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Systems of Practice: How Leaders Use Artifacts to Create Professional Community in Schools

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Abstract

This article explores how local school leaders construct the conditions for professional community in their schools. This paper argues that professional community is a special form of social capital that results, in part, from the design and implementation of facilitating structural networks by instructional leaders in schools. The structural aspects of a school community can be conceived as a *system of practice*, that is, a network of structures, tasks and traditions that create and facilitate complex webs of practice in organizations. Systems of practice are composed of networks of *artifacts*, such as policies, programs and procedures, which can

be seen as powerful tools used by local leaders to influence local instructional practices. The system of practice framework suggests that leaders use artifacts to establish structures that facilitate the closure of professional networks among teachers, which in turn builds professional community. The leadership practices of an urban elementary school are used to illustrate how professional community has been developed through the selective design and implementation of artifacts in order to reshape the local system of practice.

Professional community is widely recognized as a valuable quality of local school contexts (Lee and Smith 1996; Little 1982; Seashore Louis and Marks 1996; Newmann and Wehlage, 1995). This paper argues that professional community is generated by networks of trust and obligation developed among teachers and school leaders around shared instructional practices in schools. Social capital is the accumulation of social values such as trustworthiness and respect as a result of participation in networks of social interaction, and “resides in the relationships within an organization and between individuals (Driscoll and Kerchner 1988, 387-388). I argue that professional community is a form of social capital that results, in part, from the work of school leaders to design and implement facilitating structural networks among teachers. The research presented here develops both conceptual tools to make relevant leadership practices visible and analytical tools to show how these practices, taken together, build this special form of social capital in schools.

The paper is organized into two main parts: a theoretical framework designed to capture the coherence and evolution of structures that result in professional community, and an illustration of how the framework is used to analyze leadership practices that developed social capital in an urban elementary school with a demonstrated high level of professional community.

The theoretical framework proposed here explores how the structural aspects of a school community can be conceived as a *system of practice*. A system of practice is the complex network of structures, tasks and traditions that create and facilitate practice in organizations. Systems of practice refer to the structural constraints through which leadership, teaching and learning “flow” in a given school context (Ogawa and Bossert 1995). As opposed to teachers, school leaders often introduce and maintain instructional change in schools through indirect means, such as the development and implementation of programs and policies, rather than through direct engagement with students. Here I describe this indirect influence of leaders on the local system of practice through the design and implementation of *artifacts*. The term artifact, borrowed from human-computer interaction research (c.f. Norman 1988; 1993), refers to entities designed to shape and enable organizational practices. When applied to understanding school leadership, artifacts such as policies, programs and procedures can be seen as powerful tools used by local leaders to influence and maintain instructional practices in schools. A local system of practice refers to the network of artifacts, taken together, that both shape the given context of instruction and point toward opportunities for school leaders to alter instructional

practices. A system of practice provides a conceptual framework to explain how leaders use, develop and selectively implement artifacts to influence the practices of teaching and learning in schools.

The study that comprises the second part of the paper profiles an urban school rated to have a high measure of professional community, and asks: 1) what are some of the key artifacts that helped to shape the local system of practice? 2) how did these artifacts evolve together, either by design or by coincidence, to shape the system of practice? and 3) how did the system of practice shape the professional community of the school?

After identifying and discussing the development of three key artifacts, I then use Coleman's (1988) concept of the closure of social systems to show how these artifacts, taken together, create the conditions for professional community in the school. While qualitative data often serve to develop new theories (e.g. Strauss and Corbin 1997), the data discussed here serve as an illustrative example of the theoretical framework described above. The analysis of how leaders in a particular school developed, implemented and used artifacts offers an interesting glimpse into how leaders can create systems of practice that generate professional community, and how researchers and school leaders can re-think their efforts to study and create professional community in schools.

Professional Communities

Professional community provides a model for creating the conditions for their teachers to hear, share and experiment with new ideas about practice. There has been considerable research on the character and effects of professional communities in schools (e.g. Louis, Kruse and Bryk 1995; Bryk, Camburn and Louis 1997; Newmann and Wehlage 1995, Youngs and King 2000; Supovitz and Poglinco 2000). This research indicates that characteristics of schools with strong professional communities include:

- a clear sense of shared purpose and collective responsibility for student learning;
- professional inquiry among staff to achieve that purpose, including opportunities for sustained collaboration and reflection on practice;
- deprivatization of teaching practice;
- norms of collegiality among teachers and leaders;
- opportunities for staff to influence school activities and policies.

Strong professional communities in schools that promote collective responsibility for student learning and norms of collegiality among teachers have been associated with higher levels of student achievement (Lee and Smith 1996; Little 1982; Louis, Marks and Kruse 1996; Newmann and Wehlage 1995).

The concept of "professional community" is a member of the larger conceptual family "communities of practice." A community of practice builds and relies upon a shared core of knowledge through mutual engagement, joint enterprise, and a shared repertoire of skills and abilities (Wenger 1998). In a community of

practice, members interact, learn and work through participation in complex networks of shared expectations and norms. Communities of practice include structures and roles that induct new members into core practices through legitimate peripheral participation (Lave and Wenger, 1991). These induction and mentoring structures afford the development of a sophisticated social network to parallel the task networks. While communities of practice often rely on informal structures to facilitate practice, over time, these structures can form institutionalized routines and roles that shape the practice of subsequent members. In more complex organizations, separate communities of practice evolve around common task networks, and can isolate certain groups in the organization from others (Wenger, McDermott and Snyder, 2002). In these cases, community members can find it difficult to transcend established institutional boundaries in order to widen their community of practice. When left unattended, schools and school faculties can fall victim to the peril of institutionalized isolation. Departmental and disciplinary boundaries among teachers (McLaughlin and Talbert 1993; Stodolsky and Grossman 1995) and boundaries between administrative and instructional practice (Rowan 1990; Weick 1976), provide significant obstacles for practitioners to establish common communities of practice across schools. Creating communities of practice that reach across the school provides a considerable challenge for many school leaders.

It is important to note that a community takes on its character from the nature of the practice around which it is organized. While many schools have developed a sense of community among the adults, not all communities can be described as professional. The nature of the practice around which the community is formed proves a key distinction, for example, between a school faculty and a professional community. A professional community is shaped around the goals that define teachers as members of a profession dedicated to promoting student learning, as opposed, for example, to communities organized around student discipline or teacher social interaction (Grossman, Wineburg and Woolworth 2001). Professional communities develop internal practices and expectations to coordinate the non-routine nature of teaching practice through self-regulation and the development of information feedback systems to correct the direction of the community (Louis, Kruse and Bryk, 1994; Huberman 1995; Little and Bird 1987; Argyris 1990). In professional communities, teachers have the opportunities to break down the isolation of classroom in collaborative, problem-setting and -solving activities with colleagues (Halverson 2002; Hargreaves 1994; Huberman 1995; Miller, Lord and Dorney 1994; Rosenholtz 1989). These activities could include collaborative curriculum design, instructional evaluation, interdisciplinary teaming and curriculum development, textbook and course material review, or school improvement planning (Bryk, Rollow, and Pinnell, 1996). Networks of such activities help to create and sustain the conditions for strong professional communities in schools.

Although the value of professional community in schools is widely recognized, knowledge about how individual leaders create and sustain professional communities is not as widely understood. Grossman, Wineburg and Woolworth's experience with developing professional community in a high

school led them to comment:

We have little sense of how teachers forge the bonds of community, struggle to maintain them, work through the inevitable conflicts of social relationships, and form structures for social relationships over time. Without such understanding, we have little to guide us as we create community (2000, 6).

We do have some understanding, however, of what leaders do in schools with strong professional communities. Louis, Kruse and Bryk (1995) conclude that the most important task for school leaders is to create meaningful opportunities for teachers across the school to work together on pressing issues of common interest. Other key leader behaviors include being physically present in the school, creating networks of conversation among faculty; making resources available to support individual teacher development; building bridges to networks practice and knowledge outside the local school; and fostering a school community in which instruction is viewed as problematic.

In many cases, these behaviors both lead to and require structural supports for successful results. Making successful leadership practice accessible means, in part, creating representations of practice to be able to go beyond how leaders create structures to get at how these structures “hang together” in practice. If we assume that professional community is an effect of how these practices together shape a school culture, then we are faced with the need to develop both conceptual tools and practical examples that show both how practices support one another and how aspiring leaders can fashion similar systems in their schools. The knowledge garnered needs to integrate what is known about the *what* of professional community with a framework to show *how* a network of practice can be developed to support such practices.

Distributed Leadership, Artifacts and Tasks

Professional communities do not generate spontaneously in schools (c.f. Grossman, Wineburg and Woolworth, 2000). Rather, school-wide professional community emerges through participation in the activities mentioned above. Much of the responsibility for designing and establishing these activities rests with local school leaders. As discussed above, we know something about the kinds of conditions that both result from and promote professional community, but we do not know as much about how leaders establish these practices in existing school contexts. A distributed perspective on leadership helps to identify and understand the practices that establish the conditions of professional community in schools (Spillane, Halverson and Diamond 2001). A distributed perspective defines instructional leadership as the establishment and maintenance of the conditions for improving teaching and learning in schools (Spillane, Halverson and Diamond 2001, 23). The focus for understanding how leadership is distributed through an organization is to focus on the leadership *tasks*. These tasks are distributed across two primary dimensions in schools: the *social distribution* refers to the network of people engaged in leadership tasks, while *situational distribution* refers to how tasks are constrained and

afforded by the context within which leaders work.

I suggest that professional community is an outcome of certain configurations of social networks in a school. Leaders influence the development of social networks not only through direct participation, but also indirectly through the formation of task networks shaped by the design and implementation of artifacts. The concept of *artifact* plays a main role in this argument how leaders build the conditions for professional community in schools. As used in research in human-computer interaction, computer science and cognitive psychology, artifacts are entities intentionally designed to interact with, aid or alter the practices of people (c.f. Norman 1988; Simon 1996; Wartofsky 1979). With respect to schools and leadership, artifacts refer to the programs, procedures and policies designed to shape or reform existing practices in the institutional context (Halverson and Zoltners 2001).

This account of artifacts and leadership relies upon a significant history of research on the institutional and professional structures that frame and enable leadership agency. Early research guiding the Ohio State Leadership Scales, for example, contrasted the concept of “initiating structures,” such as schedules and procedures with “consideration,” or supportiveness and compassion, to describe how leaders guide the work of followers (Halpin & Winer 1957). The range of initiating structures available to leaders is determined, in part, by the institutional and the culture context of work. Institutional theorists suggest that initiating structures are embedded in institutional routines, and come to constitute the background, framing expectations for work in an organization (Rowan and Miskel 1999). Organizational researchers emphasize how such structures both rely on and help to shape culture. Schein (1992) describes how as organizations grow, they rely on cultural artifacts such as architecture, rituals, stories, and formal statements to perpetuate the established organizational culture. Over time, this network of artifacts comes to constraint the range of possible actions for the organization. Leaders interested in reopening organizational possibilities must engage in the process of deconstructing and rebuilding a new set of artifacts to shape organizational practices. With respect to schools, Deal and Peterson (1990; 1994) consider how leaders need to balance multiple roles in order to attend to how the symbolic and technical structures of schools influence the development of culture. Schools rely upon a network of structures, such as pervasive opportunities for professional development and established occasions to celebrate success in learning and in collaboration, to maintain a positive culture (Peterson & Deal 2002).

While each of these perspectives points out the value of how structures influence and are influenced by leaders, the concept of artifact promises to help us understand the agency of individual leaders in developing structures to influence practice in a given direction. I suggest that the structural context of a school is composed of a variety of artifacts that, over time, come to shape organizational practice. One way to categorize artifacts is according to their place of origin. For example, the situation of school leadership is composed of locally designed, received, and inherited artifacts:

- *Locally designed artifacts* are designed by local actors to address emergent acute and chronic concerns in the school. Locally designed artifacts range from meeting agendas to collaborative curriculum design teams, from daily school schedules and attendance procedures to lunchroom policies. Such artifacts aim to shape practice either through developing a repository of appropriate responses to emergent issues, such as artifacts that act as precedents for anticipated situations (fire drill policies or appropriate use policies for Internet browsing) or by instituting procedures that routinize practice around intended goals (such as standardized, locally designed curriculum across grade levels, or the structure of the daily school schedule). Locally designed artifacts can, over time, come to be recognized as inherited artifacts (see below) through turnover in leadership or faculty/staff composition.
- *Received artifacts* are adopted and implemented by the local school. These artifacts are received from identifiable external sources, such as state and district authorities, teacher unions, textbook and curriculum publishers, or professional development providers. Examples of received artifacts include policies regarding assessment, budgeting and planning artifacts, or textbooks or curricula. Local institutions are not responsible for the design of received artifacts, but are responsible for artifact implementation and maintenance. The implementation of some received artifacts, such as high-stakes achievement tests and budgeting procedures, is mandatory, in other cases, such as many curriculum packages or student records programs, implementation is optional.
- *Inherited artifacts* comprise the institutional context of practice. Inherited artifacts give rise to practices and routines for which the original artifacts, whether received or designed, have long since been effaced. For example, the nine-month school year resulted from a series of long-lost initiatives to structure the school year according to the planting season; the graded classroom resulted from similar programs designed to create access to education at scale in large urban areas. The specific initiatives that sponsored these practices have long been forgotten-what remains are the ways the artifacts have shaped and institutionalized practices. Local leaders may attempt to correct or mitigate the effects of inherited artifacts either through the implementation of received artifacts or the development of locally designed artifacts.

Both leadership and instructional practice are distributed across a network of locally designed, received and inherited artifacts. Together, this network of artifacts coordinates the practices and routines that form the instructional system of the school. A description of this network, however, is insufficient to get at what leaders do to promote professional community (c.f. Peterson, McCarthy and Elmore 1996). Kruse and Louis (1996) warn “while absence of structural supports impedes professional community; the presence of supportive structures are not sufficient to sustain the growth” (13). An example of the limits of a structural account is the issue of common planning time in school schedules. Establishing programs that build common planning time into the daily schedule is a way school leaders can alter an inherited artifact in order to shape instructional practices. Without meaningful tasks, however, planning time is

often spent in non-instructional activities or personal projects. In order to understand how school leaders create and sustain professional community, we must go beyond artifact description to accounts how artifact networks can come to shape school communities.

Systems of Practice

A system of practice is a representation of how the local network of artifacts facilitates the flow of instructional practices of the school. The system of practice is moves beyond a mere context for practice to describe the dynamic interplay of artifact and tasks that inform, constrain and constitute local practice. Teachers and school leaders not only work within the constraints of the network of artifacts in their given situation, but they think about the limits and possibilities of their practice in terms of this network. A school or district-mandated standardized textbook series, for example, provides artifacts that help teachers structure their lessons in certain ways, cover certain material, and understand student learning in terms of an established curriculum. Changing the range of available instructional artifacts not only changes the context of learning, but also influences the ways that teachers understand learning in their classrooms.

This interplay between context and constitution requires a more dynamic, systemic perspective on the conditions leaders establish to shape teaching and learning. Research in activity theory (Engeström 1996) provides a dynamic representational model of contexts that constitute practice. Engeström suggests “contexts are neither containers nor situationally created experiential spaces” (67). Rather, Engeström (1987) proposes that contexts are better seen as *activity systems* that tie the actor(s), the outcomes, and mediating artifacts into a unified system of action. Engeström claims that people engage in the tasks of work through participation in local activity systems. Understanding and communicating work practices requires making the essential aspects of the activity system “visible” for reflection and evaluation (Suchman 1995).

In schools, the practice of teachers and students is constituted by their participation in the activity system of teaching and learning. While researchers have paid considerable attention to the nature of the activity system in schools from an instructional perspective (c.f. Ball and Cohen 1996; McLaughlin and Talbert 1993), school leaders stand in a different relation than do teachers to this instructional activity system. Leaders *qua* leaders do not engage in the activity system of teaching and learning as much as they shape and maintain the system. Leaders are actors on, not actors within, the instructional activity system. This does not mean that teachers cannot be leaders, but it does suggest that as leaders, teachers take a different perspective as participants in the activity system of teaching and learning. Thus schools include at least two levels of activity systems – one frames the practices of teaching and learning, the other frames the practices of school leadership (c.f. Weick 1976; 1982). A key aspect of school leadership is the ability to manage the administrative activity system such that leaders can “make room” to shape the instructional activity system in schools. The ability to engage in both systems simultaneously points toward how management and leadership practices might be integrated in

promoting instructional improvement (c.f. Cuban 1988; Elmore 2001).

Considering the activity system of teaching and learning from the outside, as it were, requires that leaders consider the instructional system *as a whole* in order to understand how the different features of the system interact. A system of practice is thus a representation of an external perspective on the instructional activity system from the perspective of leaders – a reification of the activity system for the purpose of identifying the key levers for maintenance and manipulation. Systems of practice reflect leader’s perspectives on how the structure of traditions, policies, programs, resources and expectations fit together to shape a school culture and local practices. While the common inherited artifacts of schools create a high level of isomorphism among local systems of practice in ways that provide common constraints and affordances between systems, variations in received and designed artifacts allow local systems of practice to reflect local circumstances distinct for each school. The variation in local systems of practice may explain why artifacts developed and implemented successfully in one setting may be co-opted or marginalized when implanted in another (Powell, Farrar and Cohen 1985; Cuban 1986, 1990). From the perspective of leaders, understanding and learning to manipulate the underlying artifact structure points to areas which can be adjusted to change the tasks of the system in order to support innovative programs. A large measure of local leadership expertise requires getting to know how the unique features of each context influence artifact design and use and understanding how to introduce and manage artifacts that will produce intended changes (Halverson 2002).

Professional Community and the Development of Social Capital

Professional community is an outcome of certain systems of practice in schools. It is evidenced by the emergence of a social network of practice organized around sharing and developing instructional expertise and practice. One way to understand professional community as a form of capacity is to treat it as a special kind of social capital. Capital is used in contemporary economic and sociological discussions to refer to the financial, material or personal resources upon which actors and organizations can draw to maintain or change existing practices. Coleman (1988) developed the concept of social capital to refer to resources available to an actor or an organization by virtue of participation in certain interpersonal or institutional structures. While material and human capital are possessed by the actor personally, social capital “inheres in the structure of relations between actors and among actors” (s98).

Social capital is developed through social interaction (Wehlage 1993). Coleman describes how social capital primarily takes the form of trust among members of a society and an organization. In organizations, trust is built through participation in networks of obligation and commitment, which offer opportunities for participants to rely upon one another in the pursuit of common interests or for the completion of shared tasks. Participation in these networks of reciprocal obligations and commitment help actors to develop reputation in an organization (Fowler 1999). Thus trust is developed as an actor realizes he can work or

share ideas with certain colleagues, while reputation accrues when actors in an organization develop opinions about the trustworthiness of other actors.

Organizations with high levels of social capital have high levels of trustworthiness between members. This establishment of trustworthy organizational practices helps people share ideas and abilities together, giving organizational access to resources that had been previously untapped. (Bryk and Schneider 1996) Bryk and Schneider (2002) suggest that a high level of trust among adults in schools is a critical resource for school leaders engaging in program reform. In their examination of Chicago Public School data from 1990 to 1996, they found that schools with high levels of trust at the beginning of reform efforts have a 1 in 2 chance of improving student achievement scores in math and reading, while schools with low levels of trust instead faced a 1 in 7 chance of making significant gains (Bryk and Schneider 2002). While the cause and effect relationship of trust and change is difficult to trace, this research points toward how trust is used as a critical resource for school leaders in organizational change.

While many schools offer ample opportunities for interaction, not all of these interactions help create professional community. Social capital is not a generic capacity – it takes its character from the nature of the interactions from which it is spawned. For example, schools in which adult interactions focus on solving disciplinary and academic problems with individual students, designing individual education plans for special education students, or around teacher social interaction may create social capital, but not necessarily professional community. Grossman, Wineburg and Woolworth (2000) suggest that when conversations around instruction occur in schools with high levels of social capital, but no significant history of professional community, a sense of “pseudo-community” is created in which actors may interact but do not engage in difficult discussions about instruction. In such schools, there are few structured opportunities for interaction about the quality or the process of instruction, and thus little social capital developed around instruction. In the absence of structural supports, it is left to individual teachers to seek out opportunities to interact around instruction. Some teachers develop close relationships with certain colleagues, or engage in professional networks outside the school (Spillane and Thompson 1997; Huberman 1995). When these conversations are left to individual initiative, the social capital that contributes to professional community may be developed among motivated individuals but may not be distributed across the school.

Professional community, then, is a kind of social capital that emerges in certain systems of practice. To create professional community, school leaders either shape existing artifacts or design new artifacts to create the structures that foster social capital. Artifacts that give teachers opportunities to discuss practice, develop programs, and understand assessment information help to create the kind of trust within the organization that marks professional community. The resulting professional community then becomes a form of capacity to support subsequent instructional practice. The next section of the paper provides a profile of the system of practice in a school with a record of

strong professional community to illustrate this hypothesis. To highlight features of how local leaders influenced the system of practice, I consider how three key artifacts were created and implemented to shape the instructional practices on the school, and then describe how these artifacts together helped shape a system of practice that resulted in a strong professional community.

Adams School

To illustrate the how a system of practice yields strong professional community, I have chosen an urban elementary school with a strong professional community as well as a record of improved student achievement. Adams School (a pseudonym), a preK-8 school in Chicago, has an established record of improved student learning, a deserved reputation as a school with a well-articulated vision and record of instructional leadership and professional community, and a stable leadership team willing to grant access to the artifacts that compose the local system of practice. An external report (Consortium for Chicago School Research 1998) indicated high measures of the component aspects of professional community at Adams, including a shared focus on student learning; peer collaboration among teachers and leaders; public classroom practices; reflective dialogue among teachers; willingness for teachers to engage in innovation; and school-wide support for change. During this time, the school also experienced increases in student test scores.

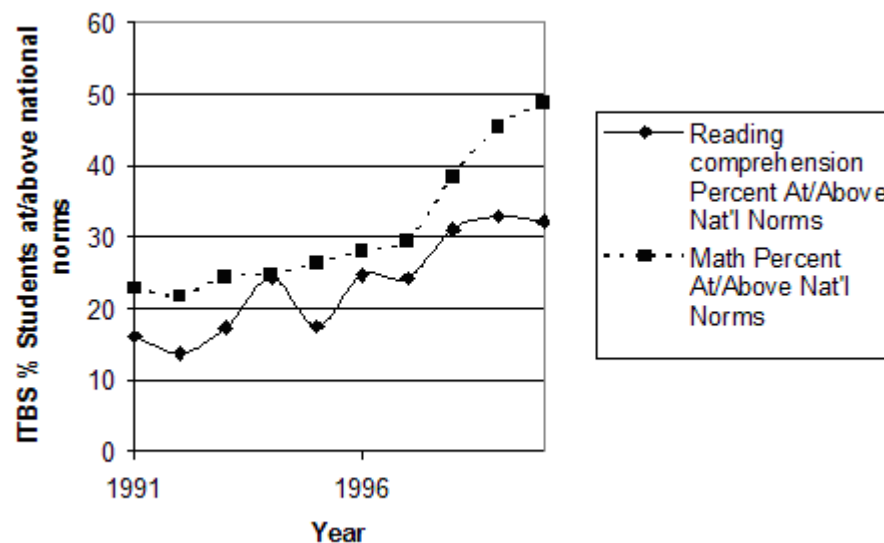


Figure 1. Adams ITBS % students at/above national norms

Measures of student achievement had shown improvement over the period 1995-2001 on the district-wide standardized ITBS (Iowa Tests of Basic Skills) as well as on the statewide assessment IGAP (Illinois Assessment Program). ITBS scores showed significant improvement in student performance in math and reading (Figure 1). These improvements have occurred in the face of annual student mobility rates of 30-40% and the challenge of 97% low-income student population.

The Adams school leadership team was centered around Principal Therese Williams (all pseudonyms). During her twelve-year tenure as principal, Williams led Adams from one of the poorest student performance records in Chicago to a school in which experienced yearly gains in reading and math performance. Williams assembled a leadership team from talented teachers within the building willing to contribute to the creation and implementation of a series of innovative, locally designed artifacts intended to improve student learning.

The artifacts described here guide the story of how Williams and the Adams school community created professional community and improved student learning. The research presented in here resulted from the collaboration of several research teams to assemble a profile of instructional leadership at Adams. Project researchers made 1-2 visits per week over three years (1998-2000) to record a wide variety of leadership practices. Data collected and developed included multiple structured and semi-structured interviews with leaders and teachers; extensive field notes reporting school meetings and classroom observations; a twenty-three hour video-record of interviews, meeting and classroom observations, and reflective interviews using video as an occasion for discussion; and an extensive catalog of artifacts including school improvement planning documents, teacher observations, meeting agendas, program descriptions, school calendars and schedules, and memoranda.

To access and analyze how leaders used artifacts to shape the system of practice in the school, I looked for evidence of significant artifact use and development, and used the found artifacts found as occasions to analyze the instructional leadership practice in the school. First, the data were coded to identify artifacts either mentioned or apparent in the operation of the school in order to develop a map of the artifacts relevant to instructional practice at Adams school. Eight locally designed or implemented artifacts were identified as components of the local system of practice (See Appendix 1). Once identified, the data were re-considered to understand how the artifacts came to shape the local system of practice. The data were coded a second time in terms of a Design Cycle Analysis Model (DCAM), an analytic model developed to track the genesis, development, iteration and subsequent institutionalization of artifacts (Halverson 2002). DCAM (Appendix 2) was constructed to trace the development of artifacts as outcomes of leader's problem-setting and problem-solving practices. The model seeks to understand how artifacts that result from a problem-setting and solving cycle can come to serve as resources for subsequent problem-setting and artifact design. Conversations with the designers, analysis of the documentary record of artifact development and observations of artifact use were used to explore the component aspects of the DCAM model: the *goals* of the designers, the *strategies* used in the design and implementation of the artifact, the *resources* drawn upon in design and implementation, the situational *constraints* and *affordances* that effected the implementation and use, and the ways in which artifacts evolved over time to become *resources* for subsequent problem-setting efforts.

For this paper, I chose three artifacts to illustrate how Adams leaders attempted to reshape the local system of practice: the Breakfast Club, the Five-Week

Assessment program and the School Improvement Planning process. These three were selected as the artifacts recognized most often, both by the researchers and by Adams practitioners, as key to the Adams system of practice. The narratives that follow result from the DCAM analysis of the three artifacts in order to illustrate the genesis and evolution of several key features of the Adams system of practice as well as to show how the artifacts produce the conditions of professional community in the school.

Breakfast Club

Breakfast Club was designed in 1995 as an opportunity for teachers to discuss research relevant to current instructional initiatives and practices among pre K-3 language arts teachers at Adams. Breakfast Club involved monthly meetings in which a teacher led a discussion before the school day about a piece of research, usually concerning reading or writing instruction, with group of pre K-3 teachers and administrators. During the years 1998-2000, there was an average of eight Breakfast Club meetings per year, with an average of fourteen pre K-3 faculty members in attendance. Principal Williams attended about three-quarters of the Breakfast Club meetings during this time period.

Hard-learned experience about the perils of imposing professional development opportunities from above led the school leadership team to consult with a number of grade-level teachers about initial program design. Reflective interviews with members of the design team revealed the following features to be built into the Breakfast Club design:

- the program should not be mandatory to avoid the stultifying atmosphere of many faculty meetings;
- the substance of the discussions themselves should sell the program — if valued information was exchanged at the meeting, word would get around and people would want to come;
- meetings should take place in the mornings, so that teachers would be fresh and ready to entertain new ideas;
- readings should be kept short, so that teachers would have a greater chance of reading them before coming to the session; and
- teachers should be able to select the readings and lead the discussions.

The administrative team thought that the readings should be aligned with the instructional priorities of the school, particularly in language arts, so that teachers would be reading about issues that they should be practicing in their classrooms. Williams thought that a hot breakfast, paid from her own pocket, would give a clear indication to faculty members to show that she was willing to sacrifice for the program to get off the ground.

While Breakfast Club began as an artifact for teachers to talk about research and practice, it has since evolved into a more complex artifact to support teacher brainstorming, experimentation, and design of curricular initiatives. Sample Breakfast Club topics from the 1998-2000 school years included a review of a multiple methods approach to language arts instruction, a

conversation about the value and viability of learning centers in primary classrooms, discussions of the components of an ideal language arts classroom, and presentations on how various components of a new school-wide language arts initiative worked out in teachers classrooms. The conversations and interactions that started during Breakfast Club have become a significant organizing framework for the kinds of activities that characterize the local professional community.

Breakfast Club and professional community

The structures and practices of Breakfast Club helped to create some of characteristics of professional community at Adams, including 1) the establishment of teacher collaboration and curriculum design as a cornerstone of the professional development program, 2) the deprivatization of practice and the cultivation and exploitation of in-house expertise among faculty and staff, and 3) the creation of a sense of both vision and ownership about the instructional program.

First, Breakfast Club was originally designed to supplement the existing professional development program at the school. The design represented both a change in degree and a change in kind for prior professional development at Adams. Many externally designed professional development efforts, intended to bring new ideas into the school, proved too intermittent and variable in quality to provide much long-lasting impact on student achievement scores. Early in her tenure, Principal Williams organized curriculum review teams first within grade level (1990-91), then across grade levels (1992-93) to get teachers talking about the school instructional program. Williams attributed the failure of these design efforts to improve test scores to the fact that teachers were merely reorganizing existing ideas instead of importing new ideas into their classrooms and discussions. Breakfast Club extended this significant history of teacher collaboration through the design of an artifact to support group consideration of new instructional ideas. The evolution of Breakfast Club to support teacher-led curriculum experimentation helped spark a change in kind from prior professional development efforts at Adams. Over time, the Breakfast Club discussions came to reflect a blend of reporting on best practices research and teacher reflection on the problems or possibilities offered by their daily practice. The Breakfast Club paradigm helped to change the way Adams leaders and teacher thought about professional development in the school, and created systemic opportunities for teachers to reflect on their instructional practices in light of new ideas.

Second, the opportunity for teachers to lead and participate in Breakfast Club discussions helped to deprivatize practice and created substantial in-house instructional expertise. While initial meetings provided opportunities for interested teachers to become familiar with and discuss new ideas, in later meetings teachers would report on their efforts to try out these ideas in their classrooms. Creating a loop within the teacher community from discussing, to experimenting, to reporting on their experience with new ideas helped to create a system of reflective practice in the school. This was particularly true of the

teachers who initially took leadership roles in the discussion and experimentation with new language arts ideas and techniques. The reflective loop created by the implementation of Breakfast Club encouraged many teachers to discuss instructional practices about language arts instruction openly with one another. Deprivatizing practice also had the effect of allowing teachers and school leaders to recognize and exploit the considerable local instructional expertise in the design of subsequent professional development opportunities. For example, spin-offs artifacts such as Teacher Leader (1998) provided a half-day professional development meeting to allow teachers to conduct workshops about the ideas developed and shared during Breakfast Club, while Teacher Talk (1997) applied the format of Breakfast Club to the middle School faculty meetings. The cultivation of in-house expertise, through Breakfast Club and other initiatives, was an important source of developing internal leadership opportunities for teachers within the school. The Adams school leaders developed artifacts such as Breakfast Club, in part, to provide avenues for leadership and the development of expertise, thus helping to enrich the human capital available for subsequent problem-solving opportunities.

Third, Breakfast Club provided an organizing artifact for developing a shared sense of instructional vision and direction. Instead of imposing a sense of direction on the language arts program, the structures and practices of Breakfast Club allowed for the collaborative consideration and experimentation of alternative programs. As teachers explored and reflected upon alternative practices, they could come to realize how the proposed practices might remedy the shortcomings of the existing instructional program. In 1999, after several years of discussion and experimentation, the teachers and school leaders selected Pat Cunningham's Four Blocks of Literacy (Cunningham et. al. 1998) program for the cornerstone of their new language arts program. Breakfast Club served as a foundation for teachers to come together on the need for and merits of instructional initiatives, and provided a structure to support inquiry and collaborative design. The value of Breakfast Club as a structured forum for reflection on practice was shown in several 2000-2001 meetings, as the school community reflected upon their experiences with the Four Blocks program and came to experiment with several new programs to supplement the existing program. Breakfast Club provided a legitimate, on-going forum to discuss and vet proposed directions, helping to continuously test and revamp the plan for language arts instruction in the school.

The structures established by Breakfast Club helped to create practices that resulted in several of the characteristics of professional community in the school. As it began to shape the local system of practice at Adams, local leaders and teachers tinkered with Breakfast Club itself to support an increased range of collaborative activities and reflection on practice in addition to its original goal of bringing new research ideas to the school faculty. This generative effect of the artifact on the system of practice will be explored in the following sections.

Five-Week Assessment

The Five-Week Assessment program was designed as a means to provide meaningful formative data to teachers and leaders about student progress toward improved performance on the summative district standardized tests. At Adams, the ITBS and, more recently, the ISAT presented a challenge for instructional leadership to reshape the instructional program to aid student performance on the district-mandated tests. As a Chicago public school, Adams teachers and leaders are held accountable for demonstrating student achievement improvement as a measure of school performance. The culture of professional community and collaborative design, resulting in part from innovations such as Breakfast Club, has led Adams school leaders to frame the problem of reshaping the school instructional program in terms of collaborative artifact development.

The Five-Week Assessment case offers insight into how the Adams community adjusted to the demands of standardized testing. Every five weeks, teachers throughout the school conducted a 1-2 hour assessment with their students. A team of teachers and leaders collected and graded the assessments, and consequently discussed the results to plan intervention strategies for under performing classrooms. The team also determined the assessment topics. Each year a schedule of assessments was developed for the upcoming school year. Initially designed to prepare students for the ITBS exam, the assessment program shifted toward testing children for the kinds of narrative, expository and persuasive writing and open-ended questions required by the ISAT.

Five-Week Assessment and professional community

Five-Week Assessment was designed meet an emergent need for assessment information within the existing school system of practice. As one teacher described:

We realized that the (district) tests themselves didn't give us much information about what we could do to improve our scores – mainly because we received the results well after we could do anything about it. We thought that a more frequent assessment program, say every nine weeks, would tell us where the children were.

The Five-Week Assessment began as an effort to retrofit the specific, learning outcome demands of the standardized test, particularly in language arts, to the existing instructional system of the school. Prior collaborative design efforts at Adams suggested that this effort too could be an occasion for collaboration. In 1998, a small group of teachers and school leaders worked to establish developmental benchmarks for student achievement by reverse engineering the ITBS.

The initial implementation of the benchmarks provided information about student achievement, but did not suggest what teachers could do to improve achievement. By 2000, the re-designed Five-Week Assessment became an effective diagnostic tool as teachers and leaders collaboratively used the data, through artifacts such as Breakfast Club and Teacher Leader, to shape the

existing instructional program by providing intermittent check-points in the curriculum that teachers could use to check student progress school-wide.

While high-stakes accountability systems can provide an occasion to integrate feedback about program effectiveness into the school system of practice, their introduction can also serve to threaten existing professional community in a school. School leaders who use accountability systems to pit teachers, grade levels and schools against one another can erode trust, and lead to a further insulation of practice. At Adams, school leaders realized that using the results of the test scores at the classroom level could create competition and resentment among teachers, and discourage the formation of professional community. The Language Arts Coordinator commented on the need for grade-level reporting of scores to turn accountability data into a positive force:

I think ... when the IGAP was first started it did something very interesting that almost forced us to work as a team. ... (Reporting at the classroom level led us to think) this one teacher over here could be a shining star, but if the other two or three were not getting the same kinds of results then that one teacher didn't look good anymore because my score was not enough to pull up the entire grade level. So, if I want my grade level to get a good score then I need to help these other teachers pull up to where I am.

The Five-Week Assessment helped to mitigate the summative effect of standardized test scores by providing intermittent benchmarks to gauge the projected results. Although the results of the Five-Week Assessment did not anticipate the standardized test results at first, over time, as the curriculum became more aligned with the assessments, the Five-Week Assessment proved an effective means to point out teachers who were doing particularly well as well as a warning flag for problem classrooms. For example, the Five-Week Assessment (since expanded to include the subjects tested on the ISAT) revealed that 5th grade students in a particular classroom were falling behind in science. The teacher commented that: "looking at the Five Week Assessment saved our butts because we could focus in on helping the students learn the science content they needed to do well on the test." In this case, teachers worked to enhance the existing language arts program with more science-related readings in order to supplement the existing science program. Here the Five-Week Assessment served as an alarm to bring the resources of the Adams professional community to bear in addressing instructional issues before they emerged as accountability problems.

While professional community can emerge from the expression and sharing of common interests around instruction, the long-term viability of professional community may well depend upon the development of feedback structures to provide information about how collaboratively designed initiatives are working. The Five-Week Assessment introduced a mediating artifact between received district accountability measures and the local system of practice in order to make the adjustment of the instructional program tractable, helping to both deepen the professional community and to bring the resources of the

community to bear on emergent instructional issues.

School-Improvement Planning Process

Unlike Breakfast Club or the Five-Week Assessment process, the School Improvement Plan (SIP) was a received artifact established as a mandatory district-wide practice for all Chicago Public Schools in 1989 by the Illinois legislature. In many schools, such district-designed instructional planning processes can serve as mandated hoops through which school leaders must jump, completing forms for the sake of compliance and never consulted until the next round of submission is due. When treated as external interventions, such received artifacts can glance off the school system of practice, leaving core instructional practices untouched. However, savvy leaders use features of artifacts such as the SIP to both satisfy district requirements and to stimulate desired instructional changes in the school.

The district-developed school improvement planning process was an artifact designed to help school leaders coordinate budgetary and instructional priorities with the local school councils (LSCs) and the central office. Adams school leaders took the SIP as an opportunity to extend existing collaborative planning practices. School improvement planning was intertwined with many of the leadership practices at Adams, reaching back to the arrival of Principal Williams at Adams in the late 1980s. She reports that instructional planning was one of her initial tasks at Adams:

(W)e began school improvement immediately, I believe it was 1988 when the first legislation passed that created school improvement plan, and we started from the beginning having everybody who wanted to be involved, involved.

Instructional planning, for Williams, was a way to get faculty and staff involved in conversations around instruction. By the late 1990s, the district-received School Improvement Plan came to serve as a comprehensive artifact to provide coherence to the school professional development and planning processes. Each fall Williams opened the school year with a review of the student achievement goals as specified in the current School Improvement Plan. During the fall semester, teachers would participate in the in-service programs through artifacts such as Breakfast Club and Teacher Talk, and leaders would assess the progress of instructional innovations through the Five-Week Assessment. During the spring semester, the community would revisit the School Improvement Plan goals and outline a new plan during a series of formal meetings. In March, subject-matter specific meetings were called to hammer out program priorities and student achievement goals for the upcoming school year. Thus the final plan submitted in May to satisfy district requirements reflected a profound local adaptation of the school improvement planning process to cultivate the local development of professional community.

The School Improvement Plan and professional community

Collaborative inquiry and design are the keys for how the School Improvement Plan process contributed to professional community at Adams. While the School Improvement Plan was itself the outcome of a collaborative design effort, it also served as an “umbrella” artifact to coordinate specific instructional planning opportunities throughout the year, and as a tool to focus the vision of instructional leadership and practice. The role of the School Improvement Plan as an organizing artifact made it a powerful hub for professional community in the school.

Adams school improvement planning provided an on-going, organizing occasion for collaborative design and assessment of the instructional program rather than an isolated task to be completed and shelved. Comprehensive instructional planning, for Williams, was a way to get faculty and staff involved in conversations around instruction. The School Improvement Plan currently plays a central role in organizing multiple collaborative efforts. As described by one school leader:

(e)verything is tied into in the SIP somehow, that’s what gives it credibility in the school. Early on, when the SIP meetings were poorly attended, people would complain about not having the resources to get good work done, and the administrators would reply that the teachers needed to come to the meetings to plan for the things they wanted. The budget, and the initiatives are all tied in, if you want to participate, you have to come early and stay late (at these meetings).

Adams leaders set the problem of school improvement planning as a global process that addresses the key instructional goals of the school, and how, in turn, the instructional goals of the school are customized to satisfy the requirements of the SIP. This iteration between plan and program, between external and locally designed artifacts, shows the compounding effect of interrelated practices over time. The local emphasis on planning also helps to give focus to a shared instructional vision in the school. The School Improvement Plan clearly states both the instructional goals and outlines the means of their achievement; the annual collaborative development of the School Improvement Plan helps insure that the community at large is involved in both understanding and reviewing the instructional mission of the school.

Professional community in action: a vignette

The School Improvement Plan meetings provide a glimpse into the activity of professional community at Adams. In Chicago, the annual School Improvement Plan is expected to outline how the school will support student achievement gains in math and language arts in the upcoming year. A 2000 math School Improvement Plan meeting illustrated how this collaborative planning process worked. Language arts coordinator Gwen Tracy took the lead by instructing teachers to review the 1999-2000 Math plan. After about five minutes of buzzing conversation, a first-grade teacher began a discussion of the adequacy of the current HBJ textbook series. Tracy later explained that:

The teachers have to own the meeting process because the SIP depends upon their commitment to the changes we propose...if the teachers don't take charge, the meetings don't work....There were a couple of times during the meeting today where (First Grade Teacher Mrs.) Brown looked over at me (for some help at getting the meeting going).

Tracy related that after many of the early SIP meetings, people would come up to her and let her know programs or resources they wanted but didn't bring up at the meeting.

At first, the teachers didn't see it this way, then they realized that all of the resources are passed out through the SIP – if they weren't involved in the process, they didn't get any of the resources.

As the math discussion unfolded, the five members of the Math Committee (teachers from grades 1, 3, 5, 6 & 8) acted to coordinate the brainstorming session. One Math committee member noted that “We need to work on the more open-ended, problem-solving aspect of math” in anticipation of the new accountability challenges proposed by the ISAT. An eighth grade Math Committee member added that 'next years' (text)book has a lot of practice with open-ended questions...the middle school lessons will have an open-ended question every day...consistent with the NCTM standards.” (NCTE is the National Council of Teachers of Mathematics.) Teacher perceptions seemed to be that the while the ITBS focused more on skills testing, new ISAT would focus more on problem-setting and –solving issues. The math committee recognized that the current instructional program was well tailored to the math problems of the ITBS, but not as well suited to the ISAT.

The meeting served as an opportunity to review previous math SIPs plans with respect to other program initiatives. One teacher commented that the Five-Week Assessment program in math be expanded to provide the information generated by the language arts assessments: “I think we should make the assessments similar to how they are planned for Language Arts, I would like to see us plan for the testing in math the same way.” This lack of coordination between math and language arts pointed to how the school had chosen to allocate subject-matter leadership resources. Tracy's role in coordinating the Five-Week Assessment in language arts had no organizational analogue in math — the math exams were developed and conducted by full-time teachers and apparently had not received the same attention and review as the language arts exams. This lack of organizational resources was now being felt as teachers faced the new instructional demands of the ISAT. As one teacher commented: “when you look at last years ISATs, (you can see) what we are doing now (for the 5 week assessments) is not working.”

This SIP review and design meeting provides a glimpse into the collaborative planning practices at Adams. The meetings are held to provide faculty with an opportunity to shape the school instructional program. The design meetings rely upon considerable resources in developing problem-solutions. Prior experiences

with the Five-Week Assessment program, Breakfast Club and collaborative program design meant that teachers and administrators could focus on program refinement rather than novel redesign; experience with group collaboration practices meant that much of the process could be simply assumed so that participants could focus on how programs can be coordinated into a coherent instructional program rather than on the process of collaboration. As one school leader noted,

(M)ost of the programs we bring up in the SIP are seeded over lunch and at grade level meetings. For example, we talked about the Four Blocks program a full year before we introduced it into the SIP. (One first-grade) teacher who reads a lot presented the basic ideas of the Four Blocks at a Breakfast Club, and there were several Teacher Leader meetings about the Four Blocks program. I know that the program was discussed at grade level meetings, by the time we talked about putting it into the SIP, everyone was on-board.

The School Improvement Plan itself was a district-designed artifact that afforded certain forms of school-level planning, coordination with student achievement outcomes, and discretion over resource allocation. In the hands of Adams school leaders, the plan became an occasion for collaborative design of the school instructional program, and while these practices were not new to the Adams community, the artifact created a powerful and legitimate opportunity for school leaders to deepen and extend the collaborative practices that already existed in the school.

Professional Community and the Closure of Open Systems

Adams school leaders began with a focus on improving student learning, and created artifacts to help teachers understand and develop programs to help students learn better. The intention for the design of programs such as Breakfast Club, Five-Week Assessment or School Improvement Plan was to improve student learning, not necessarily to create professional community. The value of professional community was initially not clear to Principal Williams. After some time, however, she reported that: “we began to believe in the importance of professional community when we realized that, it wasn’t taking classes, but that it was when teachers started talking about their teaching that the scores started improving.” Professional community was not created so much in the design and implementation of each artifact as realized in the effects of the artifacts taken together, as a system of practice, over time.

If the value of creating professional community was not clear to Adams school leaders, initially the methods of creating professional community were vague as well. As the artifacts began to shape the system of practice at Adams, the emergent sense of professional community helped to create the conditions that helped to shape subsequent artifacts in the school. In other words, professional community was a by-product of instructional improvement efforts that became, over time, a condition for subsequent artifact development. This next section will outline how each artifact created the social capital of professional community

within the school, and discuss how the artifacts together helped to for the backbone of a reformed system of practice at Adams.

Coleman (1988) describes how social capital developed through the closure of social or information structures in organizations. Closure happens when actors have opportunities to interact, create trust and develop reputations around selected practices. Closure involves creating feedback loops for information and social interaction in organization. Social capital is developed in organizations and interactions that present redundant opportunities for closure. Open systems, on the other hand, present little opportunity for closure. In open systems, actors diverge from the source of information or directive without structured opportunities for subsequent reconvergence. Trust around core practices does not develop because actors have little opportunity to enter into relations that create obligations or commitments. Many school instructional systems or practice are open in this fashion (Figure 2). In order to promote professional communities in schools, leaders must create legitimate structures that give rise to the occasions in which teachers can share and reflect upon their hard-won instructional expertise, question their own practices, and accept the suggestions of peers. From Coleman's perspective, these structures need to provide *closure* for open social and information networks in organizations. Closing a system means establishing feedback systems in which actors can receive information about the degree to which obligations have been entered into and fulfilled. The instructional systems of many schools remain open as information is distributed within the school with few formal (or informal)

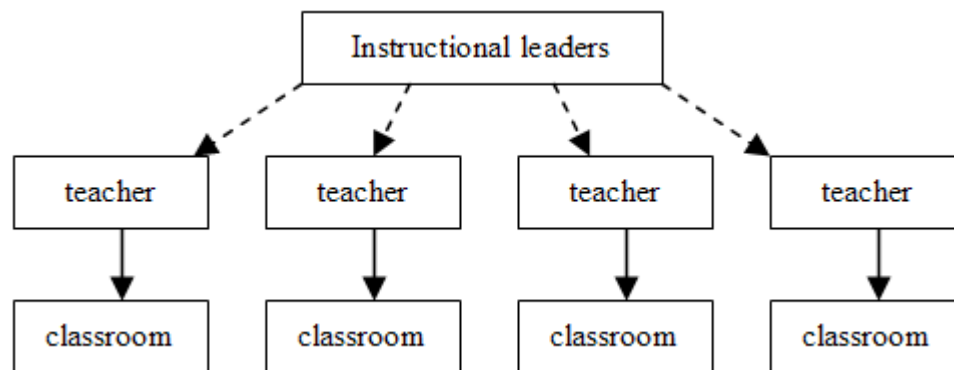


Figure 2. Generic open school

structures provided for actors to close the loop. As a result of many mandates and efforts to change instruction in an open systems, teachers and leaders can become disenchanted with received reform artifacts, and quietly learn to insulate their practices from external intervention.

Each of the artifacts described above provides a different form of closure in the local system of practice at Adams. Breakfast Club provides a forum for teachers to reflect both on research and on each other's practice (Figure 3). As it grew to maturity, Breakfast Club added a collaborative design dimension as a platform for the development and customization of the school language arts program. Over time, the communication network among teachers sparked by Breakfast Club became a legitimate venue for developing social capital around instruction

among teachers and school leaders, helping to break the barriers among classrooms and with the main office to establish new forms of obligation and trust within the school. Much of the social capital developed during Breakfast Club stemmed from the conscious effort of school leaders to encourage teachers to take leadership roles in conducting and participating in Breakfast Club

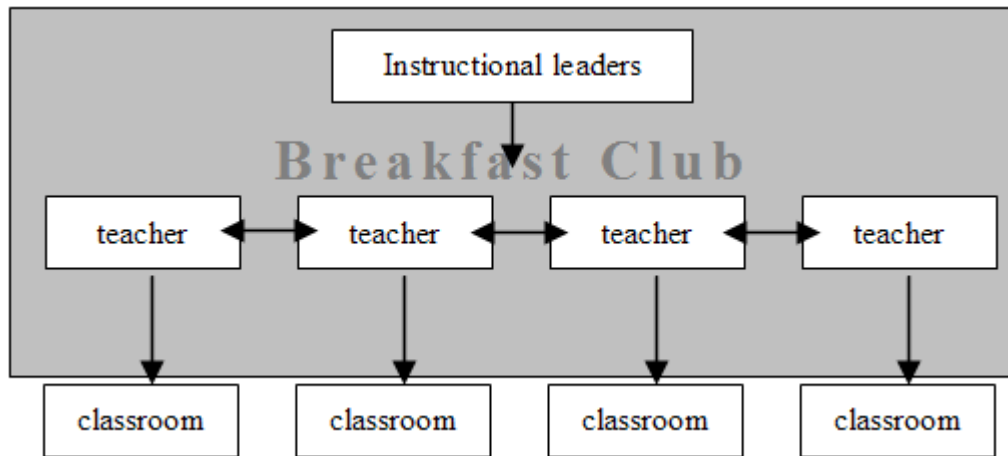


Figure 3. How Breakfast Club closes the system

meetings. The status of Breakfast Club within the school community also helped give the leaders who shape of the discussion agenda and schedule social capital as instructional leaders within the school.

The Five-Week Assessment provides another angle on the on-going effects of classroom practice through collaboratively developed measures of student achievement. Interaction in Breakfast Club was based largely on self-reports of what teachers do in their classrooms. While administrators conduct informal and formal assessments of class="Body" Breakfast Club (Figure 4). The production and discussion of customized quantitative feedback to inform the evaluation of program development helped to create obligations among faculty as teacher look to one another to improve their classroom practice. *De facto* faculty instructional leaders emerged who knew how communicate

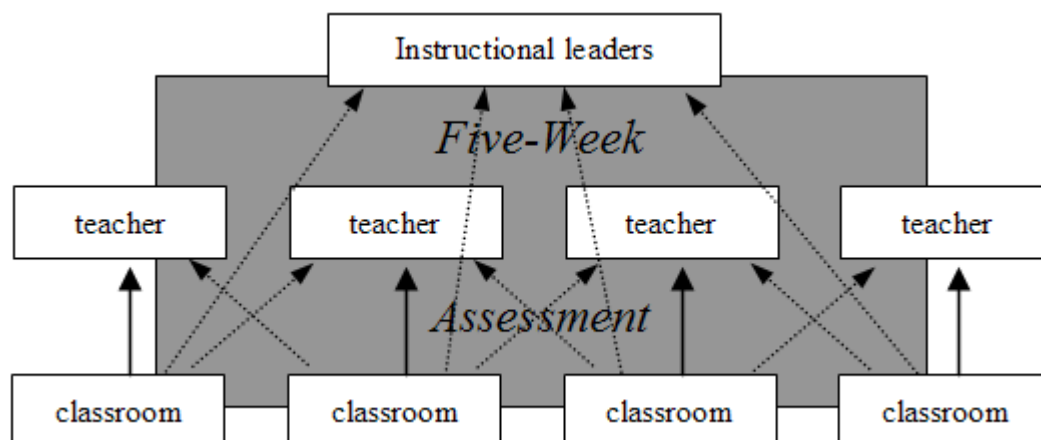


Figure 4. How the Five-Week Assessment closes the system

new ideas with colleagues. The collaborative development and implementation of the Five-Week Assessment provided needed closure among teachers in the system of practice. The Five-Week Assessment also gave school leaders feedback on how new instructional efforts fared in classrooms. Incorporating Five-Week Assessment data into Breakfast Club discussions helped to preserve the tipping point (Gladwell 2000) at which professional community can sustain self-reflective assessment practices without imploding and fragmenting.

The School Improvement Planning process augmented social capital developed during Breakfast Club and Five-Week Assessment by allowing teachers and school leaders to articulate not only what they have done, but also to put their ideas to the test by building them into the school-wide instructional program. Since the school was accountable to the district and to the Local School Council (LSC) for achieving the goals specified in the School Improvement Plan, the collaborative planning process gave participants ownership over the direction of the instructional program. The local implementation of the School Improvement Plan at Adams created structures that encouraged multi-level interactions of teachers and leaders in the development of school plans to meet instructional goals (Figure 5).

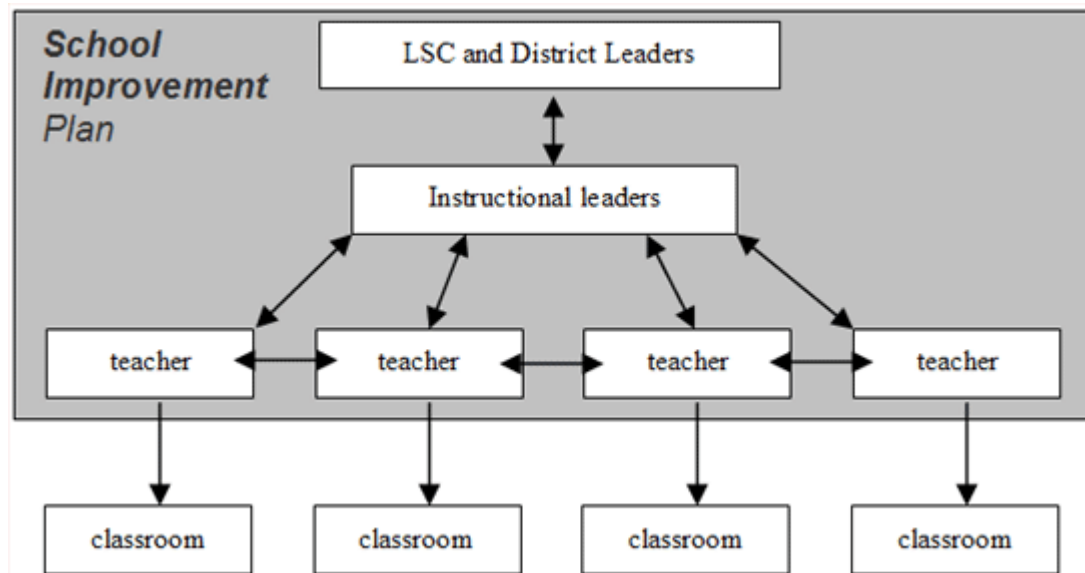


Figure 5. How the School Improvement Plan closes the system

While these meetings created obligations among community members to draft and implement viable plans, the successful completion and execution of the plan created trust among members that their work was not in vain.

Separately, the artifacts described here provided structures to support the creation of obligations and trust around instructional issues. Analyzing the function of each artifact in isolation misses the systemic nature of the way the system of practice has evolved at Adams. A school improvement plan, for

example, creates neither an atmosphere of innovation nor the means for formative assessment and periodic assessment of practice. Similarly, a five-week assessment that attempts to measure teacher instructional performance progress alone can splinter professional communities because of the threat that comparing teachers to one another make them less likely to collaborate on instructional matters. Together, however, these artifacts helped to create a coherent system of practice that brought closure across the separate artifact-based sub-systems (Figure 6). Professional community is the cumulative product of these redundant efforts to close the local system of practice at Adams.

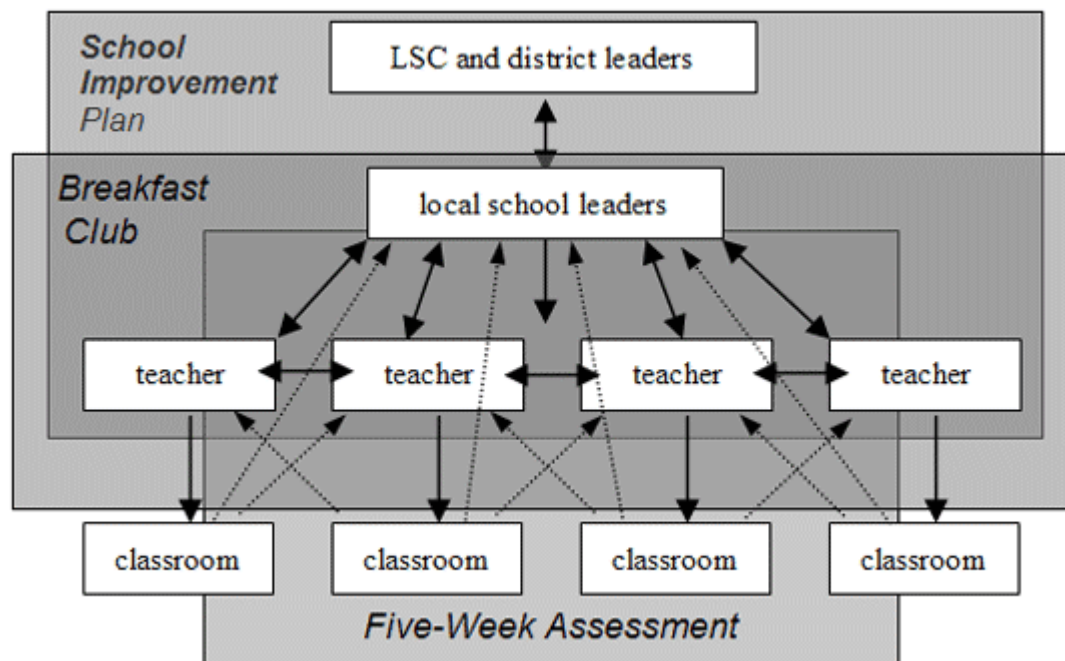


Figure 6. How system of practice closes the system

Discussion

Several interesting issues arise in this analysis about the relation of systems of practice to leadership practice and professional community. First, do artifacts rely on or create professional community? It might be argued either that there was a strong pre-existing sense of professional community at the school upon which these artifacts depend for their subsequent success in framing instructional practices at their school. Bryk and Schneider (2002) suggest that existing high levels of trust provide a key resource for school leaders in facilitating school change. Our research showed that there seemed to already have been a pre-existent strong sense of community and shared vision among a tight group of Adams leaders at the school who perceived their responsibility to improve student learning in the school. Perhaps there already also existed a strong sense of professional community among teachers that, when tapped by designed artifacts, blossomed into school-wide professional community.

If professional community can be measured in terms of student learning,

however, the effects of the pre-existent professional community were not supported by increases on student test scores. Indeed, in the early 1990s, Adams ranked among the poorest performing schools in the district. One administrator recalled that before Principal Williams, there were strong teachers in the school, and a strong sense of social community among teachers and leaders, but those teachers who initiated discussions about instructional issues felt stigmatized and silenced. While the model provided here cannot conclusively demonstrate causality between artifacts and professional community, it does suggest that the artifacts described above were the key instruments used by school leaders to create trust and open discussions of instructional practice among teachers.

The artifacts themselves, however, do not seem to be easily separable from the context in which they were created. Anecdotal evidence about how other schools that experimented with Breakfast Club-like artifacts felt little impact on the development of professional community suggests that the artifacts themselves are not the answer; rather it is how the artifacts interact with each other and with the existing system of practice to give rise to strong professional communities. Further investigation is required into schools just embarking on the creation of professional community as a avowed outcome to explore the relation between artifact construction and the underlying forms of human and social capital that make professional community possible.

Second, does reliance upon the analysis of artifacts as components of a system of practice give short shrift to the importance of interpersonal and spiritual leadership practices in schools? The analysis of systems of practice offered here is certainly not intended as a comprehensive approach to understanding school leadership practice. Artifacts merely establish the conditions for practice in organizations – the actual practices of teaching and learning involve levels of agency well beyond the determining structures of artifacts. The moral leadership and interpersonal skills required to build consensus, establish vision and give hope in schools transcend the structural components of the instructional context. Still, artifacts provide powerful tools and symbols to convey moral and interpersonal leadership, and the system of practice framework provides a way to understand and access the constraints and affordances that determine what is possible in a given school context. The ability of leaders to create and use artifacts is a powerful capacity not only to shape the practices of teaching and learning but also to provide inspiration through symbolic leadership. The analysis of the artifacts that compose the system of practice by itself may not tell the whole story of instructional leadership, but it does point to a valuable place to start making successful leadership practices accessible to interested others.

Conclusion

This account of how a system of designed and implemented artifacts helped to create a vibrant professional community at Adams provides a vantage point for understanding the nature of professional community as a form of social capital in schools. Looking at systems of practice and the tasks they shape is an important way to consider questions of structure and leadership agency in local

schools. Here I have identified a school with a strong sense of professional community, and have attempted to identify contributing artifacts that leaders have used to generate and shape the system of practice in the school. These artifacts taken together help to enable tasks which create and sustain intentional interpersonal relations in schools. School leaders created professional community by using artifacts to shape the local system of practice – creating simultaneous instances of levels of closure that consequently help to form a special kind of social capital. Instructional leadership practice is in part constituted by the ways leaders seek to develop and manipulate the artifacts available within the system of practice. Mapping the artifacts that local leaders create and adapted to shape instruction is an important way to understand the development of professional community. Communicating what these artifacts are and the ways they fit together in practice offers insight of the kinds of situational constructs local leaders build and rely upon in developing local professional communities in their schools.

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References

- Argyris, C. (1990). *Overcoming organizational defenses: Facilitating organizational learning*. Boston: Allyn and Bacon.
- Ball, D. & Cohen, D. K. (1996). Reform by the book: What is — or might be — the role of curriculum materials in teacher learning and instructional reform? *Educational Researcher*, 25(9): 6-8.
- Bryk, A. S., Sebring, P.B., Kerbow, D., Rollow, S., & Easton, J.Q. (1996). Catalyzing basic organizational change at the building level. In *Charting Chicago School Reform*, Westview Press: Chicago. 93-129
- Bryk, A. S., Camburn, E. & Louis, K. S. (1997). Professional community in Chicago elementary schools: Facilitating factors and organizational consequences. Madison, WI: Center on Organization and Restructuring of Schools.
- Bryk, A. S. & Schneider, B. (1996). Social trust: A moral resource for school improvement. Chicago: Consortium on Chicago School Research.

- Bryk, A. S. & Schneider, B. (1996). *Trust in schools: A core resource for improvement*. New York: Russell Sage.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, 95-120.
- Consortium for Chicago School Research (1998). *Improving Chicago's schools: (Adams) School*. Chicago: Consortium for Chicago School Research.
- Cuban, L. (1988). *The managerial imperative and the practice of leadership in schools*. Albany, NY: State University of New York Press.
- Cuban, L. (1986). *Teachers and machines: The classroom use of technology since 1920*. New York: Teachers College Press.
- Cuban, L. (1990). Reforming again, again, and again. *Educational Researcher*, 19(1): 3-13.
- Cunningham, P. M., Hall, D. P. & Defee, M. (1998). Nonability grouped, multilevel instruction: Eight Years Later. *Reading Teacher*, 51.
- Deal, T. E., and Peterson, K. D. (1990) *The principal's role in shaping school culture*. Washington, D.C.: Office of Educational Research and Improvement.
- Deal, T. E. & Peterson, K. D. (1994). *The leadership paradox: Balancing logic and artistry in schools*. San Francisco: Jossey-Bass.
- DiMaggio, P. J. & Powell, W. W. (Eds.) (1991). *The new institutionalism in organizational analysis*. Chicago, University of Chicago Press.
- Driscoll, M. & Kerchner, C. (1988). The implications of social capital for schools, communities, and cities: Educational administration as if a sense of place mattered, In N. Boyan, (1988). *Handbook of research on educational administration*. New York: Longman.
- Elmore, R. F. (2000). Building a new structure for school leadership. Washington D.C.: Albert Shanker Institute.
- Elmore, R. F. & Fuhrman S. (2001). Holding schools accountable: Is it working? *Phi Delta Kappan*, 83(1): 67-70.
- Engeström, Y. (1987). *Learning by expanding*. Helsinki: Orienta-Konsultit.
- Engeström, Y. (1996). Developmental studies of work as a testbench of activity theory: The case of primary care medical practice. In S. Chaiklin & J. Lave (Eds.) *Understanding practice: Perspectives on activity and context*. Cambridge: Cambridge University Press.
- Fowler, F. C. (1999). Curiouser and curiouser: New concepts in the rapidly changing landscape of educational administration. *Educational Administration Quarterly*, 35(4), 594-613.
- Gladwell, M. (2000). *The tipping point: How little things can make a big difference*. Boston: Little Brown.
- Grossman, P., Wineburg, S. & Woolworth, S. (2000). What makes teacher community different from a gathering of teachers? Seattle: Center for the Study of Teaching and Policy.
- Halpin A. W., and Winer, B. J. (1957). A factorial study of the leader behavior descriptions. In Stogdill, R. M., and Coons, A. E. (Eds.) *Leader Behavior: Its Description and Measurement*.

Columbus, OH: Bureau of Business Research of Ohio State University

Hargreaves, A. (1994). *Changing teachers, changing times*. Toronto: University of Toronto Press.

Halverson, R. (2002). *Representing phronesis: Supporting instructional leadership practice in schools*. Unpublished dissertation. Evanston, IL: Northwestern University.

Halverson, R. & Zoltners, J. (2001). Distribution across artifacts: How designed artifacts illustrate school leadership. Paper presented at the American Educational Research Association Conference, Seattle: WA.

Huberman, M. (1995). Networks that alter teaching: Conceptualizations, exchanges and experiments. *Teachers and Teaching: Theory and Practice* 1, 2.

Kruse, S. D. & Louis, K. S. (1995). An emerging framework for analyzing school-based professional community. In *Professionalism and community: Perspectives on reforming urban schools*. Newbury Park, CA: Corwin Press.

Lave, J. and Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Lee, V. E., & Smith, J. B. (1996). Collective responsibility for learning and its effects on gains in achievement for early secondary school students. *American Journal of Education*, 104(2), 103-147.

Little, J. W. (1982). Norms of collegiality and experimentation. *American Educational Research Journal*, 19(3): 325-340.

Little, J. W. & Bird, T. (1987). Instructional leadership 'close to the classroom' in secondary schools. In W. Greenfield. (Ed.) *Instructional leadership: Concept, issues and controversies*. Boston: Allyn & Bacon.

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 K. S. Louis and S. D. Kruse, (Eds.). *Professionalism and community: Perspectives on reforming urban schools*. Thousand Oaks, CA: Sage Publications.

Louis, K. S. & Kruse, S. D. (1995). *Professionalism and community: Perspectives on reforming urban schools*. Thousand Oaks, CA: SAGE Publications.

Louis, K. S., Marks, H., & Kruse, S. D. (1996). Teachers' professional community in restructuring schools. *American Educational Research Journal*, 33(4), 757-98.

McLaughlin, M. W. & J. E. Talbert (1993). Contexts that matter for teaching and learning. Stanford University: Center for Research on the Context of Learning.

Meyer, J. W. & B. Rowan (1983). The structure of educational organizations. In M. Meyer and W. R. Scott (eds.) *Organizational environments: Ritual and rationality*. San Francisco Jossey-Bass.

Miller, B., Lord, B., & Dorney, J. (1994). Staff development for teachers. A study of configurations and costs in four districts. Newton, MA: Education Development Center.

Newmann, F. M. & Wehlage, G. G. (1995). Successful school restructuring: A report to the public and educators. University of Wisconsin, Madison, WI: Center on Organization and Restructuring of Schools.

Norman, D. A. (1988). *Psychology of everyday things*. New York: Basic Books.

- Norman, D. A. (1993). *Things that makes us smart*. New York: Addison-Wesley.
- Ogawa, R. T. & Bossert, S. T. (1995). Leadership as an organizational quality. *Educational Administration Quarterly*, 31(2), 224-43.
- Peterson, K. D. & Deal, T. E. (2002). *Shaping school culture fieldbook*. San Francisco: Jossey-Bass.
- Peterson, P., McCarthey, S. J. & Elmore, R. F. (1996). Learning from school restructuring. *American Educational Research Journal*, 33(1), 119-153.
- Powell, A., Farrar, E. & Cohen, D. K. (1985). *Shopping Mall High School: Winners and losers in the educational marketplace*. Boston: Houghton-Mifflin.
- Rosenholtz, S. J. (1989). Workplace conditions that affect teacher quality and commitment: Implications for teacher induction programs. *Elementary School Journal*, 89(4), 421-39.
- Rowan, B. (1990). Commitment and control: Alternative strategies for the organizational design of schools. *Review of Research in Education*, 16, 353-389.
- Rowan, B. & Miskel, C. (1999). Institutional theory and the study of educational organizations. In J. Murphy and K. Seashore-Louis (Eds.) *Handbook of Research on Educational Administration*. San Francisco: Jossey-Bass
- Schein, E. (1992) *Organizational Culture and Leadership*. San Francisco: Jossey-Bass
- Seashore-Louis, K. & Marks, H. (1996). Does professional community affect the classroom? Teachers' work and student experiences in restructuring schools. Paper presented at the Annual Meeting of the American Educational Research Association, New York.
- Simon, H. A. (1986). *The science of the artificial*. Cambridge: MIT Press.
- Spillane, J. P. & Thompson, C. (1997). Reconstructing conceptions of local capacity: The local education agency's capacity for ambitious instructional reform. *Educational Evaluation and Policy Analysis*, 19(2), 185-203.
- Spillane, J. P. Halverson, R & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher*, 30(3), 23-27.
- Stodolsky, S. S. and Grossman, P. L. (1995). The impact of subject matter on curricular activity: An analysis of five academic subject. *American Educational Research Journal*, 32(2), 227-249.
- Suchman, L. (1995). Making work visible. *Communication of the ACM*, 38(9), 227-239.
- Supovitz, J. A. & Poglinco, S. M. (2001). *Instructional leadership in a standards-based reform*. Philadelphia, Pennsylvania: Consortium for Policy Research in Education.
- Strauss, A. and Corbin, J. (1997). *Grounded theory in practice*. Thousand Oaks, CA: Sage Publications.
- Wartofsky, M. W. (1979). *Models: Representation and scientific understanding*. Boston: Reidel.
- Wehlage, G. G. (1993). *Social capital and the rebuilding of communities: Issues in restructuring schools*, Madison, WI: Center on Organization and Restructuring of Schools.
- Wenger, E. McDermott, R. & Snyder, W. M. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Cambridge: Harvard Business School Press.

Weick, K. E. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly*, 21(1), 1-19.

Weick, K. E. (1982). Administering education in loosely coupled schools. *Phi Delta Kappan*, 63(10), 673-76.

Youngs, P. & Kings, M. B. (2000). Professional development that addresses professional community in urban elementary schools. Madison, WI: Center on Organization and Restructuring of Schools.

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Richard Halverson is an Assistant Professor in Educational Administration at the University of Wisconsin-Madison. His work aims to bring the research methods and practices of the learning sciences to the world of educational leadership. His research focuses on the ways in which people access, learn and teach sophisticated, situated practices such as school leadership. He builds on-line, multimedia technologies to access and document successful school leadership practice, and to develop ideas that can capture the complexity, expertise and situated nature of leadership practice. His recent research interests involve the representation of leadership practices in developing professional community in schools, understanding how local school leaders make sense of and implement teacher-evaluation systems, and representing the ways in which leaders move beyond inclusion to improve learn for all students in their schools.

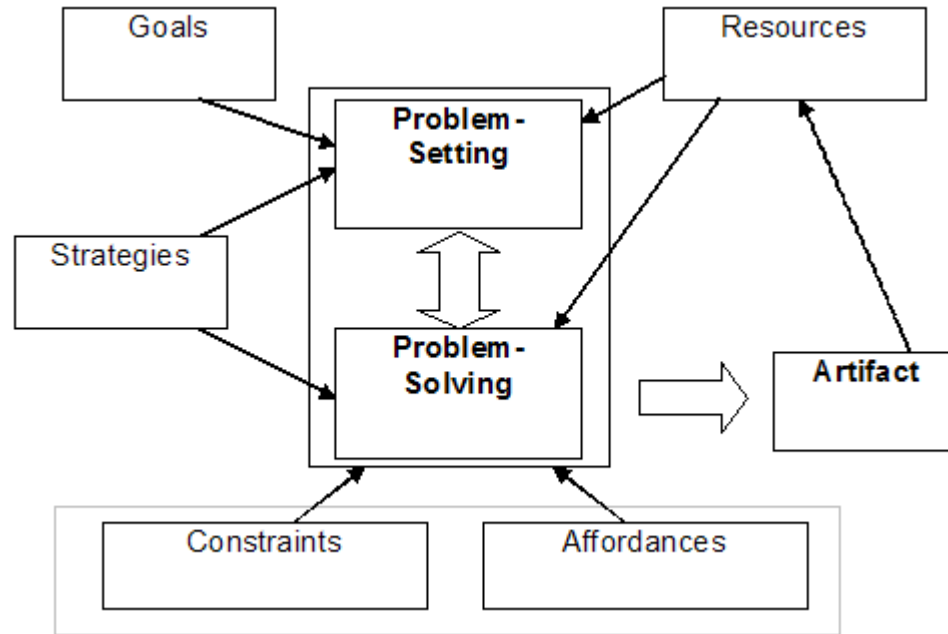
Appendices

Appendix 1: Adams Artifacts

Artifact	Purpose	Description	Designers	Duration of Service
1. <i>Breakfast Club</i>	To provide in-house professional development for and by Adams faculty	Monthly meetings before school at which faculty members make and discuss presentations on research relevant to current instructional programs	Language Arts Coordinator, Principal, Teachers	1995-current
2. <i>School Improvement Plan (SIP)</i>	To create annual local school plan to aligns instructional and budgeting priorities for the upcoming school	District designed artifact that acts as a catalyst for local planning efforts as leaders and teachers develop instructional	District, Principal, Administration, Teachers (approved by Local School Council)	1989-current

	year.	program to meet mandated student test performance targets		
3. <i>Five-Week Assessment</i>	Locally-designed testing program to provide formative data to complement summative standardized testing data	Testing program based on reverse engineering summative tests to give teachers and leaders a sense of progress toward improved standardized test achievement	Language Arts Coordinator, Assistant Principal, Principal, Teachers	1995-current
4. <i>Teacher Observation Process</i>	Process to provide formative and summative evaluation of teachers according to union guidelines and district policies	District and locally designed forms used to make sense of principal-teacher observation session. Evaluations based on district and guidelines local instructional program priorities.	District, Principal, Assistant Principal	1989-current
5. <i>Real Men Read</i>	Annual event designed to bring male African American role models into the school to read to the students	An annual breakfast and school wide program in which African-American men gather to eat and read to children throughout the school	Language Arts Coordinator, Assistant Principal, Principal	1998-current
6. <i>Career Day</i>	Annual event designed to offer Adams students an opportunity to survey career possibilities.	A two-part annual assembly for middle school students to listen to African-American speakers, then meet with African-American professionals in a variety of career fields.	Guidance counselor, principal, teachers	1999-current
7. <i>Chicago Annenberg Challenge Curriculum Planning Process (CAC)</i>	Year-long curriculum planning process to document collaborative design efforts in building multidisciplinary curricula	Collaborative curriculum design effort using LeTUS project-based science curricula as a seed for building middle-school cross-disciplinary curriculum.	Science coordinator, Teachers, Northwestern and Roosevelt University Researchers	2000-2001
8. <i>Science Coordinator Position</i>	Position established to design science program for Adams' designation as Math-Science Academy	Promotion of 6th grade teacher Tim Zacharias to renovate science program and to design and teach middle school science curriculum in collaboration with classroom teachers	Science coordinator, Principal, Assistant Principal	1999-2000

Appendix 2. Design Cycle Analysis Model (Halverson 2002)



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