living document that can be used to manage and monitor progress toward an established, well understood, and measurable goal. An action plan that is not documented and accessible in an electronic format or at least on paper can easily be lost in highly individual interpretations and memories. As a result, the loss of what actually took place can easily lead to a false start.
2. Keep your plans brief and to the point, so the process of updating the plan via project status meetings does not become overwhelming. We often spend too much time focusing on the written content of the plan instead of the definitive actions required for success of the plan. The main purpose of an action plan is for task management and status monitoring, not facilitating discussions or debate.
3. All actions plans must tie to the vision. The plan may become tiered with specific tasks identified at multiple levels within a district, but the vision should be the glue that keeps everything

connected. For example, a district action plan for student achievement is not just the superintendent's plan; it is the plan for all building administrators, classes, and ultimately teachers. If all action plans are tied to the vision and constructed in this manner, we have a much better chance of creating systemic change as needed. If this type of understanding exists, the foundation for an effective planning process is set.

4. Begin and end the action plan with the same goal statement. The goal must be established and agreed upon in a collaborative manner, as it is easier to support an initiative when it is cultivated from the bottom up. Although it may be initially easier for an administrator to independently create the goal statement, the initiative will be in jeopardy from the beginning because it is subject to the position or status of that administrator at that given moment. Unfortunately most goals are created by district superintendents or building principals in isolation in an effort to quickly make an impact, or just because of the amount of effort required within the culture of a district to gain consensus on the goal.
5. When writing a goal statement it must be structured and presented in a clear and concise manner. Consider using a "SMART" approach when creating goal statements. SMART is an acronym for the following:

   S – Specific
   M – Measurable
   A – Attainable
   R – Realistic
   T – Time-driven

For example, a district whose goal statement reads, "we will increase student achievement," did not develop a SMART goal. With a little work, the goal can be revised into the following SMART format: "Our goal is to increase our fifth grade math state assessment results from 45% to 54% proficiency."

This goal is (S)specific to a grade and subject, (M)measurable based on proficiency levels, (A)attainable with the consensus of building staff, (R)realistic based on statistics from other comparable districts, and (T)time-driven as everyone is aware of the date for the next assessment. A SMART goal in this format can easily be supported by an action plan and an effective planning process.

Once an appropriate goal statement is developed, an action plan is more easily built, understood, and followed. Although there is no

incorrect format for an action plan, it should contain, at a minimum, the following components:

- a series of tasks tied to the goal that, if met, will lead to success;
- assigned and dedicated individuals who will be responsible for each task; and
- target dates for the completion of each task.

An effective action planning process can help an organization change and become a data-informed culture that uses both assessment and curriculum data to revise instruction and increase student achievement. Two examples of action plans are shown in Figure 1.3 and Table 1.1. One is from the New Hampshire Department of Education, and the other is from the Boyertown Area School District, located in Pennsylvania. The first is a plan to implement a statewide data-analysis tool for assessment data. The second is a rollout of technology for accessing reports based on assessment data. The two plans are obviously different in size and scope, and, at first glance, appear to look completely different. However, both plans contain the necessary core elements of an effective plan and, as a result, led to successful implementations of their solution.

Figure 1.3 Project Plan for State of New Hampshire

Task Name	Duration	Start	Finish	Resource Names
Phase One Project Implementation	**99.4 days?**	**Tue 10/10/06**	**Tue 2/27/07**	
Initiation Phase	0 days	Wed 10/11/06	Wed 10/11/06	
Project Preparation	**1.3 days**	**Wed 10/11/06**	**Thu 10/12/06**	
Assign PPI Project Team - IP	13 hrs	Wed 10/11/06	Thu 10/12/06	PPI Mgmt,Project Manager
Verify Client Project Team - IP	0 hrs	Wed 10/11/06	Wed 10/11/06	Project Manager,PPI Mgmt
Schedule Implementation Meeting - IP	8 hrs	Wed 10/11/06	Wed 10/11/06	Cust Serv Org
Implementation Meeting	**2 days**	**Tue 10/10/06**	**Thu 10/12/06**	
Review Project Scope and Vision - IP	10 hrs	Tue 10/10/06	Thu 10/12/06	Project Manager
Team Introductions - IP	0 hrs	Wed 10/11/06	Wed 10/11/06	Project Manager
Review Project Tasks - IP	0 hrs	Wed 10/11/06	Wed 10/11/06	Project Manager
Review Project Timeline- IP	0 hrs	Wed 10/11/06	Wed 10/11/06	Project Manager
Assign Resources - IP	0 hrs	Wed 10/11/06	Wed 10/11/06	Project Manager
Project Manager Staff Preparation Meeting - IP	1 day	Fri 10/13/06	Fri 10/13/06	Project Manager
Assessment Staff Preparation Meeting - IP	1 day	Mon 10/16/06	Mon 10/16/06	Ed Consultant
Data Staff Preparation Meeting - IP	1 day	Tue 10/17/06	Tue 10/17/06	Data Specialist
Technology Staff Preparation Meeting - IP	1 day	Fri 10/13/06	Fri 10/13/06	SW Dev Consultant
Training Staff Preparation Meeting - IP	1 day	Thu 10/19/06	Thu 10/19/06	Trainer
Status Meeting - Init Phase - IP	1 day	Mon 10/23/06	Mon 10/23/06	Project Manager,Ed Consultant

Credit: Mary Heath

Table 1.1 Boyertown Area School District—Data Analysis Technology Rollout, 2006–2007

Date	*Time*	*Content/Action Step*	*Person(s) Responsible*
December 21, 2006	3:00–5:00	Extended overview of product to core group of administrators and teachers.	Stephanie Gladfelter Robert Scoboria Susan Keck Special Ed Directors
January 15, 2007	8:00–12:00	½ day training for all administrators and Marca Malick (POC). Data teams need to be identified by March 28. Training will be week of August 13.	Dara Bogovic Marty Horner Susan Keck
January 24, 2007	9:00–10:00	Follow up activities for administrators during Leadership Team Meeting.	Susan Keck
February 16, 2007	7:30–8:30	Overview of IEP product to all Special Education Teachers.	Stephanie Gladfelter Robert Scoboria Susan Keck Special Ed Directors
February 16, 2007	8:45–11:45	Follow up ½ day training for all administrators and Marca Malick (POC).	Dara Bogovic Marty Horner Susan Keck
February 28, 2007	9:00–10:00	Facilitating conversations around data. Leadership Team Meeting. Principals identify data teams from each building. Approx imately 6–12 per team.	Susan Keck Principals
March 28, 2007		Principals forward names of data teams to Susan Keck.	Principals Susan Keck
April 4, 2007	12:30–1:30	Overview of solution and the role of data for entire BASD staff. Two separate but simultaneous presentations (elementary and secondary groups).	Dara Bogovic Marty Horner Susan Keck

Credit: Susan Keck

TECHNOLOGY AS A RESOURCE

As demands increase for all educators, so does the need for additional tools and resources. This new cyclical approach of creating and revising curriculum, instruction, and assessment requires the use of technology. Schools cannot maintain the necessary dynamic relationships without the aid of technology.

Technology can provide easy access to curriculum and assessment data for all educators from classroom teachers to district administrators. By making data widely available, technology can facilitate collaboration about curriculum and assessment. Using technology to store, access, and review data helps ensure that data becomes the basis for our dialogue. This will lead to deeper and more informed professional conversations, and can have a profound effect on the educational environment.

We suggested earlier that in order to sustain organizational change it is essential to provide the necessary resources for people to do the work. Technology is a necessary resource. As Collins suggests in *Good to Great* (Collins, 2001), technology is an accelerator of momentum. Once a user reaches a proficient level of using technology, data is easily accessed and time can now be applied to more appropriate efforts. Instead of spending time counting and sorting, the professional community spends time analyzing and making sense out of the information. While the work can still be rigorous and time consuming, when curriculum and instruction change to the benefit of student learning, the momentum to do the work will increase. When it reaches the point of being used systemically by all educators in the organization, technology will become a key resource that transforms the district into a data-informed culture.

SUMMARY

Our approach to data-informed decision-making is to develop a series of changes that lead to building a sustained foundation for a data-informed culture. A vision is created and lived throughout the district. The vision emphasizes the use of curriculum and assessment data in an environment where data dialogue occurs on a regular basis. Goals are established, monitored, and reviewed on a regular basis. And data dialogue occurs in all aspects of the educational system. The key components include knowledge about curriculum and assessment data, utilizing technology to provide summarized information from the data, using the data as the basis for inquiry about student learning, and developing an action plan to test the hypotheses that have been generated. The most difficult part of this work is to sustain the culture as administrators, Boards of Education, and teachers change. Our experience suggests that a carefully monitored and revised action plan can serve as a reminder and discipline for continuing the work regardless of the leadership.