Quelle: URL: www.dds-home.de/
Eine deutsche Übersetzung des Textes ist erschienen in: DDS – Die Deutsche Schule 101 (4/2009), S. 323-340.

Halverson, Richard: New Instructional Leadership. Wie Schulleitungen die Kompetenz entwickeln können, schulisches Lernen systematisch zu verbessern. In: DDS – Die Deutsche Schule 101 (4/2009), S. 323-340.

Im Folgenden finden Sie den der Übersetzung in der DDS zugrunde liegenden Originalbeitrag in englischer Sprache;
Quelle: www.dds-home.de/v2009/inhalte/ (bei Bezügen und Zitaten bitte immer angeben).

Richard Halverson

New Instructional Leadership

How local school-leaders develop the capacity to systematically improve student learning

Abstract
This paper considers how local school leaders build data-driven instructional systems (DDIS) by developing new programs and using existing school functions to create an information flow through a school. The DDIS is presented as a framework involving data acquisition, data reflection, program alignment and integration, program design, and formative feedback, The paper reviews data collected in a five-year study to describe how leaders and teachers create the capacity to meet the demands of accountability policies.

American public school leadership is undergoing a revolution. American schools have traditionally been local, community-based organizations. Successful school leaders balanced professional knowledge of how to improve student learning with the social and political pressures to supply jobs and prestige to the local community. School leaders thus organized their work to satisfy the goals of multiple constituencies such as: employment security, high matriculation rates, extra-curricular opportunities, financial stability and safe learning environments. The recent policy press for standards and accountability in the United States, expressed through the No Child Left Behind Act (2002), has emphasized school responsibility for improving student learning in terms of standardized assessments. Policy makers have used the concept of *accountability* to capture the variety of instruments developed to direct and monitor school change. Responsibility for meeting the demands of American accountability policies has two levels. First, national and state policy makers are responsible for providing the standards and assessments necessary to measure school success. Second, local schools and districts are responsible for developing the instructional and professional capacity to meet accountability requirements. These public schools have scrambled to

develop the capacity to meet the demands of high stakes accountability polices (Elmore 2000).

This paper presents the *data-driven instructional system* (DDIS) as a model of how local school leaders develop the capacity to systematically improve student learning. A DDIS describes data-driven instructional capacity in terms of a school-wide information feedback system to translate summative achievement test data into the kinds of formative data that help teachers develop programs and practices that improve student learning. The paper relies on observational and survey data from nine American public elementary and high schools collected over five years. The DDIS model illustrates how school leaders worked to create local instructional capacity in their schools. The paper concludes with thoughts on the place of data-driven instructional practices in the context of American school leadership.

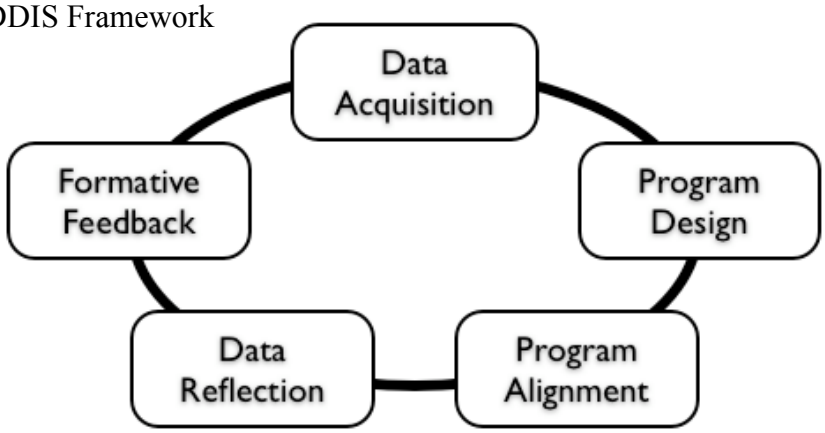
Methods

This paper includes data collected during a five year National Science Foundation-funded research project designed to study how leaders create systems to help teachers use data in their instruction. We identified nine public elementary and middle schools with reputations for using data effectively and records of improving student achievement (Appendix 1). We conducted a total of 52 structured interviews of formal and informal leaders across the schools; 53 observations of faculty meetings, professional development sessions, data retreats, and other important events as identified by the staff, and a variety of artifacts from every school such as school improvement plans, staffing charts, budgetary information and parent/community handouts. We used a qualitative data analysis program (NVIVO 2.0) to code our data thematically. We developed the emergent DDIS framework (presented below) as we analyzed the ethnographic, documentary and quantitative data. We refined the coding scheme by engaging in inter-rater reliability procedures that led us to code the same pieces of data together.

Data-Driven Instructional Systems in Schools

Our analysis illustrates how leaders engaged in practices that create local capacity to use data to inform student learning and meet the demands of accountability policies. We developed the Data-Driven Instructional System (DDIS) model to capture the practices of this new form of instructional leadership (Halverson et al. 2007; Blink 2007). In this section, we describe the different aspects of this model in terms of the data we collected. The DDIS model describes five component functions: (a) data acquisition, (b) data reflection, (c) program alignment, (d) program design, and (e) formative feedback (see Figure 1).

Figure 1: DDIS Framework



Data Acquisition

Data acquisition refers to processes leaders designed to seek out, collect, and prepare information to guide teaching and learning. A central assumption across our schools was that data should fuel the improvement process. The data acquired must have the potential to inform teaching and learning, but it need not be limited to test score results. In the schools we studied, we found that data acquisition activities consisted of three subsidiary functions: (a) data collection, (b) data storage, and (c) data reporting.

Data collection. Leaders in each school had access to standardized test scores both through paper reports sent to the schools and through online data portals maintained by the test publishing company. In addition to summative test scores, each school collected information on attendance, student and community demographics, discipline referrals, expulsion and retention records, and student grades. The schools also collected a variety of data about the instructional program, such as student writing samples, teacher and class observations, survey-based school climate data, and daily student assessments (usually in literacy). The district offices played a central role in data collection by making district and state assessment information available to principals online.

School leaders realized that data generated for summative accountability purposes were insufficient to support local change processes (cf. Thorn 2001). As a result, every school had developed a number of internal data acquisition systems to guide instructional improvement. In addition to systems for recording student achievement data, our schools developed systems for managing attendance and discipline data. One associate principal articulated the school's method of recording attendance and the connection between attendance and learning:

One school developed a robust system for recording student discipline data to address the influence of student behavior and school environment on teaching and learning. The Respect and Responsibility (R&R) program relied on a shared spreadsheet to record and track behavioral data. The school's principal reviewed the data during a weekly meeting with the administrative team, and at any other time as needed. The R&R program is an example of a local data collection system that reaches beyond standardized test scores to address issues of student behavior.

Data storage. We observed a range of low- and high-tech data storage practices, ranging from filing cabinets and binders to sophisticated off-site data warehouses. Six of the DDIS schools relied on a significant district investment in data warehousing technology for data storage purposes. Still, each school principal relied primarily on low-tech printouts and notebooks to keep track of data relevant to the school program. Aside from standardized attendance and budgeting programs, schools' local data storage systems generally operated independently of district data systems. The mismatch between high-tech district storage and low-tech local collection and storage meant that (a) local leaders needed to be literate in both systems and (b) principals acted as data conduits between the district and the schools. Local school leaders seemed to realize that control over information storage would determine the kinds of information they could legitimately collect and that integrating all relevant information into a single system would likely reduce their autonomy and flexibility. Relinquishing control over data storage to the district office would limit leaders' capacity to address emergent problems and would increase external control over school decisions.

Data reporting. Schools tended to see data reporting in terms of social interactive processes, while districts approached data reporting from a technological perspective. In one school the principal and several lead teachers met regularly to develop reports on student learning collected through regular testing and anecdotal information. The discussions surrounding report generation and results provided an occasion to develop shared understanding of purpose and strong professional community among the leadership team. School leaders developed a *Critical Index* to highlight data that indicated significant changes in student learning. An administrator collected the data and compiled the Critical Index every month to expedite its review by the principal. The principal explained the origin of the Critical Index and the recognition it has since received:

> The Critical Index became an occasion for regular staff conversations about the current state of the school's instructional system.

Quelle: URL: www.dds-home.de/
Eine deutsche Übersetzung des Textes ist erschienen in: DDS – Die Deutsche Schule 101 (4/2009), S. 323-340.

Data Reflection

Data reflection refers to processes developed to make sense of student learning data that result in goals for improving teaching and learning. Making collective sense of data is a critical function of a DDIS. While reflection is an on-going and unpredictable consequence of working in data-rich environments, in the DDIS data reflection refers to opportunities for teachers and leaders to collaboratively make sense of data. Successful data reflection involves problem framing and concludes with the determination of goals and a plan of action. Data reflection occurs through structures leaders build to help their schools make sense of which problems to address and to set goals for the instructional program. These occasions for reflection can take place at the district, school, grade, or content area level. We found two levels of data reflection artifacts in our schools: (a) district-led data retreats and (b) local school reflection meetings.

District-led data retreats. Data retreats provided an opportunity for large groups within districts and/or schools to make sense of achievement data and to set organizational goals (Sargent 2003). Data retreats require schools to assemble a variety of data, to discern patterns in what they have assembled, and then to generate hypotheses and action plans to address these concerns (cf. Marsh/Pane/Hamilton 2007). Four of our schools engaged in district-led data retreats just after the close of their school years. Attendance was voluntary, although one district arranged for college credits to encourage teachers to attend. One district used its data retreat to tie data reflection practices into their annual "visioning process." The district administrator explained how, once they identified an issue, they examined more data to determine contributing factors. This "deeper" reflection, as he called it, came only after the initial recognition of the problem:

> We also dug deeper and said ok, of those students who are performing at the lowest levels, what kind of classes are they taking? We found out that the boys are taking lower level classes and they're taking fewer core academic classes than the girls.

Collaborative reflection on the data helped them narrow the problem of student achievement to the issue of gender equity and led to discussions about how to resolve the issue through the instructional program.

Local data reflection activities. Each of our schools structured a number of reflection activities to develop local instructional goals, as well as to plan how to meet the goals formulated at district data retreats. One school set aside "implementation days" that involved the whole faculty in discussing student achievement and student behavior reports. The inclusion of special education staff in these discussions afforded robust communication between specialists and classroom teachers, enabling the staff to discuss the needs of struggling students together. Another school convened its administrative team on a weekly basis to review the school's behavior data reports. The

principal then used these meetings and reports to identify emergent issues in the school and to develop strategies to share the academic and behavior data with teachers during regularly scheduled grade-level meetings. She used these data to create a "shared culture around children" and establish "collaborative conversations around kids," particularly to identify "what's going on or not going on with the kids." After one such meeting, she described the discussions that resulted from sharing data with her staff as "the beauty of data—we can have these conversations."

The value of local data reflection sessions seemed to lie not in the sophistication of the statistical analysis, but in the frank discussions of practice. The school-level reflection sessions relied on simple graphs and tables of achievement data. These reflection sessions addressed data disaggregation, item analysis, and individual student progress. Data disaggregation activities at the school level began with breaking the state standardized achievement test data down to the individual student level, which then allowed teachers to relate additional behavioral and social data to an understanding of the achievement results. We found the overwhelming majority of discussions focused on using several pieces of achievement and behavioral data to help struggling students achieve proficiency; few discussions concerned how to raise student achievement from proficient to advanced levels. We found that teachers were more engaged in discussions about individual students than in consideration of grade-level or subject matter groups, and that formal leaders took responsibility for shifting discussions from individual student interventions to programmatic implications.

Program Alignment

Program alignment involves processes to identify gaps between the school instructional program and assessment results. Because there is no prescribed national curriculum, American school leaders are typically in the position of determining which instructional program will be used in the school. Program alignment has long been a staple of school and district professional development – here we investigate the degree to which program alignment activities connect with data discussions. The program alignment activities we identified served two key purposes in our schools. First, alignment activities served a *problem-finding purpose* by pointing to areas where the current instructional program did not address student learning needs. Second, alignment activities helped schools understand the degree to which their current programs fit together and addressed relevant content and curricular standards.

Program alignment activities show how schools analyze whether their programs are currently able to reach instructional goals. To illustrate the dimensions of problem finding, we highlight one school's decision to adopt a prescriptive school-wide instructional program. Faced with a disjointed

learning program and declining test scores, the principal saw her first step was to understand what kinds of programs were already in place. The principal saw program alignment activities as a condition for determining the school-wide effort to improve student learning. She used alignment activities to understand, and to help the staff see, how the current program fit together in order to determine an action agenda. This analysis resulted in a faculty-wide search for comprehensive curriculum programs that best suited their needs.

The staff used these data as a problem-finding process for identifying gaps in the instructional program. They decided to adopt a comprehensive curriculum model that included lessons, instructional materials, assessment tools and professional development. This curriculum model constrained, but did not solve, the school's student achievement problems. Once adopted, the staff used the program to determine the congruence between their instructional program and relevant learning standards. The comprehensive curriculum model provided prodigious amounts of data through direct, ongoing measurement of student learning in relation to curricular goals. The staff began to consider the alignment of the curriculum program with state-wide learning standards. The school's commitment to the program also helped teachers and leaders to align the instructional program with student services, community outreach, and other programs. Program alignment activities provided schools with information about the range and organization of their current programs. From a DDIS perspective, however, alignment activities come to life as "reality-testing" functions that inform goals set through data reflection. Building an information flow within schools requires that leaders align programs to determine where resources have already been spent and where they will need to be allocated.

Program Design

Schools use *program design* to act on perceived instructional needs by creating or adapting a variety of programs such as curricula, pedagogies, or student service programs to improve student learning. Program design addresses the range of programs adopted or designed by the school to address recognized problems. The DDIS program design function also considers whether program adoption flows from data discussions and the degree to new initiatives are linked to each other in the school system of practice. We found three distinct categories of artifacts used to shape school instructional program activities: (a) *faculty-based programs* used to develop staff capacity; (b) *curriculum-based programs*, for students in conventional classroom settings; and (c) *student-based programs*, designed to customize institutional resources to the needs of individual students.

The ***faculty-based program design*** we observed consisted of a variety of cross-functional staff teams created to have a critical influence on data use.

School leaders helped organize three levels of staff organization: leadership teams, faculty teams and student intervention teams.

- *Leadership Teams*. Each school had a school leadership team composed of a select group of leaders and teachers. Leadership teams served an executive function in the schools by setting the agenda for reformed practice, implementing the school improvement plan, and acquiring and coordinating resources for improvement:

- *Faculty teams* provided structured opportunities for teachers to use data in discussing curriculum issues. Each school had grade level and other faculty teams to address different aspects of the program. For example, one school required all staff to serve on Educational Plan teams that used data to develop and measure the school instructional plan. In another school, leaders assigned school faculty to serve on teams such as the Literacy Action Team and the Climate and Order Team to coordinate school improvement efforts. Team composition was a thoughtful process for leaders to balance staff professional learning needs, dispositions and expertise into groups that would enable data-driven instructional processes in the school.

- *Student intervention team.* A final form of staff team structure was developed for using student-level data to address the needs of individual students. While special educators have long relied on these types of team structures to identify and serve special education students, the student intervention teams we observed were designed to allow staff to customize instructional plans for students identified as struggling in terms of standardized tests without resorting to special education placement. One school's Problem Solving Teams (PST), for example, helped identify unmotivated or struggling students and provided a process for teachers to discuss the student's needs, contact parents or connect the student with other instructional or behavioral resources. The PST consisted of a special education-like staffing including parents, classroom teachers, the school psychologist (or social worker), and an administrator to develop and implement a customized student instructional plan. The student intervention teams provide an opportunity to bring summative, formative and informal data on student achievement together to clarify and address the needs of individual students.

Although staff teams certainly are not new to consideration of reform efforts, our investigation confirmed prior research about how cross-functional teams helped to create the capacity for staff to engage in data-driven decision making (Chrispeels/Brown/Castillo 2000; Feldman/Tung 2001). We do not, however, want to paint an ideal picture of staff members gladly contributing all their preparation time for teamwork. Some teams seemed far stronger and more purposeful than others, and the teams that included administrators tended to meet more often and had clearer agendas

than the primarily faculty teams. Still, because leaders and teachers served on several kinds of teams in each school, the team structures allowed staff to participate in data-based inquiry on multiple levels.

Curriculum-based program design. Curriculum-based programs include the variety of conventional programs schools use to guide classroom instruction. We found that each of our schools had selected a variety of reading, writing, and math curricula to meet the state accountability demands in these subjects. Six of the schools followed their district's lead in adopting integrated curriculum packages in math and language arts. School leaders felt that the district approach to math had significantly student learning outcomes. Consequently, math received less attention in the DDIS-related discussions we observed. Improving literacy scores, on the other hand, continued to prove a stubborn challenge and served as the central topic of data reflection and program design in the our observation of DDIS activities.

Program design was also used to provide targeted solutions to specific problems that surfaced through the data reflection. For example, leaders at one school reacted to their failure to meet progress requirements in special education by seeking out an effective curricular intervention. District and school leaders purchased *Read 180*,[1] a pull-out program designed to offer intensive reading remediation through a combination of classroom and computer-aided instruction. Acquiring programs to address emergent student achievement issues is certainly not new in schools. A typical approach to program design aggregates discordant curricula into incoherent "Christmas tree" schools (Bryk et al. 1998). Integrating program design through data-based decision making helps schools use data as a check against program bloat.

Student-based programs. Student-based program design approaches the instructional question from the perspective of individual, rather than collective, student need. Drawing on the powerful precedent of the special education individualized education plan (IEP), we found that schools used student-based program designs to create customized instructional plans for struggling students (Thomas 2007; Halverson/Thomas 2008). Since the early 1970s, American schools have been required by federal Special Education legislation to provide customized education plans and services for students who struggle with the regular school program. Accountability policies have led school leaders to adapt some of the prevalent Special Education practices, such as the IEP, to develop data-driven instructional plans for a wider range of students. The resulting quasi-IEP student instructional plans customized support plans for students grounded in the school's instructional program. These processes supplemented program-

1 http://teacher.scholastic.com/products/read180/

level designs by providing ways for teachers to plan individual student-level paths through school and district instructional resources.

One school's Respect and Responsibility (R&R) program provides a good example of how the IEP process was adapted to serve the interests of a wider range of students in the form of a student behavior management program. Leaders reasoned that students unable to cope with the restrictions of the classroom environment would have a much lower chance of experiencing success in the instructional program. A teacher involved in the R&R design remarked, "we might hand out a little discipline [in R&R], a little consequence to solve the problem, but discipline still comes from the principal." The R&R team consisted of the school psychologist, the social worker, an educational assistant, a school facilitator, and the school's assistant principal. The R&R team member on duty was called in if the teacher could not successfully resolve problems caused by a misbehaving student, and chronic cases of misbehavior resulted in a referral process crafted by the R&R team in consultation with the parents and classroom teachers. This intermediate intervention step helped make the behavior problems of a number of students manageable without special education identification.

From a DDIS perspective, the key aspect of R&R was the wide range of student data both generated and analyzed by the staff during the referral process. All referrals were documented, tallied, and analyzed in weekly team meetings attended by school administrators, staff, and teachers. The focus of the analysis was to make sense of the frequency, severity, and patterns of behavior as indicated by the R&R referral system. Both cumulative and student-level behavioral data were integrated into the data reflection process at Malcolm to help teachers move beyond test scores and get a handle on the education of the whole student. The R&R program provided the Malcolm staff with the information necessary to help teachers make adjustments in the classroom:

> Every room in this building [has children] with incredible issues—enough to scare people. But kids still learn, they come and they produce, they have good test scores. Teachers and kids are doing what they need to do in order to teach and learn.

A final feature of DDIS program design across our schools was instructional program correction. Our observations lead us to believe that exclusive attention to either curriculum-based or student-based interventions can create a dysfunctional DDIS in which program design does not lead to improved student learning. Adding even the most rigorously tested curriculum-based programs can set up false hopes and failed expectations for student success, while leaving the real problem—the inadequacy of the existing instructional program—unaddressed. Relying on student-level interventions alone can lead to widely reported efforts to "game" accountability systems by focusing resources on the students on the verge of success while ignoring the needs of students on either side of the accountability threshold (Booher-Jennings 2005). Under the leadership of

savvy administrators, however, accountability pressures can result in balanced approaches to program design that can benefit the learning needs of most students.

Formative Feedback

Formative feedback structures produce learner-focused iterative evaluation cycles designed to create ongoing timely flows of information to improve both student learning and instructional program quality across the school. A formative feedback system has three main parts: a shared instructional program, a battery of regular assessments tied to instructional outcomes, and structured opportunities to discuss the data, to revise the curriculum and to develop individual student learning plans. Like data reflection, formative feedback practices occur throughout the school with quizzes, teacher comments on student work, and classroom question and answer. In a DDIS, we consider formative feedback structures that coordinate efforts, both within classrooms and across teachers, to track student learning progress. These structures are primarily used as local assessments for student learning, but are also used as program evaluation tools to analyze current program design effectiveness. Formative feedback differs from data acquisition and reflection in that it refers specifically to local information gathered to inform teachers and school leaders about the progress of school students and programs.

The formative feedback function is perhaps the most critical aspect of a successful DDIS—and the most difficult to implement. Formative feedback structures create occasions to discuss the ongoing information generated by teachers and students about the quality of student learning and school initiatives (Halverson/Prichett/Watson 2007; Prichett 2007). None of the schools in our study demonstrated the capacity to provide systematic feedback on student learning across their instructional programs. The intensive attention and frequent discussion required to collectively make sense of formative feedback makes it expensive for schools to develop a wide range of systematic feedback processes. However, several schools did provide examples of how feedback structures to enhance student learning and assess program quality were developed in specific areas.

One school's early reading program provided an example of a formative feedback system in action. The early reading program was designed by local school leaders to provide systematic feedback on program initiatives. The veteran reading teacher had worked with teachers for 6 years to redesign the K–2 reading program. The cornerstone of the program was Guided Reading (GR), a curriculum that helps early readers develop effective strategies for processing text at increasing levels of difficulty (Fountas/Pinnell 1996). GR relies on *running records*—individualized, ongoing formative student assessments—to help teachers organize groups for reading activities. The reading teacher organized her schedule to spend time working with groups

of students and teachers in each classroom in order to get a sense of teachers' practice and student performance. She began assembling binders of running records information to track student progress over time, and she supplemented the GR assessments with assessment tools such as Reading Recovery[2] and the Developmental Reading Assessment (DRA).[3] School leaders realized the value of structured opportunities for reflection in making formative data useful. The reading teacher described meeting weekly with every teacher and monthly with the K–2 and special education teachers to analyze the data:

Data disaggregation time lets us discuss our children and our program. We look at home life—we know that when families go through a divorce, children lose a year of academic progress. We also look at the data during our [school-wide] implementation days.

Professional time dedicated to data discussion helps develop a strong professional community around literacy instruction and identify problems with the existing program.

This complex system of formative measures served several key functions. First, it helped staff develop a sense of shared ownership of transformed practice. K–2 teachers felt more connected to each other's practice as a result of participating in the GR assessment system. One teacher remarked:

I think that we use the data (to) communicate with each other. We'll come to each other (and ask) do you have an idea of what we can do to get past this point? What can you do, do you have any other ideas? So- so we're sharing that data to help the child in a way to get over the hump. I think we use it everyday at some point in talking with each other.

Second, this professional community helped staff to use the formative feedback as an effective measure of program design. When teachers began to realize that GR was not addressing the needs of several students struggling with decoding, a teacher shared her experience at a phonics-based program workshop. Several other teachers then attended the workshop, and the staff began to integrate phonics activities and assessments into the literacy program for selected students. The formative assessment system in literacy helped staff anticipate the results of the state exam. The reading teacher described how she was "rarely surprised, because the running records help to determine where the children should be on the DRAs, which predict the [state exams] well."

We found the features of formative feedback structures pervasive but difficult to identify as coherent processes. Even though these practices appear to be expensive and difficult to coordinate, the net effect of successfully implemented formative feedback structures can transform

2 http://www.readingrecovery.org/reading_recovery/facts/index.asp
3 http://www.pearsonschool.com

classroom practice by tightening the coupling between data collection and teaching.

Discussion: The New Instructional Leadership

The DDIS framework captured a wide range of data-driven decision-making practices in schools. Each function of the DDIS showed how school leaders and teachers used artifacts to create data-driven activities in their schools. However, taken in combination, the DDIS provides an occasion to observe how data-driven analysis activities came to reshape some traditional characteristics of the school systems of practice. The development of DDIS functions in each school seemed to rest on staff ability to engage collectively around issues of student learning. But which came first – the capacity for action or the data-driven discussions? Prior research suggests that these organizational capacities for change are developed hand in hand as leaders and teachers build organizational structures that allow for ongoing conversations and action about instructional improvement (Louis/ Kruse/Bryk 1995; Halverson 2003). Feldman and Tung (2001) found that data use can help school professional culture to become more collaborative and can help instructional practice to become a legitimate topic for public discussion. Our study suggests that data-based professional development activities, such as implementation days, program design meetings and school improvement planning, provide redundant opportunities for staff to interact around issues of teaching and learning, a key ingredient for developing strong professional communities (Bryk/Schneider 2002; Friedkin/Slater 1994).

The DDIS frame allowed us to see how leaders sought to meet the demands of external accountability not simply by adopting comprehensive school reform processes or teaching to the test, but by carefully and gradually adapting new policy, curriculum and professional development artifacts to existing systems of practice. DDIS practices seemed to lead to organizational learning cultures that emphasized long-term, flexible capacity to improve learning rather than accountability cultures that focused on short-term testing outcomes (Firestone/Gonzalez 2007). The need to translate achievement data into actionable information pressed leaders to link these artifacts together into coherent information feedback loops (cf. Mandinach et al. 2008). In each of the study schools we saw how data discussions served to set problems for subsequent DDIS activities: Data acquisition led to opportunities for data reflection, the goals determined through reflection activities set the program alignment and design conversations, and formative feedback activities were organized around questions of whether program design commitments worked as planned. Data on student learning also streamlined the budgeting process in each school by supporting the program and personnel commitments identified through the goal-setting, reflection and assessment processes. Starting with the concept of an already flourishing internal accountability system allowed us to see the

organic development of data-driven decision making as a matter of how leaders built upon and altered existing capacity.

The DDIS model was intended to capture the ways that local school leaders developed the professional capacity necessary to meet the demands of national accountability policies. Local school leaders are responsible for enabling schools to incorporate data-driven accountability demands into the variety of educational, social and political goals schools must meet. This emphasis on data-based outcomes leads to a "technicist" approach to school leadership that emphasizes how structures can be used to shape instructional capacity. However, in the schools we studied, the structural approach to meeting the demands of accountability policies seemed to unfold in the context of a multi-layered instructional process that continued to meet the multiple demands of the local school. The interactive development of each school's DDIS led leaders and teachers to rely on their professional judgment to determine which programs to alter, which to import, and which to simply leave alone. Evolutionary biologists have developed the concept of "exaptation" to describe how organism features can take on unanticipated functions in new environments (Dennett 1995). In organizational development, leaders guide the exaptation process by redirecting the development of organizational capacity through the purposive design and redesign of instructional program components. The DDIS provides access to how school leaders use professional judgment to build and to help teachers navigate complex data-driven instructional systems. Understanding this process offers insight into the central tasks and innovative practices of the new instructional leadership.

References

Blink, R.J. (2007): *Data-Driven Instructional Leadership*. Larchmont, NY: Eye on Education Press.

Booher-Jennings, J. (2005): Below the bubble: "Educational triage" and the Texas Accountability System. In: *American Educational Research Journal 42* (2), p. 231-268.

Bryk, A.S./Sebring, P.B./Kerbow, D./Rollow, S./Easton, J.Q. (1998): Catalyzing basic organizational change at the building level. In: Bryk, A.S./Sebring, P.B./Kerbow, D./Rollow, S./Easton, J.Q.: *Charting Chicago school reform: Democratic localism as a lever for change*. Boulder, CO: Westview Press, p. 93-124.

Bryk, A.S./Schneider, B. (2002): *Trust in schools: A core resource for improvement*. Russell Sage Foundation.

Chrispeels, J.H./Brown, J.H./Castillo, S. (2000): School leadership teams: Factors that influence their development and effectiveness. In: *Advances in Research and Theories of School Management and Educational Policy 4*, p. 39-73.

Dennett, D.C. (1995): *Darwin's dangerous idea*. New York: Touchstone Books.

Elmore, R.F. (2002): *Bridging the gap between standards and achievement: The imperative for professional development in education*. Washington, DC: The Albert Shanker Institute. Retrieved April 24, 2006, from: http://www.shankerinstitute.org/Downloads/Bridging_Gap.pdf.

Feldman, J./Tung, O. (2001): Using data-based inquiry and decision making to improve instruction. In: *ERS Spectrum 19* (3), p. 10-19.

Firestone, W.A./Gonzalez, R.A. (2007): Culture and processes affecting data use in school districts. In: Moss, P.A. (Ed.): *Evidence and decision making: 2007 Yearbook of the National Society for the Study of Education*. Chicago: NSSE, p. 132-154.

Fountas, J./Pinnell, G. (1996): *Guided reading: Good first teaching for all children*. Portsmouth, NH: Heinemann.

Friedkin, N.E./Slater, M.R. (1994): School leadership and performance: A social network approach. In: *Sociology of Education 67* (2), p. 139-157.

Halverson, R. (2003, October 10): Systems of practice: How leaders use artifacts to create professional community in schools. In: *Education Policy Analysis Archives, 11* (37). Retrieved September 21, 2005, from: http://epaa.asu.edu/epaa/v11n37/.

Halverson, R./Prichett, R.P./Watson, J.G. (2007): Formative feedback and the new instructional leadership. In: *Wisconsin Center for Educational Research Working Paper 2007-3*. Accessed January 17, 2009, at: http://www.wcer.wisc.edu/publications/workingPapers/Working_Paper_No_2007_03.pdf.

Halverson, R./Thomas, C. (2007): The roles and practices of student services staff as data-driven instructional leaders. In: *Wisconsin Center for Educational Research Working Paper 2007-001*. Accessed February 13, 2007, at: http://www.wcer.wisc.edu/Publications/workingPapers/Working_Paper_No_2007_01.pdf.

Ingram, D./Louis, K.S./Schroeder, R.G. (2004): Accountability Policies and Teacher Decision Making: Barriers to the Use of Data to Improve Practice. In: *Teachers College Record 106* (6), p. 1258–1287.

Louis, K.S./Kruse, S.D./Bryk, A.S. (1995): Professionalism and community: What is it and why is it important in urban schools? In: Louis, K.S./Kruse, S.D. (Eds.): *Professionalism and community: Perspectives on reforming urban schools*. Thousand Oaks, CA: Sage Publications.

Mandinach, E.B./Honey, M./Light, D./Brunner, C. (2008): A conceptual framework for data driven decision making. In: Mandinach, E.B./Honey, M. (Eds.): *Data-driven instructional improvement: Linking data and learning*. New York: Teachers College Press, p. 13-31.

Marsh, J.A./Pane, J.F./Hamilton, L.S. (2006): Making sense of data-driven decision making in education: Evidence from recent Rand research. In: *Rand Foundation Education Occasional Paper*. Accessed January 22, 2009, at: http://www.rand.org/pubs/occasional_papers/2006/RAND_OP170.pdf.

No Child Left Behind Act of 2001, Pub. L. No. 107-110, 115 Stat. 1425 (2002).

Prichett, R. (2007): How school leaders make sense of and use formative feedback systems. Unpublished dissertation: University of Wisconsin – Madison School of Education.

Sargent, J. (2003): *Data retreat participant's guide.* Naperville, IL: Learning Point Associates.

Thomas, C. (2007): Problem-solving teams and data-driven school leadership: A path toward the next generation of special education services. Unpublished dissertation: University of Wisconsin – Madison School of Education.

Thorn, C.A. (2001, November 19): Knowledge management for educational information systems: What is the state of the field? In: *Education Policy Analysis Archives 9* (47). Retrieved September 21, 2008, from: http:// epaa.asu.edu/epaa/v9n47/.