Exploring Coherence as an Organizational Resource for Carrying Out Reform Initiatives

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Background/Context: *School districts are responsible for helping schools improve learning for students. However, many district initiatives conflict with each other or with existing instructional practices in schools. Recent research on urban school reform points to the value of program coherence in sustaining school change. Our paper addresses an urban district's efforts to design for instructional program coherence in its schools.*

Purpose: *This study explores the design process of how one urban school district developed and deployed a series of reports designed to communicate the results of student achievement testing across the district. The focus of this research is to understand the district's efforts to design new programs that would fit coherently into existing initiatives in local schools. We attempt to measure and characterize coherence within the district design team as a means to discern how district leaders can assist local actors in implementation of reform initiatives and foster local program coherence within schools.*

Research Design: *This paper presents a qualitative case study of how a district-level nine-member design team built and implemented a reform program to make student performance data reports accessible throughout their district. We used a policy-artifact-based perspective as our methodological framework to access the "program theories" in use by the designers in making the artifact. Our methods allowed us to contrast the differences in the designers' perspectives on the fit between the designed artifacts and the local school environments.*

Conclusions: *The findings from this study revealed how designers developed a stakeholder-based process that helped them come to an agreement on common goals for the design. Their perceptions of the goals, actions, and resources that would drive these initiatives appeared to be aligned, but the actions suggested for local school leaders and teachers varied among designers. This incoherence at the level of design details and artifact implementation would come to threaten the successful implementation of the reform effort at a local level. The results of this work suggest that attention towards coherence throughout the design process can aid district leaders in facilitating instructional program coherence in schools.*

Program coherence measures how well multiple initiatives fit together to help practitioners pursue common goals. Recent research on urban school reform points to the value of program coherence in sustaining school change. Newmann, Smith, Allensworth and Bryk (2001) developed the concept of instructional program coherence to understand the degree to which these different artifacts "fit together." Instructional program coherence involves a) a common instructional framework to guide curriculum, teaching, assessment, and learning climate; b) staff working conditions supporting implementation of the framework, and c) materials, time, and staff assignments that advance the school's common instructional framework to avoid diffuse, scattered improvement efforts.

Schools with strong instructional program coherence exhibited higher gains in student achievement. The lack of a coherent fit among initiatives at the school level means that local practitioners must make decisions about which conflicting program goals are worth meeting.

Local school leaders play a key role in establishing instructional program coherence. Local leaders can, for example, structure time to allow for developing a common instructional framework, shape staff expectations for focusing on the core organizational tasks, and select from among programs that allow for a coordinated approach to school improvement. However, turning down the resources that often accompany new curricula or new professional development programs can be a difficult decision in resource-poor environments. Instructional program coherence requires clear-minded leaders willing to make tough choices about which artifacts are worth implementing and how to maintain a collective and sharp focus on instruction.

What can districts do to promote instructional program coherence at the school level? School districts play a key role in developing and distributing resources to improve student learning (Spillane & Thompson, 1997; Spillane, 1998, 2000; Elmore & Burney, 1998). Typical school districts generate and pass on a great variety of initiatives, in the form of policies, programs and procedures, intended to influence local practices. In the midst of many competing instructional and organizational

demands combined with high staff turnover, district offices have traditionally had difficulty coordinating initiatives and addressing how new initiatives often conflict with those currently in place in local school communities (McLaughlin & Talbert, 2003; Cuban, 1990; Hess, 1999) One way to coordinate the different policies and programs generated by districts would be for district initiatives to reflect a coherent view, from the designers' perspective, of how the new initiative fits in with existing local instructional systems. In their Leading to Learn framework, Knapp, Copland, & Talbert (2003) describe how district leaders might help make this fit by:

- communicating persistently with schools and across the central office about learning improvement agendas and how different stakeholders can work together on them;

- making expert staff available in schools to help with focused improvement efforts;

- restructuring the district professional development function to support curriculum and instructional improvement efforts;

- developing data that provide information about student learning which can be used in professional development; and

- allocating resources consistently in support of student and professional learning goals.

Shaping programs for instructional program coherence would require districts to integrate the perspectives of program users into the design process and to develop implementation plans that reflect the capacity and priorities of local users. While expensive to conduct and difficult to coordinate, many districts regularly engage in such practices to ensure the proper use of the programs they create.

This paper offers a detailed case of how one urban school district developed a series of reports to communicate student achievement results to local schools and communities.[1] We chose this story to illustrate the challenges faced by school leaders in designing tools to influence local instructional program coherence. High-stakes accountability policies such as the No Child Left Behind Act (2002) have placed increasing pressure on school leaders to provide tools for use in their schools. Recent research describes the difficulty many schools continue to have in meeting the demands of external accountability (Gong, 2002; Abelmann & Elmore, 1999). Many districts have responded by developing data-based

reform initiatives to help schools measure student learning in terms of state standards. Early work in data-based initiatives was dedicated to developing data storage systems and consistent measures of student learning across schools (Thorn, 2001). These early "data warehouses" emphasized an administrative perspective on system evaluation but provided little information to help teachers and local school leaders shape teaching and learning. The mismatch between administrative and instructional purposes made it difficult to use achievement data to systemically influence instruction (Elmore, 2000; Black & Wiliam, 1998). As district leaders began to realize system-wide achievement data were insufficient, they began developing a variety of reporting tools to help parents, teachers and administrators make sense of multi-dimensional achievement data in terms of daily instructional practices (e.g. Light, Heinze, & Wexler, 2004). Our case relates the story of how the district developed and disseminated reporting tools intended to help school and community members make sense of student achievement scores in terms of local practices.

The paper traces a district design process that followed many of the recommended policy development practices. We show how the district used a stakeholder-based strategy to integrate actors from across the district in building the data reports; how the design relied on an innovative school-community partnership; and how it included an implementation plan that anticipated the needs of local users. These components were assembled with the aim of creating a coherent approach to the design and implementation of the data reports. We focus on the views of senior level urban district leaders in their work to design a district-wide assessment reporting tool in order to discuss their ideas for facilitating instructional program coherence in schools. We explore how the coherence of the design vision can contribute to, but ultimately differs from, instructional program coherence, and suggest how these different levels of coherence may affect the implementation and use of the resulting initiative. Our case provides a cautionary tale of how a district's aim to establish a coherent design process may be a necessary, but not sufficient, condition for establishing local school instructional program coherence.

METHODS

Artifacts and program theory

A key function of school leadership is to influence the local practices of teaching and learning (Spillane, Halverson, & Diamond, 2001). In part, leaders seek to influence the practice of others through the *artifacts*, or programs, policies and procedures, they develop and deploy (Halverson,

2002). The concept of an artifact as an intervention designed to shape the actions of others is rooted in human-computer interaction and activity theory research (c.f. Norman, 1991; Engestrom, 1993). When considered from a school leadership perspective, districts develop a wide range of artifacts such as assessment policies, teacher evaluation programs, budget development tools, and collective bargaining agreements to influence the practice of local schools. Districts use a variety of strategies to develop artifacts, including incentives, directives, and collaborative design processes in order to influence local buy-in and appropriate use.

We used artifacts as an occasion to make visible the "program theory" that guided the work of designers (Chen & Rossi, 1992; Rogers, Hacsi, Petrosino, & Huebner, 2000). The program theory describes the network of underlying assumptions made by designers about how they expect their artifacts to influence practice. We sought to identify the program theory in terms of the desired *goals* for the artifact, the *strategies or actions* that must be done to achieve the goals, and the *resources* necessary to engage successfully in strategies. Analyzing the design process for an artifact reveals the assumptions designers made about how they intended to change practices (Halverson, 2004). Artifacts served as an occasion for reflective interviews during which designers recounted the design and implementation processes. A key aim of our analysis was to understand the relation between the explicit and tacit assumptions that guided artifact development. Helping designers to articulate their program theory exposed tacit assumptions about why or how a program and its related artifacts should work. These assumptions could then be addressed to aid subsequent design and implementation work (Weiss, 1995).

Research site and artifacts

This study considered the design process coherence of two related artifacts:

1. The *Council Reports* (CR), a reporting program for communicating student testing results.
2. The *Council Reports Implementation Plan* (CRIP) designed to roll out the CR in local schools.

The artifacts were developed by a district-level design team in Andersonville, a midwestern urban school district.[2] Andersonville, like most urban school districts across the US, has been pressed to develop an internal accountability system to demonstrate improvements in student learning. Andersonville leaders recognized this need and developed multiple, coordinated artifacts designed to make standardized testing data

more accessible to educators and parents. We examined how the district attempted to create instructional program coherence in schools via their conceptualization and design of the artifact and its implementation.

Research design

Our research design focused on developing a case study of how nine district-level designers built and implemented the CR and the CRIP. The research team developed and used a semi-structured protocol to conduct interviews with nine Andersonville district and school leaders involved in the artifact design. The purpose of the open-ended interviews was to elicit each participant's existing program theory or theories underlying the design rationale and implementation process of the artifact. Interviewees were asked about decisions regarding artifact design, the goals of the artifact, and the actions and resources that would play a part in accomplishing these goals. In addition to the interviews, researchers attended meetings or professional development sessions directly related to the design or implementation of the artifact. Fieldnotes and related documents were collected to augment the interview data.

We coded interview data according to the three components of program theory: goals, actions, and resources. We then analyzed a) the common themes across the program theories of the designers, and b) the conflicting assumptions and expectations across the program theories of the designers. At the close of the data collection and analysis stages, researchers met with the designers as a group to explore and discuss our assessment of the degree of coherence present among interviewees' visions for implementation. We hoped that the act of sharing our interpretation of the various articulated program theories would inform the restructuring or improvement of the design for future cycles of implementation.

THE ANDERSONVILLE COUNCIL REPORT

Andersonville is a large urban midwestern school district. A publicly elected school board provides direction and oversight, with a superintendent heading the organization's administration. The student population is ethnically diverse and represents a wide array of socioeconomic backgrounds. The implementation of reform initiatives in Andersonville has historically been blunted and fragmented by the political struggle between multiple stakeholders. In recent years, district leaders have made a concerted effort to establish a shared vision within the community, primarily between the business, higher education and school admin-

istration communities, by engaging stakeholders in collaborative design of new artifacts.

The Council Reports resulted from a community-wide education partnership, the Andersonville Council (AC), that brought together individuals from business, labor, education, civic and community organizations to share in the responsibility of educating students.[3] Members of the Andersonville Council include leaders from offices of the public school district, the teachers' union, the school board, local universities and colleges, and the business community. The general purpose of the Anderson Council was to enhance the quality of teaching and learning in Andersonville Public Schools (APS). To support this agenda, the Andersonville superintendent worked with the Council to establish five concurrent program development priorities about student learning and district design. Goal 2, *monitoring and reporting student progress at the student, classroom, school, and district levels,* led to the development of the Council Reports.

The AC's collaborative design approach built on existing district initiatives. For example, the design of the Council Reports drew from an ongoing initiative to integrate the district technology and assessment functions. The district built a data warehouse to unify district records for consistent reporting of student performance. The locally designed warehouse served as "a rich database of testing information that goes back multiple years [that includes] monthly attendance data, and the course history of kids." The warehouse allowed the district to build a longitudinal history and look for patterns within student achievement data. The hope was that as a result of the availability of this data, educators would be able to make data-driven decisions regarding program evaluation. The warehouse and query system presented a formidable technological challenge to most school leaders and teachers, and as a result the analytic capacity of the warehouse was largely untapped. The technology office worked with the curriculum and assessment divisions to develop programs that would help local leaders and teachers use the data to improve instruction. The AC picked up on district priorities to design professional development on data use as means to minimize the achievement gap. As such, in addition to monitoring and reporting on student performance, the Council Reports would come to serve as a means to foster professional development around the use of data.

In the 2000–2001 school year, the Andersonville School District began developing the Council Reports (CR).[4] District officials decided they needed to design a common report form to make the data more accessible for those unable or unwilling to interact directly with the warehouse. After considering the products of several vendors, the AC decided to rely upon their own technological resources to custom-design the reports in-

house. These reports would describe student performance in reading, language arts, and mathematics based on the results of assessment tests administered during the previous school year, and were made available for current grades four through eleven. Data from the reports were disaggregated and compiled into three summaries that provided the content for three distinct reports.

- The *School Report* would describe performance for each grade in a school. It would include proficiency summaries for the individual school and comparative state results. It is intended for school principals to compare student performance at their school, to the average performance for the school district and the state.

- The *Class Report* would describe performance for students in a grade-level class. It would include individual student scores as well as overall performance of a designated class in the three core areas. The report would also provide explanations of scores and suggested resources for performance improvement based on the class proficiency level and grade. It is intended for use by teachers to tailor instruction or the class curriculum to reinforce student improvement in the core areas.

- The *Family Report* would provide achievement information for individual students. The report would show a child's progress for the last three years and compare current performance to the average performance for the school district and for the state. It would also list recommended resources customized to the student's proficiency level for a subject and grade, and provide the family's geographic proximity to after-school resources. The Family Report is intended for parents, teachers, and principals, and is currently available in multiple languages.

The CR work group began by deciding which data would be necessary for the reports. Next, they contacted systems experts to work with APS technology leaders on programming databases and building the site for report generation and online report access. A primary district design goal for the Goal 2 team was to provide user-friendly, comprehensible access to the data. As such, report information was organized so that heading text introduces and describes the categories of information that follow. Information on student performance would be presented in the forms of labeled graphs and charts. Furthermore, on the Family Report, text would also be used to clearly describe a student's strengths and areas in need of improvement. This would be accompanied by a message from

the child's principal. Hard copies of the Family Report were to be mailed home while class and school reports would be made accessible online. The online reports would be dynamic to reflect changes to school or classroom student populations, assessment and attendance data.

A primary task of the Goal 2 team was to develop a Council Reports Implementation Plan (CRIP) to roll out the series of Council Reports to schools and to the community. They decided that the parent reports would be mailed home, and reports for educators would be available online. Designated users would be given security access to online Council Reports. At the end of the initial implementation team meetings in May 2002, plans were made for informing the broader community, and designing and implementing appropriate professional development. A variety of public relations announcements and training sessions were developed to make the community aware of the CR and to help local school leaders and teachers use the reports to influence teaching and learning practices. In the fall of 2002, the first wave of Council Reports was distributed across the district and the CRIP was underway.

ANALYSIS

Our findings indicated a general agreement among the designers around the goals and resources for the CR and the CRIP, but the views for how designers intended the Council Report Implementation Plan to work demonstrated differences in designers' perspectives. Here we highlight some of the common themes in CR goals and resources, and then consider how these themes differed the closer the design team came to the implementation context. We first looked for the presence of design process coherence among district leaders by developing and comparing representations of the designers' intentions for the Council Reports. In the sections that follow, we first examine the ideas and beliefs of senior level district leaders as they relate to the program theory goals, resources and strategies that guided the design and implementation of the Council Reports. We then use the aforementioned design principles (Knapp et al., 2003) to illustrate how the CR and the CRIP helped to foster instructional program coherence in schools.

Council Report goals

We found general agreement among the designers concerning the goals for the Council Reports. Designers agreed that the CR should inform and drive instruction, should improve communication about data, and should increase teacher, student and parent involvement in learning. Here we will discuss each of these central themes:

1. The Council Reports should inform and ultimately drive instruction in the classroom and across the school. In the classroom, designers felt that the CR would give teachers a better sense of their students, and would help teachers tailor instruction to support student strengths and weaknesses. The CR would help establish a public baseline for student achievement that could serve as a touchstone for school improvement efforts. Designers felt that school leaders could use the CR to get a better handle on student progress, and could work to identify and fill in gaps in the instructional program. The school-wide perspective afforded by the CR would allow local leaders to make better program evaluation and budgeting decisions to address the needs of all students.

2. The Council Reports should increase communication about student performance. Designers felt that a primary strength of the CR was to establish a common language of student performance in the district. The CR communication function was particularly important for reaching out to parents. One designer reported that the CR would help "parents have a better sense of their child's needs so they can talk to teachers about how these needs are being addressed." Another designer noted the public relations aspect of making achievement data accessible. The CR could be used to "communicate that something is happening, something is being done to address the problem so that people start thinking positive about what's going on in schools." The designers felt that the CR would help to make data on student achievement a starting point for conversations about the child. Finally, the designers felt that the CR would establish ground for communication and participation for the community at large. The reports would "raise the consciousness of the community at large" and "give the community data so that they can begin to get a sense of what's happening in schools and think about how that affects the community." The stakeholder approach of the AC emphasized the role of the CR in school accountability: "The public makes decisions, financial and otherwise based upon the info that they have—so the more info you get out to the public, the better it is."

3. The Council Reports should increase teacher, parent, and student involvement in teaching and learning. The key stakeholder membership of the Andersonville Council promoted a collaborative, participatory strategy for school reform. The CR could not end at communication; they needed to facilitate involvement of the school with the parent and public communities. Designers hoped that improved access to achievement data would help schools work together with parents on designing instructional programs. One designer explained that "after establishing mutual understanding of where the child is," the CR would enable "parents and teachers to work together on a plan of attack (of how to) best help that child achieve goals." The CR would lay out interpretive tools to help par-

ents make sense of student and school performance so that parents could work with schools to improve learning. The student-level CR reports would also give students a better sense of where they were compared to their peers. One designer commented that the CR would "make kids aware of where they stand and what they need to work on . . . to take responsibility for their learning and set their own goals." The CR would also inform community organizations and governments about understanding the patterns in student achievement and about how efforts to improve student learning fared in schools.

Council Report resources

The designers also expressed considerable agreement on the resources they could rely on in the design and implementation of the CR. The designers could count on access to human resources across the district. The AC was able to draw teachers, union representatives and administrative staff into the design process to build a climate of trust and buy-in around the Council Reports. The technology department worked to provide web-based access to the district's data warehouse and organized data reports in a variety of commonly requested reports. The technology department built on the assessment literacy focus by conducting workshops for school leaders to use the existing data query tools for making decisions about the instructional program. The technology and assessment departments developed an in-service program for using data. The assessment department emphasized the concept of "assessment literacy" to help school and community members understand what achievement data measured and how these data could be understood.

The Council Report design team also relied upon recent district personnel initiatives to bolster instructional leadership at the school level. One designer felt confident in the ability of many school leaders and teachers to "recognize and appreciate the value in using data in a variety of ways to make decisions around instruction." The designers felt school principals would play a key role in sanctioning and coordinating data-based activities in the school. The newly developed district-level principal coach would train principals in using the CR. The designers felt that principals could also rely on the new literacy coach positions developed by the AC literacy initiative. Each school would receive funding to hire a literacy coach to guide the reading and writing program and to act as the "data leader" in each school. The reliance on the literacy coaches attested to the AC emphasis on reading and writing in the Council Reports over other subject areas. The literacy coach would be trained in how to interpret the Council Reports, would meet with other literacy coaches in the district and would be the liaison between the teachers and the district for

instructional design. The literacy coach would work with the principal and other school leaders on developing a school-level Learning Team. The Learning Team would create legitimate times for periodically reviewing data, planning the instructional program and developing appropriate professional development and assessment activities for staff.

The AC design team agreed on goals and available resources for the Council Report, and considered how the CR would coordinate with existing initiatives and with prior practices in local school communities. District leaders agreed not only on the kinds of goals and the nature of the available resources, but also agreed to embed the Council Report implementation process within the existing district and local initiatives of the school. Capitalizing on the technological infrastructure, the prior efforts of the Assessment office to promote assessment literacy, and the literacy coach initiative would help local school leaders see how the Council Reports were not just another added-on district mandate, but an effort consistent with multiple prior efforts to use data to shape teaching and learning.

Council Report implementation strategies

The Council Report Implementation Plan reflected a breakdown in agreement among members of the design team. Once the CR was developed, the AC design team turned to the critical task of designing the CRIP. The CRIP would describe how local school leaders, teachers, parents and community members could use the CR, and provided a plan for CR roll-out in the district. Our conversations with the designers showed substantial disagreement on how the CR would actually be used in schools, who would be responsible for using the CRs, and what would be the next steps for action. At a general level, CRIP designers revealed a shared understanding of the tasks necessary to effectively use the Council Reports in schools. These tasks were used to structure discussions about the CRIP and resulted in a five-step implementation plan:

1) *Assignment of responsibilities.* This task determined who would be responsible for assigning tasks in the implementation process.

2) *Accessing the reports.* This step guided local school personnel on issues of web access, passwords, reporting and security.

3) *Interpreting the reports.* Here local school leaders and teachers would get suggestions for how to structure data-based discussions, what kinds of questions to ask, and when to schedule and how much time to allot for discussions.

4) *Communicating report information.* This task would provide tips for how to frame the findings from the reports in terms of actionable plans for school improvement.

5) *Strategizing next steps.* Finally, school personnel received advice about how to tie their findings to teachers' instructional practice and other concrete school improvement activities.

To illustrate this breakdown in coherence, we provide the following example regarding the assignment of specific roles within schools for Council Reports implementation. While there was general agreement about what steps were necessary for using the CRIP, there was little consensus around who would be in charge of guiding each task at the school level. Table 1 shows models for how five designers envisioned role assignment. Here we can see how the seeming agreement on implementation tasks breaks down with the assignment of task responsibility. In part, this breakdown occurs according to the professional biases of the individual designer. The teacher union representative, for example, championed the pivotal role of the literacy coach, a district-sanctioned teacher leader in the school, while a School Principal argues for district coaches and specialists to take a leading role in implementation. The district administrator, on the other hand, saw the Council Reports as a way to get principals more involved with teaching and learning: "Principals should take on the responsibility of working with teachers to develop strategies around the best way to use this tool and meet the needs of a particular building's student population."

Table 1. Who is responsible for CRIP tasks?

Tasks	Elementary School Principal	Middle School Principal	Teacher Union Representative	District Administrator	District Technology Coordinator
Task Assignment	"Driven centrally"	Learning Team	Not articulated	Principal; Learning Team	District Staff
Accessing the CR	Not articulated	Literacy coach; Other leaders and teachers	Literacy coach; Parents	Principals; Teachers	Literacy coach; Principal coaches; Learning Team Data Specialist
Interpreting the CR	Principal	Learning Team	Literacy coach; teachers; parents	Learning Team	District Literacy Specialists; Principals
Communicating Findings	Not articulated	Learning Team	Literacy coach	Principals; Teachers	Principals; District Literacy Specialists; Principal coaches
Strategizing	Principal; Teachers	Learning Team	Literacy coach: teachers; parents	Principals; Teachers	Literacy coaches; Learning Team; Technology leaders

Another tension is in the differences of district responsibility for CR implementation. Even within the district office, there are considerable disagreements about who should take responsibility for the CR. A principal design team member, for example, emphasized the role played by local actors. She described how "the department of technology really targeted the literacy coaches as recipients of training relevant to the Council Reports," and states that "the literacy coach is supposed to go back and train the teachers." Once trained, teachers would access the reports themselves—"not ask somebody down the hall to print them"—by using the district webpage to print and review classroom-level reports. On the other hand, a district technology leader on the design team focused on the key role district leaders would play in implementing the CR. He emphasized the central role of the district literacy specialists, the principal coaches, district data analysts and other technology leaders. The principal coaches, for example would act as coaches for the principals: "We are not sure that they see their role quite in the same way we do right now, but we really think a lot of this data stuff they ought to be able to do it and show the principal right there in their office this is how you do this." The district technology leader described a more involved role for the district in implementing the CR, while the principal looked to the local schools for implementation responsibility.

The richness of these program theories need not count against the robustness of the CRIP design. Describing redundant responsibilities can help local leaders adapt artifacts to different kinds of contexts. However, a lack of agreement distorts the CR design process in terms of coherence. The differing perspectives on implementation details could confuse the implementation process from the perspective of local practitioners. Consider the contrasting role responsibilities for the strategizing next steps (see Table 2). Some designers describe how the CR flowed from existing initiatives (literacy coaches, Learning Teams); others focus on traditional positional roles (principals, teachers, technology leaders, parents). Local practitioners seeking guidance for who was responsible for this task would receive very different advice depending on whom they asked from the design team.

Table 2. Divergent Views on Strategizing

Task	Elementary School Principal	Middle School Principal	Teacher Union Representative	District Administrator	District Technology Coordinator
Strategizing	Principal; Teachers	Learning Team	Literacy coach: teachers; parents	Principals; Teachers	Literacy coaches; Learning Team; Technology leaders

Divergent views on role responsibility force local school leaders to adapt the CRIP to their circumstances by judging which of the conflicting messages communicated by the designers are legitimate or appropriate in the local context. While leaders with a keen sense of local program coherence might be able to fit aspects of the CR seamlessly into their schools, leaders without a clear sense of local coherence might adapt the CR depending on the message they hear and the resources they perceive as available. As one district designer put it:

> Individual schools make the decisions about the type of professional development or helping teachers get access to resources and materials that could help them. . . And it's school by school by school—and it depends on how the instructional leader works within that school to allow the professional development to take place or to encourage it—but that's for the instructional leaders to decide . . . I'm talking about principals. The administrator or the principal. It depends on how they run that school.

Variation in the implementation models of the designers will inevitably lead to significant variation in how the artifact is used in local schools. Depending on the discretion of local leaders to discern the appropriate path for the CRIP does not help build either local leadership capacity or instructional program coherence as much as it relies upon the existing capacities of the school. This can contribute to consequent effects such as inefficient roll-out, confused understanding of artifact intention, improperly focused professional development, or general report misuse. The breakdown of design process coherence in the CRIP could also impede the district's ability to establish coherent connections between the Council Reports and other existing initiatives or agendas.

Analysis of the initial implementation process

Observing the early stages of the CRIP in action allowed us to see how the differences in design process coherence informed how the CR were initially used in schools. The CRIP roll-out pointed to some of the consequences that may have resulted from the conflicting messages involved in the design process. In the following section, we analyze the roll-out process by using the design principles for fostering instructional program coherence included in the Leading for Learning framework (Knapp et al., 2003).

    1. Communicating persistently with schools and across the central office about learning improvement agendas and how different stakeholders can work together

on them. The district leaders responsible for the design and implementation of the Council Reports were able to involve central office leaders and district stakeholders in the CR design process. The multiple stakeholders design strategy demonstrated how practitioners with different roles and responsibilities could work together on the CR. Weekly work group meetings and monthly Andersonville Council Implementation Team meetings provided opportunities to sustain communication at the district level. Press reports about CR also spread the message of how stakeholders outside the realm of education could work together to meet the goals of improving schools.

We did not observe a similar level of effort to communicate with individual schools. The AC's communication strategy focused on one-shot CR training and orientation sessions for schools. These sessions were typically staffed and run by individuals directly involved in the report design process. The sessions provided a forum for communicating the CR rationale and for generating feedback about the problems perceived by local practitioners. The feedback helped the district to refine the implementation process. However, the limited number of these training sessions did not establish the give and take of persistent communication with individual schools. Recruiting and deploying knowledgeable school personnel who could facilitate meaningful communication between the central office and schools were emphasized only late in the design process. Without such facilitators, the CR ran the risk of appearing to local school leaders, teachers and parents as just another district mandate.

2. Making expert staff available in schools to help with focused improvement efforts. The breakdown of the CRIP at the school level impeded the district's ability to make expert staff available. In part, this breakdown was an issue of numbers. The relatively small number of expert district staff could not engage in meaningful interaction with all district schools. But the CRIP also lacked a clear path to cultivate local school expertise. No plan was provided to consult with literacy coaches or principals about how the CR would fit into existing practices. Once the CRs were made public, schools would essentially be expected to grow their own experts through participation in the training workshops. The design and scheduling of the workshops exacerbated the lack of coherence in the school-level of the design process. Workshop invitations were extended generally to any person the school might designate. It was up to the discretion of local school leaders to select workshop representatives. As a result, only one person from half of all Andersonville schools ended up trained in how to run the reports. Quite often, schools sent clerical staff or classroom teachers who ultimately would not be in the position to guide report use for instruction in their school. One designer described the

failure of the workshops to establish local CR expertise: "We needed to get to the principals because we needed them to craft the message to the teachers—the message of how [teachers] use this data to change the way in which [they are] delivering instruction—we never got there." Some schools came away from the workshops excited and ready to mobilize resources for CR. Unfortunately their small numbers suggested to the design team the diminishing potential for systemic impact of the reports.

3. Restructuring the district professional development function to support curriculum and instructional improvement efforts. The implementation of the Council Reports was designed to complement ongoing professional development efforts on understanding how to use data in instruction. The district was able to offer a variety of workshops on understanding and accessing data in order to build the skills necessary to use the Council Reports. This general, skills-based approach to professional development had several drawbacks for CR implementation. The district was never able to specify who would be the recipients of training and development, and was not able to connect those who received training in data literacy with participants in the CR workshops. This lack of training coordination kept the district from being able to coordinate the different kinds of professional development with the CR training for targeted school personnel.

4. Developing data that provide information about student learning which can be used in professional development. This goal describes the central function of the Council Reports. Not only did the reports provide relevant and understandable information on student performance, but also the user-friendly format of the reports ensured that they could serve as a professional development tool. The coherent vision of report goals and resources enabled district designers to build the high-quality Council Report format. However, the links between the Council Reports and other district initiatives in instructional improvement or professional development remained more suggestions than real connections. CR professional development sessions focused on the Council Reports themselves rather than on how the report could be used to enhance local capacity for data use. The lack of coordination among these links led designers and practitioners alike to see the Council Report as an isolated artifact rather than a vehicle to establish instructional program coherence.

5. Allocating resources consistently in support of student and professional learning goals. The designers recognized the fiscal, technological, and human resources necessary for proper report implementation. The designers agreed that regular funding and technological support would be crucial for report distribution and emphasized allocating the necessary human

resources. New positions such as literacy coaches and principal coaches had been created to implement AC initiatives in literacy and leadership. In addition, school learning teams composed of the principal, lead teachers, the literacy coach, and several parents would coordinate instructional improvement efforts in the school. Although these personnel initiatives were seen as critical for the success of the Council Reports, the coordination of their specific roles was left undefined. It was left up to each school's leaders to determine which personnel would guide report use.

The designers shared a common conception of the goals and the resources necessary for the Council Reports. The resulting artifact, timeline, and roll-out plans were guided by this shared design vision. As we have seen, however, this shared vision began to unravel the closer the designers came to the actual school-level practices they sought to shape. Our analysis of the tasks called for by the Leadership for Learning framework showed how the initial design process coherence broke down at the individual school level as designers disagreed or simply underspecified actions necessary to support instructional program coherence in schools. Lack of coherence in the design details forced schools to rely on their own discretion to make sense of the Council Report initiative. The variation in who was designated as the local CR expert, for example, created problems for the district in establishing effective communication links with schools. This incoherence in the artifact implementation would ultimately come to threaten the overall coherence of the reform effort. The lack of a coherent vision of implementation specified to the school level essentially stunted the progression of the implementation and use of the Council Reports district-wide.

DISCUSSION

We found that the district's efforts to design for instructional program coherence first involved making the designer's goals coherent. Our analysis allowed us to distinguish *design process coherence* as a condition for *instructional program coherence*. Design process coherence refers to the ability to *design for* the affordances of existing instructional systems. Design process coherence has two key aspects: 1) the degree of alignment among the designers' means, goals, and outcome expectations; and 2) the degree to which the design is aligned with the affordances of the intended environment of use. Cohen and Hill (2001) suggested that a key for successful policy implementation is a substantive coherence among policy instruments. This is particularly relevant, they note, in the coherence among materials for instruction and the curriculum for pro-

fessional learning (p.186). We suggest that designing for instructional program coherence requires districts to develop both aspects of design process coherence, but that development of a coherent approach to materials for actual artifact use is critical. In the case of the CR and CRIP design process, we found that the Andersonville design team developed the first aspect of design process coherence, but was not as successful in developing the second aspect. We found that the CR design team meetings developed a coherent understanding of the first aspect of design process coherence through discussions of the CR goals and the kinds of information local school teachers and leaders would need to improve their practices.

Designing for instructional program coherence would require the district designers to pay much closer attention to understanding how new artifacts are likely to fare in actual contexts of use. This aspect of the design process can provide a legitimate bridge between agreement on goals and resources, and actually being able to influence contexts of practice in intentional directions. However, in our observations, the CRIP design process did not achieve a coherent understanding of how to create a bridge from design to practice. CRIP designers focused more on coordinating resources for implementation than taking into account how (or whether) the CR would fit into the existing school instructional systems. There were few conversations, for example, about how the CR would fit alongside of district initiatives in literacy and math. There was also little evidence of how the CRIP design team felt the CR could be adapted to differences between elementary, middle or high school structures. Understanding the local contexts of use would involve a more expensive design process of establishing feedback loops with artifact users so that designers can understand how artifact features are recognized and used (or ignored) in practice. Developing a pilot program for CR use and investigating cases of successful CR integration into local practices would have helped design teams move from the view *that* the CR would inform practice to a better sense of *how* the CR could work. Unfortunately, the pace of policy output in the district seemed to prohibit spending the time and personnel resources necessary to understand how users actually make sense of new artifacts in practice. (By the time the CR reports were introduced, members of the design team were already at work on a new project concerning indicators for academic success in schools). This inability to maintain a continued focus attention on how the CR was actually used prevented the Andersonville design team from making a successful transition from an agreement on design goals to local use of the artifact in intended ways.

It might appear that the solution for facilitating instructional program

coherence would be for the district to specify implementation steps to carry out the general goals of the policy. The loose coupling of the district office and local schools in many large urban districts, however, makes this a politically questionable strategy. This type of prescriptive district mandate may instead alienate local school leaders who could see such direction as an unfunded intrusion into their local spheres of influence. In fact, the disagreement among designers concerning CRIP details may have had an unintended political benefit. The divergent accounts of implementation details opened the door for local leaders to adapt the CR as they saw fit in their schools. The coherence of CR design combined with the incoherence of CRIP design may have served a practical political end. District leaders often seek to create a "logic of confidence" to assure the public that something is indeed being done in schools to improve student learning (Elmore, 2000). The general agreement on the goals and resources of the Council Reports could justifiably be highlighted as the fruit of a coordinated school/business/community partnership to address student learning. The district-sponsored Council Reports of the less-than-outstanding achievement scores would show that the schools are taking their responsibility for accountability seriously; the AC membership roster would show how school, businesses and university leaders are taking part in the solution. The incoherence of the CRIP, on the other hand, would help the district leaders to sidestep the inevitable local turf-battles by encouraging school leaders to use CR in different ways. The central value of the Council Reports, in fact, may not have required any actual school-level changes in practice to show significant value for a struggling district.

In addition, our analysis showed how examining inconsistencies in the actors' perceived theories that drive an initiative can help reveal discrepancies or kinks that otherwise may have been overlooked. Addressing these inconsistencies early on can allow a district the opportunity to fine-tune their implementation process so that it unfolds more smoothly in schools. One goal for both analysts and organization leaders should be to construct good tools to allow all actors to see the disparate aspects in local program theories. Articulating their own notion of the program theory, and then examining it against others' notions allowed the participants in this research to examine their own program theories of how the initiative should work. In the reflective phase of our research process, confronting each other's differing program theories compelled district leaders to reconsider how well they had outlined the details of implementation. This allowed designers to revisit and refine the specifics of the initiative design rationale. The very act of reflecting upon why certain discrepancies exist afforded an opportunity to consider what could be done

to alleviate them before full-scale implementation occurred in schools (Schon, 1983, 1991).

Andersonville's stakeholder strategy provided an opportunity to investigate how district leaders built artifacts to influence local practices. Fullan (1993) comments on how "shared vision, which is essential for success, must evolve through the dynamic interaction of organizational members and leaders" (p.28). The AC design process also created stakeholder buy-in, and allowed district leaders to see how the CR would link to existing initiatives or agendas. However, as indicated by our analysis, the quality of the design process coherence deteriorated the closer the CR came to the context of use. As our analysis demonstrated, although the designers could clearly articulate their implementation rationales, there was significant disagreement across their implementation plans. While designers saw the reports as tools for creating linkages between existing programs, their divergent messages about implementation roles and responsibilities created confusion in the roll-out process by forcing local school leaders to make sense of which aspects of the CR would best fit their schools. Coherence among the design team about artifact goals and resources provided a significant, but not sufficient, organizational resource for reform. Making a difference in practice would require the designers to push beyond agreement to build opportunities to understand how school leaders and teachers would actually use the artifacts in practice.

Notes

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2   A pseudonym is being used.

3   A pseudonym is being used.

4   A pseudonym is being used.

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