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Leading Schools in a Data Rich World

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Not so long ago, decisions in education were based on the best judgments of the people in authority, using a combination of privileged and tacit knowledge of the context, political savvy, professional training and logical analysis. Data played almost no part in decisions. Now, there is no escaping data in education. Accountability has become the watchword of education and data hold a central place in large-scale reform.

Educational leaders have mixed feelings about this shift. Certainly, there is considerable evidence that using data can be the impetus for conscious attention to educational issues that might not have been considered without them (Firestone et al., 1998; Earl and Torrance, 2000). Data about schools capture the attention of the public and work as extrinsic motivation to encourage action where it might otherwise be absent. These are not the only consequences, however. There have also been unintended consequences of centralized public accountability systems, particularly from high-stakes testing and public reporting. As a result, school leaders are often apprehensive about data, and sometimes even feel like victims of unfair judgments based on data (Johnson, 1996).

Learning to Live With Data and Like It

School and district leaders are awash with data. But what are they to make of the data? What can data offer to leaders?

We would like to suggest that just having data offers them very little. For a skilled leader, however, data can be a compelling force in improving schools. The value associated with data come from being able to discern the quality of the data and to organize it, think about what it might mean and use it to make decisions. This is a human activity that requires capturing and organizing ideas and turning the information into meaningful actions (Senge, 1990).

Leaders comply with high-stakes accountability systems because of external pressure to conform. The data that get collected about things like student performance or fiscal management create a sense of urgency and provide “pressure” for change. But "real" accountability is much more than providing a ledger sheet or identifying the “culprits”. We propose that the essence of accountability is using data to understand current performance and to formulate plans for reasonable actions (Earl and LeMahieu, 1997). This move from accountability as surveillance to accountability for improvement requires a fundamental mindshift. Educators, themselves, need

to be the prime consumers of data in the process of making decisions. Compliance with surveillance demands typically results in fragile change. For data to have deep and lasting effects in schools, the motivation for its use has to be intrinsic, rooted in a need to know. This means thinking about accountability and using data as a part of a leader's repertoire for organizational improvement. Schools that are able to use data to take charge of change are more effective and improve more rapidly than ones that are not (Rosenholtz, 1989; Stoll and Fink, 1996; Gray et al., 1999). Viewed from this vantage-point, data are a necessary part of an ongoing process of analysis, insights, new learning and changes in practice. Synthesizing and organizing data in different ways stimulates reflection and conjecture about the nature of the problem under consideration and provides the vehicle for investigating and planning focused improvement strategies.

If data are to become part of the fabric of school improvement, leaders in schools and districts must become active players in the data-rich environment that surrounds them and incorporate a "system of use" for interpreting and acting on information into schools and districts (Earl and LeMahieu, 1997). Becoming a skilled and confident consumer and user of data is not simple or straightforward; nor is it a mechanistic process. It is a skill and an art and a way of thinking that includes understanding of the nature of evidence, from its definition and collection to its interpretation and presentation (Katz, Sutherland and Earl, 2001).

Capacities for Leaders in A Data-Rich World

Using data for school reform is like painting a series of pictures – pictures that are subtle and changeable and capture the nuances of the subject. This is a far cry from drawing stick figures or paint by numbers. Imagine the experiences of Monet as he wandered through his garden at Giverny at different times of the day and the year, from different directions, with attention to different colors or textures or designs. His work was always driven by data – by the colors, textures, and images that he observed, investigated and responded to. He immersed himself in Giverny and used his considerable interpretive talent and experience to draw the salient features to the foreground and communicate a mood and a message to his audience. And he didn't paint one picture and call it Giverny. He painted hundreds, each capturing different subtleties of the world he inhabited.

This metaphor of Monet the painter offers an alternate view of leaders using data. Instead of being automatons, using data to paint by numbers on a canvas designed by someone far away, leaders can be producers of images of their schools and of their educational futures. Data are the colors available to them to investigate and represent their world. And data, like colors on a palette, need a talented artist to bring them to life. Just as the paint tubes provide a mechanism for portraying the flowers in the garden, data describe ideas or concepts but need wisdom and experience to give them meaning.

So, how do leaders become competent and confident at interpreting and using data? Being a leader in a data-driven world, like being a capable artist (if not a Monet), requires a positive orientation to using data and a range of skills and knowledge associated with the conventions of interpreting and using data. We suggest that leading schools in a data rich world requires that leaders:

- develop an inquiry habit of mind,
- become data literate and
- create a culture of inquiry.

Develop An Inquiry Habit of Mind

Leaders who use data productively have a mind set of being in charge of their own destiny, always needing to know more and creating or locating the knowledge that will be useful to them along the way. As Senge (1990) said, a learning organization is one that is “continually expanding its capacity to create its future”. It is not a linear or mechanistic process, but an iterative process of “thinking in circles” (O’Connor and McDermott, 1997) with a series of decisions, actions and feedback loops guiding the process. In this kind of school leaders are not technicians organizing and manipulating data in prescribed ways, like following a paint-by-number picture; they develop an “inquiry habit of mind”, collecting and interpreting evidence in ways that advance their understanding. Habits of mind incorporate dispositional, emotional, motivational and personality variables that contribute to competence in managing the environment and making decisions (Keating, 1996). We link *inquiry* to *habit of mind* to emphasize a way of thinking that is a dynamic iterative system to organize ideas, seek out information, and move closer and closer to understanding some phenomenon. What does this mean for school leaders? A school leader with ***an inquiry habit of mind***:

- **Values Deep Understanding:** Leaders with an inquiry habit of mind do not presume an outcome; instead they allow for a range of outcomes and keep searching for increased understanding and clarity.
- **Reserves Judgment and Has A Tolerance for Ambiguity:** Learning from data requires a tolerance for uncertainty and a willingness to live in the dissonance long enough to investigate and explore ideas until there is some clarity about what it might mean.
- **Takes A Range Of Perspectives and Systematically Poses Increasingly Focused Questions:** Data almost never provide answers. Instead, using data usually leads to more and more focused investigation and to better questions.

Become Data Literate

There is probably nothing in education that garners more public attention than data about schools. But, as one of us has written elsewhere, building on a concept put forward by Stiggins (1990):

We live in a culture that has come to value and depend on statistical information to inform our decisions. At the same time, we are likely to misunderstand and misuse those statistics because we are “statistically illiterate” and consequently have no idea what the numbers mean (Earl, 1995, p. 27).

Not much has changed since that time. Interpretation and application of data by educators, and by the public, are often woefully inadequate, and sometimes very wrong. If school leaders are going to be active in interpreting and using data, as well as challenging and disputing interpretations or uses that they believe are contestable, they must become “data-literate”. A

data-literate leader:

- **Thinks About Purpose(s):** No doctor would take a patient’s temperature and use it to ascertain their cardio-vascular fitness; neither would pilots be content with wind-speed, as the only data needed to plan transatlantic flights. All too often, educational decisions get made using no data or available data, rather than appropriate data. Data-literate leaders realize that they need different data for different purposes
- **Recognizes Sound and Unsound Data:** Data are numbers or words or pictures that represent some underlying ideas. They are estimates, with some degree of uncertainty, not absolute measurements. One of the first challenges for anyone interpreting data is to ascertain the quality of the data that they intend to use. Bad data can contribute to bad decisions. For some leaders, the existence of flawed data is sufficient reason to ignore or mistrust data, altogether. But to blame the data is unreasonable. When people use words to make false claims or offer unreasonable ideas, we don’t blame the English language. Rather than trashing all statements with numbers in them, a more reasonable response is to learn enough about the statistics to distinguish honest, useful conclusions from skullduggery or foolishness (Abelson, 1995).
- **Is Knowledgeable about Statistical and Measurement Concepts:** Data in education are generally measurements of something, often analyzed using statistics. But statistics strike fear into the hearts of many people. For the most part, educators have not seen statistics as a useful addition to their tool kit for decision-making. Instead, statistics are either imbued with a magical quality of numerical “truth”, or they are mistrusted as blatant attempts to distort or to manipulate an audience. Neither of these positions is defensible. Tests and statistical procedures have been developed to try to provide *estimates* of invisible human qualities like achievement or creativity. And, there are conventions and rules for the measurement of student achievement that are extremely important, especially when the results are being used to make significant decisions. If leaders are going to use data to enhance rather than distort educational decisions, they have a responsibility to understand the principles that underlie the statistics.
- **Makes Interpretation Paramount:** Data and statistics may provide the tools for measuring educational concepts, but the numbers are only as good as the thinking and interpretation. Data do not provide right answers or quick fixes. Instead, they are necessary but not sufficient elements of the conversations that ensue. Data offer decision-makers an opportunity to view a phenomenon through a number of different lenses, to put forward hypotheses, to challenge beliefs and to pose more questions. Interpretation requires time, thoughtfulness, reservation of judgements and open challenge of, as well as support for, ideas. Interpretation, then, is thinking – formulating possibilities, developing convincing arguments, locating logical flaws and establishing a feasible and defensible notion of what the data represent
- **Pays Attention to Reporting and to Audiences:** Not only do data provide lenses for seeing more clearly, leaders can use data to explain and justify their decisions to those who care to know. Jaeger et al. (1993) found that reports prepared for parents about schools did not

contain the information parents considered most important for them. They were also misinterpreted by 30-50% of the parents who received them. Attention to audience, presentation of data, interpretation and key messages can't be overlooked as essential elements in using data wisely.

Create A Culture of Inquiry

School leaders have little chance of using data unless the school community is also committed to using data to make sense of their environment and to think about their future. This means making a dramatic shift in mindset for the whole educational community so that data become a core part of school culture, even a topic of staff room conversation and classroom practice. Leaders have the challenge of convincing the school faculty and community of the merits of using data for productive change and to create the conditions in which data can become an integral part of school decision-making. In order to create a *culture of inquiry*, a leader:

- **Involves others in interpreting and engaging with the data:** New insights don't happen by osmosis. They come from facing ideas that challenge the familiar ways of viewing issues. They happen in the dissonance and in the construction of new and shared meaning. Leaders contribute to a culture of inquiry by providing opportunities for others to become inquiry-minded and data literate. This means facilitating, sponsoring, mentoring and convincing others to engage with the data and think about it, even (and especially) when it is hard work. Fullan (1999) describes learning communities as places where: "interaction inside and outside the organization converts tacit knowledge to explicit knowledge on a ongoing basis" (p.16). But, all too often, "new insights fail to get put into practice because they conflict with deeply held internal images of how the world works" (Senge, 1990, p. 174). Data can offer a vehicle for investigating tacit knowledge to refine and even transform it as it is converted into explicit knowledge for use in making institutional decisions.
- **Stimulates an internal sense of "urgency":** Data can be a powerful mechanism for refocusing the agenda or recasting the problem. No school is as good as it can be; there are always areas that deserve attention. Data become the window for identifying "what next" and instilling "urgency" as a way of unleashing the energy associated with embarking on a course of action that makes sense in fulfilling the moral purpose of schooling (Earl & Lee, 1998)
- **Makes time:** Making sense of data and using it to come to collective meaning and commitment is not an overnight process and it doesn't happen in one-shot. Leaders and the people who work with them are going to need time, and lots of it – to think about the important issues, to decide what data is relevant and make sure they have it, to consider the data and try to make sense of it, to argue and challenge and reflect, to get more information, to argue and challenge and reflect again, to formulate and reformulate action plans, to prepare thoughtful and accessible ways to share their learning with the community and to stand back to consolidate what they have learned. Luckily the time spent will be an investment in organizational learning and better decision-making, but leaders have the task of managing this precious commodity to ensure that important things are done well.

- **Uses “critical friends”:** The idea of *critical friends* is a powerful one. Friends bring a high degree of positive regard, are forgiving and are tolerant of failings. Critics are often conditional, negative and intolerant of failure. Critical friends offer both support and critique in an open, honest appraisal (MacBeath, 1998). As Costa and Kallick (1995) describe it, a critical friend is “a trusted person who asks provocative questions, provides data to be examined through another lens, and offers critique of a person’s work, as a friend”(p. 154). External critical friends, with expertise in data collection, interpretation and use, as well as sensitivity and the ability to listen and think on their feet, come without vested interests and can building trust and bring a dispassionate perspective. They can observe what may not be apparent to insiders, facilitate reflection on the issues that arise, explain complex data in accessible ways, ask questions, probe for justification and evidence to support perceptions and help reformulate interpretations. They are not afraid to challenge assumptions, beliefs or simplistic interpretations in a non-judgmental and helpful way. Critical friends are well placed to remind the participants of what they have accomplished and facilitate their movement towards the next goals.

Implications for Leaders

This paper does not provide a comprehensive description of the capacities that leaders need to use data wisely and well in their work. Rather, we have tried to provide an argument for leaders being the primary creators, consumers and users of data for decisions and for planning improvement initiatives. In the process, we have encouraged leaders to consider not only what they need to know but also why they need to know it and how they can maximize the productive use of data.

There really is no choice for leaders. The 21st. C. is the “information age”. There has been an exponential increase in knowledge and information. Technology has made knowledge available in raw and unedited forms in a range of media. As society tries to come to grips with this vast deluge of new and unfiltered information, there are also challenges to the ways in which this information is formed into knowledge. Information becomes knowledge when it is shaped, organized and embedded in a context that gives it meaning and connectedness. The implications for leaders are vast but the tools are available.

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