

WP-03-04

**Policy, Administration, and Instructional Practice:
“Loose Coupling” Revisited**

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Abstract

The notion of “loose coupling” has held considerable sway in education research, frequently invoked to account for the rather weak ties between policy and administration, on the one hand, and classroom work, on the other hand. We argue that coupling – a potent construct – has been miss-used. Treating instruction as a monolithic or unitary practice, scholars too easily and readily conclude that instruction is loosely coupled from policy and administration. We argue that analyses of relations between institutional environments and instruction be predicated on at least two ways of thinking about instruction. First, we argue that instruction is about subject matter. Institutional environments are formed around and shape instruction in particular subjects. Second, even within a given subject area, instruction is not a single dimensional activity. Instruction involves numerous elements including the content, the academic tasks students work on, teaching strategies, ways of representing ideas to students, student grouping practices, and student work assignments. Institutional environments can affect some dimensions of instructional practice, but not others.

Introduction

Institutional theory has played a prominent role in education research over the past quarter century helping scholars account for the development of education bureaucracies and the forms they take with shifts in the institutional environment. Organizations are fraught with ambiguity making coordination and control from above difficult (Meyerson, 1991). Institutional theory also challenges models of activity in

organizations in which autonomous actors operate with unbounded rationality (Rowan and Miskel, 1999). From an institutional perspective, institutional sectors provide norms, rules, and definitions that constrain and enable action (DiMaggio and Powell, 1991; Scott and Meyer, 1991). These tacit schemata define appropriate structures and give meaning and order to action (Scott, 1995).

The notion of “loose coupling” has held considerable sway in education research over the past quarter century (Weick, 1976; Meyer & Rowan, 1978). Implementation researchers in particular, have frequently invoked the idea in their efforts to account for the rather weak ties between policy and administration on the core work of schooling – teaching and learning. We argue that coupling – a potent construct – has been miss-used. Specifically, while scholars have invoked loose coupling and decoupling frequently, and at time indiscriminately, “tight” coupling has been invoked much less frequently in discussions of relations between policy, administration, and technical core. However, in the original discussions of coupling and its application to analyzing relations between policy, administration and instruction (Meyer & Rowan, 1978; Weick, 1976), scholars suggested, or at least allowed for, that elements of the institutional sector could be both loosely and tightly coupled.

Recent trends in institutional theory urge a re-examination of relations between institutional environments and the core technology of schooling – instructional practice. Specifically, scholars argue for the possibility of both tight and loose coupling (Rowan & Miskil, 1999). Pressing on this work, in this chapter we explore relations between the institutional environments of schools and instructional practice. By treating instruction as a monolithic or unitary practice, scholars too easily and readily conclude that instruction

is loosely coupled from policy and administration. Our central aim in this chapter is to help scholars working in the institutional tradition identify and analyze the presence of loose and tight couplings in k-12 public education.

Drawing selectively on empirical data from recent studies, we argue that the dynamics of coupling in the education sector are more complex than depicted in prior research. Agreeing with recent trends in institutional theory that call for a focus on both loose and tight couplings between institutional environments and instructional practice, we outline two basic ways of how to examine such couplings in studying relations between institutional environments and instruction. Specifically, we argue that analyses of relations between institutional environments and instruction be predicated on at least two ways of thinking about instruction. First, we argue that instruction is about subject matter; teachers don't just teach, they teach mathematics, reading, writing, science, and social studies. Institutional environments then are not formed around and don't shape instruction in general. Instead, institutional environments are formed around and shape instruction in particular subjects. Hence, when we analyze the coupling of policy and administration to instruction, we need to do so in discipline-specific ways, or at least be sensitive to the fact that couplings can vary across subjects. Second, even within a given subject area, instruction is not a single dimensional activity. Instruction is not just what teachers teach; it involves numerous elements including the academic tasks students work on, teaching strategies, ways of representing ideas to students, student grouping practices, and student work assignments. When we analyze the coupling of policy and administration to instruction, we need to take into account the fact that institutional environments can affect some dimensions of instructional practice, but not others.

Patterns of both loose and tight coupling between teaching, administration and policy are possible. In showing how the effects of institutional environments on instructional practice can vary depending on the subject matter and the dimension of instructional practice, we identify at least two directions for scholarship in the institutional tradition.

Next we turn our attention to the conceptual and methodological challenges involved in investigating relations between instruction and institutional environments in ways that are faithful to the institutional tradition. Analyses of instructional practice are often at odds with an institutional perspective in that they lose sight of the broader institutional context. Similarly, scholars working in the institutional tradition pay scant attention to school and classroom level practices frequently over playing institutional determinism. We argue that scholars investigating relations between the technical core and institutional environments need to attend to practice, agency, and institutional context. We then sketch a framework in which the work of instructional improvement is a collective and situated activity, constituted in the interaction of individuals and organizations participating in interconnected and overlapping social networks within the formal policy system and beyond to the extra system (universities, publishers, and so forth) and in the tools that they used to conduct this work.

Policy, Administration, and Instruction: The Possibility of Tight and Loose Coupling

For over a decade now, we have witnessed unprecedented shifts in the policy environment. This is especially the case with respect to policy about instruction. Since the seventies, education policymakers have increasingly used policy in an effort to leverage change inside the classroom in teaching and learning. In the seventies and eighties, many states enacted policies that specified basic skills and acceptable levels of

mastery for different grades. More recently federal, state, and local government policymakers have attempted to forge wide-ranging changes in instruction in an effort to engage all students with central disciplinary ideas and processes in a range of school subjects. The "standards-based reform" movement gained momentum in the late 1980s as policy-makers across the system took to these ideas for improving K-12 education. Federal policy-makers (e.g., Goals 2000: Educate America Act, 1994) pressed standards-based reform. Many states, which a decade earlier adopted mostly a "hands-off" approach on curricular and instructional matters, also promoted standards, developing curricular frameworks that defined challenging learning standards and aligning policies to support these standards (Fuhrman, 1994). Local school districts also worked to write and re-write policies that supported the standards.

These changes extended beyond the policy environment to the broader institutional environment including professional associations, publishers, and so on. For example, professional associations like the National Council of Teachers of Mathematics took an active role in developing and disseminating national standards, standards that found their way into state and local school district policymaking efforts and into many schools.

Shifts in the institutional environment of schools provide fertile ground for scholars working in institutional theory tradition. These shifts suggest that the time is ripe for institutional theorists to turn their attention to analyzing relations between institutional environments and the technical core of schooling.

(Re)Conceptualizing the Technical Core

Some scholars suggest that institutional theorists need to disaggregate by paying more attention to particular organizations or types of organizations within an institutional sector (Whittington 1992). We argue that not only do institutional theorists need to consider types of organizations within an institutional sector they also need to disaggregate the technical core. As scholars investigate relations between the technical core and the institutional environments of schooling we argue that they need to move away from treating instruction as a monolithic or unitary practice. Drawing selectively on studies of teaching and leadership practice in elementary and high schools, we identify two important dimensions of the technical core - subject matter and dimension of instruction. When the technical core is disaggregated so that subject areas are identifiable and the multiple dimensions of instruction in subjects are recognizable more complex patterns of loose and tight coupling become evident. We show in this section that scholars need to attend to the subjects teachers teach, at both the high school and elementary level, and to the particular dimension of instruction (e.g., content coverage, sequencing of content, teaching strategies, academic tasks). By treating instruction in this way, we can move beyond broad summary statements about the technical core being loosely coupled from its institutional environment.

Coupling and Subject Matter. For the most part, institutional theory has been too quick to aggregate across diverse elements of the environment concluding that there is a single institutional sector for education. There are a host of sub-sectors in the institutional environment of education each of which is organized differently depending on their particular histories. For example, the pre-K, K-12, and postsecondary sectors are organized differently as a result of their historical origins and development (Rowan, this

volume). Even within the K-12 sector, there are distinctive institutional environments most notably those built up around different academic disciplines or subject areas.

Academic disciplines matter in any effort to analyze relations between the technical core of schooling and institutional environments. The institutional environments of schools differ by subject area. To begin with, government agencies regulate the different school subjects differently - school subjects are not all treated alike in the policy environment. Over the past couple of decades shifts in the policy environment have differed depending on the subject area. Some subjects, mathematics and language arts in particular, have received more attention from state policymakers. For example, many states developed standards and student assessments for mathematics and language arts well before science and social studies. Similarly, state and local school district accountability systems have focused on mathematics and language arts often to the exclusion of science and social studies. Local and state government agencies treat school subjects differently. Even the federal government's attempts to influence instruction have differed by subject area with some federal programs (e.g., Title 1, Eisenhower Mathematics & Science Program, No Child Left Behind) targeting particular subject areas and ignoring others.

But subject area differences in the institutional environments of schooling are not confined to the formal school system; they are also reflected in the extra system including textbook and test publishers, professional associations, and post-secondary institutions that prepare teachers and school administrators. For example, while standardized achievement tests are available and widely used for some school subjects, such as reading and mathematics, they are not available for other school subjects.

Each subject also has a unique disciplinary or professional society. Some of these associations are well organized at the national and/or state-level with teachers and other education professionals as members. For example, the National Council of Teachers of Mathematics have developed curriculum and teaching standards that have been especially influential in government policymaking about mathematics education in some states and school districts. Similarly, state level reading associations often play important roles in developing state policy and can be an important source of guidance for classroom teachers. For example, the Michigan Reading Association played a pivotal role in revising the state's policy about reading education in the mid-1980s. These professional associations can be influential in teachers' work (Huberman, 1995; Talbert & McLaughlin, 1994; Spillane & Thompson, 1997), though their import varies by subject area. For example, in a study of teachers in 9 diverse Michigan school districts, almost 50 percent of the teachers reported that they were either fairly or very familiar with National Council of Teachers of Mathematics (NCTM) Curriculum and Evaluation Standards (Spillane, in press). In contrast, only 16% of teachers reported being fairly or very familiar with Science For All Americans produced by the American Association for the Advancement of Science (AAAS).

Professional associations are also frequently an important source of advice and guidance for district office administrators. For subject matter specialists in district offices, especially in language arts and mathematics, professional associations often are the basis for affiliations that reach beyond district boundaries, affiliations that are often as, if not more influential, than state policy in district instructional policymaking (Spillane, 1998; in press). Professional associations often provide education

professionals up and down the system with access to ideas and information and a sense of direction for their work (Burch and Spillane, under review).

Subject matter differences are also evident in post-secondary institutions where most teachers and other education professionals received their pre-service and in-service training. There are differences in the nature knowledge and in the disciplinary culture among pure sciences (e.g., physics), humanities (e.g., history, English), technologies, and applied social sciences (e.g., education) (Clark, 1987; Becher, 1987; Biglan, 1973).

Knowledge in the pure sciences tends to be cumulative, focused on universals and about the generation of explanations. In contrast, knowledge in the humanities tends to be reiterative, focused on particulars, and about the generation of understandings and interpretations (Becher, 1987). For example, the disciplinary culture in the pure sciences like physics tends to be competitive, involving frequent interactions, and high publication rates. In the humanities the disciplinary culture tends to be person oriented with low publication rates (Becher, 1987). These differences tend to be reflected in K-12 schooling. For example, there tends to be more agreement around subjects such as mathematics compared to subjects like social studies. Of course, not all school subjects can trace their roots to a single discipline. Some school subjects such as social studies are a few steps removed from the academic disciplines on which they draw are compared to other school subjects such as mathematics.

These subject differences in the institutional environment of schooling have real import for the technical core. The institutional environment lends real organization and meaning to instruction. It is not divorced from it—instead it constitutes the technical core. To understand how the institutional environment defines the technical core we need

to examine practice in schools, to see how these institutional environments affect daily practice in schools around instruction.

Over the past few decades, a number of studies have helped illuminate the importance of subject matter as a context for teachers' practice. In high schools, norms of subject matter reflected in departmental subcultures, are pervasive influences on teachers' practice (Ball, 1981; Little, 1993; McLaughlin & Talbert, 1993; Siskin, 1991; 1994). Subjects influence how teachers enact their roles. High school teachers differ in their conceptions of their subjects on dimensions that include the degree of definition or agreement about subject content, scope or homogeneity of the subject, degree of sequencing of the material, whether the subject is static or dynamic, and the degree to which a subject is viewed as core or basic (Stodolsky & Grossman, 1995).

In their study of 16 high schools in two states, Stodolsky & Grossman found striking differences in English, math, social studies, science, and foreign language teachers' conceptions of their subjects. Specifically, math and foreign language teachers see their subjects as more defined and more sequenced than English, social studies, and science teachers. Further, math teachers in particular but also foreign language teachers see their subjects as static or unchanging while English, social studies, and science teachers see their subjects as dynamic. Others studies documented similar differences in high school teachers' conceptions of their work (Johnson, 1990; Siskin, 1991). For example, Rowan, Raudenbush, and Cheong (1993) found that mathematics teachers were more likely than teachers of other subjects to see their work as routine.

. Differences in teachers' conceptions of their subjects influence the degree of curricular control, standardization of curriculum, and agreement around practice and

coverage. As one might expect considering the importance of definition and sequence, mathematics teachers report significantly less control and autonomy over content than social studies and English teachers (Grossman & Stodolsky, 1993, 1994). The greater the sequencing of a subject content, the tighter the coupling between classrooms and between instruction and administration. Other work also points to the importance of subject matter in understanding relations between instruction and the institutional environment. For example, in a study of high school departments in the United Kingdom, Ball (1981) found that teachers' responses to a multi-ability classroom initiative varied by subject departments; the English department embraced the initiative while foreign language teachers argued against the reform.

Whether high school teachers view their work as a routine task (i.e., little task variety, little task uncertainty as teachers rely on small number of routines), non-routine (i.e., high task variety, high task uncertainty) or as an expert task (i.e., lots of task variety but little uncertainty as teachers draw on multiple routines) depends on the subject they teach and their conceptions of teaching and learning (Rowan, 2001). In a study of 16 high schools involving over 500 teachers, Rowan found that a large amount of the variance in teachers' perceptions of task variability and task uncertainty was within schools rather than between schools. Teachers who subscribed to behaviorist theories about instruction were more likely to view teaching as a routine task, while teachers who subscribed to constructivist theories of instruction were more likely to view teaching as a non-routine task involving more task variety and task uncertainty. However, teachers' beliefs about teaching and learning were closely related to their disciplinary specialization. While English teachers were more likely than all other teachers to

subscribe to a constructivist view, mathematics teachers were more likely than others to subscribe to a behaviorist perspective. As Rowan (2001) concludes, “Thus, a teacher’s disciplinary specialization affects that teacher’s beliefs about instruction, but it is a teacher’s beliefs about instruction, rather than the teacher’s disciplinary assignment per se, which have statistically significant effects on a teachers’ perceptions of task variety and task uncertainty” (2001, p. 17). What is striking is how these high school teachers’ conceptions of knowledge resemble those of the university disciplines.

Most elementary teachers do not have well defined subject matter specialties and do not work in situations where organizational arrangements directly support subject matter identities. Still, subject matter is an important context of elementary teachers’ work (Stodolsky, 1988; 1989). A study of 5th grade classrooms, for example, found that topics, sequence of instruction, and intellectual goals were more uniform across classrooms in mathematics compared with social studies (Stodolsky, 1988). Some recent implementation research also suggests that elementary teachers’ response to the policy environment varies depending on the subject; elementary teachers’ conceptions of themselves as teachers and as learners about teaching differ from language arts to mathematics influencing how they construct and respond to their institutional environment (Spillane, 2000; Drake, Spillane, Hufferd-Ackles, 2001).

A longitudinal study of a fifth-grade teacher’s efforts to transform her teaching in response to state and district policy, shows how a teacher can construct very different learning opportunities in mathematics compared with literacy (Spillane, 2000). These differences contributed to tremendous variation in this teacher’s implementation of policy in mathematics as compared with literacy. Vividly excited about literature and language

arts instruction, this teacher constructed a rich array of formal and informal opportunities to learn about language arts teaching (including her own practice) both within and beyond the school system. Moreover, she took an active stance as a learner synthesizing knowledge from different sources to develop new knowledge. In contrast, to learn about mathematics instruction this teacher relied exclusively on formal workshops offered by her district where she struggled to remember what she was told by presenters. This elementary teacher's work practices looked very different depending on the subject area.

Taken together, this work provides considerable evidence that the coupling between institutional environment and teachers and administrators may vary by subject matter and that those working from an institutional perspective, need to be sensitive to subject matter when studying coupling with regard to both instructional practice and administrative practice. Recent work investigating leadership practice and its relations to instruction in urban elementary classrooms (The Distributed Leadership Study) further suggests that the subject area is a critical variable in examining relations between the school administration, the technical core and institutional environments.

To begin with, school administrators, especially school principals, in the 15 Chicago elementary schools in the study, turn their attention inward to the technical core – instruction; but they do so in some subjects more than others. Administrators' attention to instruction is to be expected considering the shifts in the policy environment during the 1990s when Chicago Public Schools like other urban districts, created high stakes accountability systems that targeted language arts and mathematics in particular. As one might have predicted based on institutional theory (Meyer, 1983), these shifts in the policy environment contributed to shifts in the internal administration of schools. School

administrators took district policies seriously and classroom instruction was central in their work. In these schools, the technical core is not decoupled or even mostly loosely coupled from administration and the policy environment. For example, over eighty percent of the teachers in the study identified the school principal as a major influence on their instructional practice (Spillane, Hallett, & Diamond, 2003). Further, school principals actively participated in meetings about instruction and its improvement. Moreover, a variety of district policies including district standards and student test data, were prominently featured in both school leaders and teachers day-to-day work on improving instruction in these urban schools.

The coupling of administration and teaching, however, varies by subject area in these 15 elementary schools. Most striking, and partly reflecting the policy environment, in most schools science was decoupled from administration and the policy environment while language arts and mathematics were more tightly coupled. An urban elementary teacher captured the situation when she remarked, “So I go to my grade chairperson and she'll give me a list of the ten objectives in reading and math that I must teach. Science and social studies are more flexible because the students are not tested on the IOWA's [Iowa Test of Basic Skills] in science and social studies so that's more, you know, on the teacher's personal decision.” An administrator noted, “You know science isn't one of your guides for whether a child is promoted or graduates. So reading and math are what are stressed because those are what everybody looks at ... that's what the teachers look at too.” While science instruction was loosely coupled to administration and the policy environment, language arts and mathematics were more tightly coupled though there were differences also between these two subjects.

Consider two examples from the Distributed Leadership Study that illuminate how patterns of coupling between policy, administration and the technical core differ by subject matter. First, school leaders' schemata for their work with leading instruction differed depending on the subject matter. Second, as reflected in leadership activities that connected teaching and administration and the involvement of administrators, language arts instruction tended to be more tightly coupled than mathematics teaching with administration, and science instruction was loosely coupled with administration.

School leaders' beliefs or convictions about the work of leadership – their schemata – also differ depending on the subject (Burch & Spillane, 2003). While school leaders identified reading and mathematics as priorities – core subjects – their beliefs about leading change in these subjects were different. For example, school leaders (80%) saw the expertise for reforming literacy as internal to the school, home grown. In contrast, these same leaders saw the expertise for reforming mathematics instruction as beyond the schoolhouse, associated with external programs. Further, school leaders emphasize the integration of literacy instruction across the curriculum while in mathematics they emphasized sequencing content within mathematics instruction. These findings suggest that while language arts and mathematics instruction may be more tightly coupled with the institutional environment than earlier work would suggest, the ways in which they are coupled may differ.

Examining those activities that connected teaching and administration in these schools illuminates how language arts instruction tended to be more tightly coupled than mathematics teaching with administration, and science instruction was loosely coupled with administration. The sheer number of activities that connected administration and the

technical core differed by subject; language arts consumed the lion's share of these opportunities in most schools, with some given over to mathematics and with science falling through the cracks almost entirely. Further, the involvement and prominence of administrators in these activities and the roles they played differed by subject.

The principal and/or assistant principal in addition to language arts coordinators, grade-level lead teachers took an active role in efforts to guide literacy instruction in their schools. Six of the 8 schools had language arts coordinators who had a reduced teaching load, some had no classroom teaching responsibilities, and who worked with teachers including organizing and conducting professional development, interpreting school and district level test data about literacy, and facilitating grade level meetings. Although administrators' connections with instruction were chiefly through interactions with teachers, some of their efforts involved interactions with students, though only in language arts. In 3 schools, the principal connected to the technical core through work with students. Two of these principals focused on student writing, requiring students to regularly submit samples of their writing which they read and provided students with written comments about the work. Further, these principals provided feedback to individual teachers about their classroom work based on students' writing samples and they used these writing samples to initiate and ground conversations with teachers about language arts teaching.

With respect to mathematics instruction, the principal and/or assistant principal were also involved in leading mathematics instruction though not to the same extent as with language arts. In most schools, however, the typical involvement of the school principal with mathematics teaching involved recruiting and supporting the work of the

school's external partners and programs and the lead teachers. Lead teachers, often with official designations and usually having release time or fewer teaching responsibilities, typically took the helm in those activities designed to bring about change in mathematics teaching.

A closer look at those activities that connect administration and teaching in language arts and mathematics underscores these subject matter differences. By way of example consider those formal activities that connect administration with the technical core at one of our core study sites, Adams school, over a three-year period. These activities included literacy leadership meetings, mathematics leadership meetings, grade level coordinator meetings, grade level meetings, professional development, and faculty meetings. Literacy activities happened more than twice as often as mathematics activities. Three or four positional leaders (e.g., principal, assistant principal, language arts coordinator, special needs coordinator) were always in attendance and played an active role in leading the discussion usually beginning and ending the discussion. With respect to mathematics activities, positional leaders were not always in attendance, where they were it was typically only one, and they never led the discussion, in fact they rarely had anything to say. These patterns suggest that administration and the technical core are more tightly coupled in language arts than mathematics.

Principals and assistant principals in our study were typically not involved with science instruction. When they were involved with science instruction their work was rarely focused on science instruction per se. Leadership for science was typically confined to two or more classroom teachers, few of whom had any official designations (e.g. science resource teacher or coordinator). And most of their work centered on

ordering textbooks, purchasing laboratory supplies, and arranging for the school's annual science fair. Hence, subject matter leaders in literacy and mathematics were more likely to have time to focus on the overall instructional program, time to both increase their own knowledge and to interact with teachers and administrators about instructional issues.

The studies discussed above illuminate how the institutional environment lends organization and meaning to the technical core of schooling, but it does so differently depending on the subject matter. Taken together, these studies suggest that the subject is a key variable in understanding the extent to which instruction is loosely or tightly coupled with the wider institutional environment. The activity formats teachers use, their conceptions of knowledge and instruction, the extent to which teachers cooperate with one another, the ways leaders operate to manage instruction, the extent to which teachers are subjected to new testing and accountability regimes, and teachers' responses to reform initiatives depend on the subject area. Academic subjects organize instruction, shaping how the technical core operates and connects with the institutional environment even in elementary schools. Norms of subject matter not only pervade schools, they work in and through policymaking and governance at other levels. Patterns of loose and tight coupling look different for different subjects. These findings suggest the need for greater sensitivity to issues of subject matter in studying relations between instructional practice and policy and administration.

Disaggregating the Technical Core. Another way to disaggregate the technical core in order to better understand patterns of loose and tight coupling involves looking at the dimensions of instructional practice within different subjects. Instruction is a multi-dimensional practice. It is neither monolithic nor unitary.

Treating instruction as a monolithic unitary practice is at odds with the emphases of much government policymaking over past decade. State and local government policy has attempted to regulate some dimensions of instruction more than others. For example, the back to basics movement of the 1970s and early 1980s involved many states specifying basic competencies that students should master in particular subjects; the focus was chiefly on the intellectual content. Indeed, state education policy has focused mostly, though not exclusively, on what content should be taught, in what sequence, to what level of mastery, and (in some states) on classroom materials. Even the standards movement, a mainstay of education policymaking over the past two decades, is premised on the notion that state government should specify content standards and acceptable levels of mastery, while individual schools should determine the best teaching strategies for achieving these standards.

Other institutional environments also treat dimensions of the technical core differently. For example, textbook publishers focus on content coverage and sequencing and increasingly with teaching strategies, suggesting activities that teachers might use to introduce particular content. Test publishers focus mostly on student mastery of particular content. Differences are also evident in the post-secondary sector, especially when it comes to teacher education. In many universities prospective teachers learn about the intellectual content they will teach in disciplinary departments – chemistry, English, history, and so on. As discussed in the previous section, the ways in which knowledge is conceived differs among these disciplinary departments. However, these same teachers learn about teaching strategies, curricular materials, and student

grouping in education schools. In the pre-service preparation of teachers, universities treat different dimensions of the technical core differently.

These circumstances in the institutional environment suggest that treating the technical core as a unitary practice is problematic. The empirical evidence concurs. Some implementation research suggests that the policy environment connects unevenly with instructional practice; some dimensions of instructional practice are more tightly coupled with the policy environment than others (Cohen & Ball, 1990). Using some implementation studies we show that when multiple dimensions of instruction are recognized the technical core can be both loosely and tightly coupled with administration and policy. We begin with a study of relations between school district policy and instructional practice in one suburban district and then consider findings from some other studies.

To understand the relevancy of dimension of instruction to discussions of loose and tight coupling, consider a study of a suburban school district's efforts to align its instructional policies to support more intellectually rigorous learning goals for language arts instruction (Spillane & Jennings, 1997). The Parkwood School District (pseudonym) developed curriculum guidelines that outlined ambitious learning goals for each grade level describing materials and strategies that teachers could use to achieve these goals (see Spillane & Jennings, 1997). The curriculum guides encouraged, among other things the use of "real" literature, the integration of reading and writing, attention to students' stages of literacy development and offered detailed descriptions of teaching strategies. District policymakers aligned other policies with their curriculum guides. They purchased curriculum materials, adopted student assessments, and

organized an ambitious staff development program that supported the ideas about language arts pressed by the curriculum guides.

Studying the implementation of these policies in 9 classrooms in three different schools, researchers found that the district's policy messages had found their way into classroom practice. For example, consistent with the district policy all nine teachers used literature exclusively to teach reading, used a variety of literary genres, emphasized students' ability to comprehend and discuss text, used the writing process, and integrated reading and writing instruction. While these teachers did not rely exclusively on district policy for guidance about the language arts instruction, the evidence suggests a relatively tight coupling between instructional practice and district policy. However, moving beyond dimensions of instruction such as the materials used (e.g., children's literature), the activities teachers used (e.g., writer's workshop) and the aspects of literacy they focused on (e.g., comprehension, teaching skills in context of literature), significant differences were evident between classrooms. For example, the discourse norms that these teachers established in their classrooms around reading through the questions they asked were very different from one another. While some teachers asked students for their opinions about the materials they read and simply thanked them for their ideas, other teachers did more than simply applaud students' opinions, pressing them to justify their ideas with a convincing argument based on evidence from what they read or another source.

Evidence from these nine classrooms suggests that some dimensions of teaching can be tightly coupled with the policy environment, while other dimensions can be loosely coupled. One reason for this has to do with the clarity of the district policies:

when district policies offered more elaborate and clear images of reformed teaching there was more uniformity across the nine classrooms. District policies, for example, were quite explicit about the materials teachers were to use (and not use) in their classrooms and all classroom policies, for example, pressed teachers to get students to express their opinions and react critically to text, but offered only very general goal statements by way of guidance. However, when district policy offered less elaborated accounts of reformed practice, we found less consistency among classrooms.

Another reason concerns teacher sense-making; teachers using their prior knowledge and experiences have to make sense of the ideas pressed by policy and work out their entailments for their classroom practice. Policy and practice connections are mediated by teacher sense making. Assuming that teachers understand what policy is asking them to do differently and that they respond by adopting, ignoring, or modifying the policy is problematic because it overlooks the role of human sense-making in teachers' implementation of policy. Regretfully, work in the institutional tradition has paid scant attention to micro practices and in the process ignored human agency in their efforts to understand relations between policy and the technical core.

Other implementation studies over the past decade also document patterns of tight and loose coupling between policy and instructional practice. This work has generated ample evidence of policy getting beyond the classroom door with teachers and school administrators not only heeding higher-level policies but also working hard to implement them (EEPA, 1990; Firestone, Fitz, & Broadfoot, 1999; Hill, 2001; Spillane & Zeuli, 1999; Wolf, Borko, Elliott, & McIver, 2000). For example, a study of teachers' response to state mathematics policy in nine Michigan school districts during

the mid-1990s found that teachers heeded policy and worked hard to put their understandings of the advice offered by policy into practice in their classrooms. A suburban teacher noted, “We have . . . district objectives that we’re . . . responsible for . . . that pretty much drives my curriculum as far as math.” Policy ideas did reach within schools and inside the classroom. But, while there was a tight coupling between state and school district policy and classroom teaching on dimensions of instruction such as grouping arrangements, manipulative use, and topic coverage, on other dimensions such as what counted as mathematics knowledge and what it meant to do mathematics, classroom instruction was loosely coupled with the policy environment. All 25 teachers introduced new materials, included manipulatives, and involved students in collaborative work. With respect to the discourse norms in classrooms (e.g., the sorts of questions teachers asked, and how they treated students’ ideas) – the technical core was loosely coupled with the policy environment.

A recent observational study of a national sample of K-12 mathematics and science lessons involving 364 teachers in 31 schools suggests some interesting patterns of tight and loose coupling between the technical core and the institutional environment depending on the dimension of instruction under consideration (Weiss, Pasley, Smith, Banilower, & Heck, 2003). With respect to content coverage, state and district curriculum standards were especially influential in 3 out of 4 of the mathematics and science lessons observed nationally. With respect to teaching strategies, however, these policy documents were much less influential with only five percent of the teachers in the study reporting that these documents were influential. Teachers reported having a great deal of autonomy in choosing teaching strategies with 90% of teachers identifying

their own knowledge, beliefs, experiences, as the most salient influence. Seventy-one percent of the teachers, however, reported relying on textbooks and/or curricular programs to some extent in selecting teaching strategies: only 5 % cited state and district curriculum standards and only 7% referenced state and district tests and accountability systems (Weiss, Pasley, Smith, Banilower, & Heck, 2003). The classroom observation component of this study also uncovered some interesting patterns. The majority of lessons observed in the study involved “significant and worthwhile mathematics and science content” reflecting local, state and national mathematics and science standards. On a five-point scale where one is “not at all” and five is “to a great extent” only two percent of the lessons were ranked a one, while 67% of lessons were rated either a four or five with respect to the significance of the content. However, things looked very different when other dimensions of instruction were considered with classroom instruction. For example, most lessons portrayed mathematics and science as fixed bodies of facts and procedures rather than dynamic bodies of knowledge subject to change over time. Similarly, most lessons involved low level fill in the blank type questioning that did not encourage students to think more deeply about the content or to clarify or justify their thinking. Only 16% of the lessons observed involved questioning that pushed students’ understanding of the mathematics and science content (Weiss, Pasley, Smith, Banilower, & Heck, 2003).

We can discern at least two patterns from these findings. First, the technical core appears to be loosely coupled with the policy environment for teaching strategies but more tightly coupled for content selection. Second, while the technical core is loosely coupled with the policy environment around teaching strategies it is tightly coupled with

another institutional environment – textbook publishers. In other words, the technical core can be tightly coupled with one part of the institutional environment while loosely coupled with another part.

It is possible indeed likely that whether a particular dimension of instruction is tightly or loosely with the institutional environment will depend on the subject area. The available evidence, however, offers few insights as most implementation studies focus on one subject area or when they consider two or more subject areas they fail to disaggregate data by subject area. There is much here for scholars working in the institutional tradition to investigate.

The research reviewed above disaggregates instruction in a variety of ways; at times these studies report on similar dimensions of instruction but more often than not they conceptualize instruction in rather different ways. One of the core challenges in moving this work forward will involve thinking more systematically about the different dimensions of instruction. Instruction can be disaggregated or conceptualized in different ways. We can think about instruction as involving content, academic tasks, teaching strategies, student grouping arrangements, classroom discourse or interaction norms, and instructional materials.

To pressing on any of these aspects of instruction makes a number of other dimensions evident. Content refers to topic coverage and sequencing and the amount of time spent on particular topics. Academic tasks are the "basic treatment unit" in classrooms, defining the intellectual products students are to produce and the approaches they are to take in producing these products (Doyle, 1983, p. 162). Academic tasks draw students' attention to particular aspects of content as well as to particular ways of thinking

about and using that content. In other words, students can encounter the same content (e.g., multiplication of decimals) very differently depending on the academic task that they work on; while one task might focus students' attention on both principled and procedural knowledge about decimals, another might focus their attention on procedural knowledge exclusively. Classroom discourse norms refer to the ways the teacher and students talk with each other, what they talk about, and how they agree and disagree. Classroom discourse norms can substantially transform academic tasks as presented by the teacher (Doyle & Carter, 1984; Stein, Grover, and Henningsen, 1996). Teaching strategies refer to the strategies that teachers use to engage students, including the types of questions they ask and the types of representations they use to help students grasp particular content. Student grouping concerns how students are grouped for instruction including whole class, individual, and small group arrangements. Instructional materials include among other things textbooks, curricular materials, and manipulatives of various sorts. These different dimensions are not mutually exclusive and this set of is only one possible way of disaggregating instruction, there are other ways.

By treating the technical core as a unitary practice scholars easily gloss over patterns of tight and loose coupling. Implementation research increasingly has generated evidence of both tight and loose coupling between institutional environment and the technical core. It is not that the technical core is loosely coupled from institutional environments; some dimensions of instruction are tightly coupled while others are not. Further, some dimensions of instruction are tightly coupled with some institutional environments while loosely coupled with others.

Agency and Artifacts in Institutionalized Fields

Investigating relations between the technical core and the institutional environments of schooling in ways that are sensitive to both subject matter and dimensions of instruction poses conceptual and methodological challenges. One challenge involves analyzing instructional practice in actual schools and classrooms while still treating the broader institutional system as the relevant unit of analysis (Rowan and Miskil, 2000). Analyses of instructional practice too often treat the activity as occurring in an institutional vacuum and therefore are at odds with an institutional perspective. Balancing attention to human agency and activity with attention to the broader institutional context will be critical in this work. Institutional theorists' excessive reliance on aggregation and determinism has eclipsed the role of agency in relations between institutional environments and practice (DiMaggio, 1988). The overemphasis on the determinism of institutional sectors and institutional schemata smothers human agency (Creed and Scully, 2000; DiMaggio, 1988). Further, institutional theory has concerned itself with the development of dominant organizational forms and structures rather than activities on the ground that may be particular to individual organizations (Whittington, 1992). Hence, it is difficult to understand how macro processes and structures occur on the ground level in actual practice (Fligstein, 2001). School and classroom level practices are ignored. The challenge is developing understanding of *what* people do, *how* they do it, and *why* they do it, while simultaneously attending to the institutional structures at various levels of the system, not just the school, that enable and constrain that activity.

We argue in this section that scholars investigating relations between the technical core and institutional environments must attend to practice, agency, and the broader institutional context. By moving beyond the dominant psychological view of activity or practice as a function of individual knowledge and skill, it is possible to study activity in a particular school in a way that is faithful to the institutional tradition. Drawing from work in a variety of fields including distributed and situated cognition, and socio-cultural theory, we identify some conceptual tools that enable this approach to investigations of practice (Cobb & McClain, 2003; Spillane, Halverson, & Diamond, 2001). Specifically, we describe how this work frames investigations of practice and manages relations between agency and structure. We then define key constructs including communities of practice, boundary objects, boundary practices, and boundary spanners and using examples from research we show the affordances that these constructs offer in studying day to day practice in ways that take serious the broader institutional context.

We argue for a framework in which instruction is seen as a collective and situated activity, constituted in the interaction of teachers, students, school leaders, and artifacts situated in interconnected and overlapping social networks. In this view, activity, including instruction and school leadership activity, is distributed across or ‘stretched over’ material and cultural artifacts (Lave 1991; Rogoff 1990). Artifacts include language, notational systems, tools of various sorts, and buildings (Gagliardi 1990). Language, number systems, theories of action, and interpretive schema provide also ‘mediational means’ that enable and transform intelligent social activity (Vygotsky 1978, Leont’ev 1981, Brown and Duguid 1991, Wertsch 1991). Material and cultural artifacts, products of particular social and cultural situations, form identifiable aspects of the

‘sociocultural’ context that is critical in understanding activity in organizations. Actors have or develop common understandings, and draw on cultural, social, and historical norms in order to think and act. These features of the situation are not merely ‘aids’ to the individual’s practice; they are a constituting element. In this view, activity is a product of what the actor knows, believes, and does in and through particular social, cultural, and material contexts.

This frame for investigating practice affords human agency a prominent role but it does so while simultaneously attending to the broader institutional context. Both social structure and agency are accommodated in our framework. Drawing on Giddens’ (1979) notion of “structuration,” social structure can be viewed simultaneously as the outcome of agency and as the “generative medium” of practices that (re)create social structure (Giddens 1979: 67). Structure is both the medium and the outcome of human activity; structure constitutes agency, providing the rules and resources upon which it is based; however, structure is also created, reproduced, and potentially transformed by agency. The structural properties that enable human activity exist only as they are ‘instantiated in activity’ or remembered as rules of conduct or ‘rights to resources’ (Whittington, 1992, p. 696). In this view, individuals are not only “carriers” of institutional processes, but they also shape them through their activity (Creed and Scully 2001).

A potential powerful construct from socio-cultural theory for studying practice in ways that are faithful to the institutional tradition is the notion of communities of practice. Communities of practice is used to denote a group of individuals who share a concern, a set of problems or a passion about a topic, who interact on an ongoing basis and who have at their disposal a shared repertoire of ideas, knowledge, tools, and

routines (Wenger, 1998). These individuals may or may not work at the same organizational level but find value in interacting with each other, over time they may develop routine practices, tools, vocabularies, and norms for working together. Communities of practice are emergent, may or may not follow formal institutional boundaries, and evolve as members redefine and renegotiate their work together (Brown & Duguid, 1991).

In understanding the workings of communities of practice boundary practices (Wenger, 1998), boundary objects, and boundary spanners (Star & Griesemer, 1989; Star, 1989; Wenger, 1998) are important constructs. A boundary *practice* is a routine that sustains connections between communities of practice and provides an ongoing forum for mutual engagement (Wenger, 1998). A boundary *object* is an artifact that inhabits several intersecting communities of practice and serves to coordinate the perspectives of various constituencies for some purpose (Star & Griesemer, 1989; Star, 1989; Wenger, 1998). While boundary objects are often used differently and take on different meanings when incorporated into another community of practice, they facilitate communication across communities of practice (Star & Griesemer, 1989). Boundary practices and boundary objects go hand-in-hand. Boundary spanners are individuals who serve as a connection between two different communities in which they are participants.

These constructs are especially helpful for framing investigations of practice in schools in that they focus attention simultaneously on the day-to-day practice and the broad institutional context at once. These constructs have a number of affordances when investigating day-to-day practice in schools and its relations to the broader institutional

environment.

First, the communities of practice frame moves investigations of practice in particular schools beyond the designed organization to examine the organization as lived. By attending to the school organization not only as designed but also as lived, we are likely to generate much richer understandings of how the institutional sector connects with the technical core of schooling. Descriptions of work practices that are found in formal accounts, official policies, and job descriptions, are often abstracted from day-to-day practice, providing overly rationalized portrayals of work practice in organizations. Brown and Duguid argue that, “work practice and learning need to be understood not in terms of the groups that are ordained...but in terms of the communities that emerge. The latter are likely to be noncanonical...while the former are likely to be canonical. Looking only at canonical groups, whose configuration often conceals extremely influential interstitial communities, will not provide a clear picture of how work or learning is actually organized and accomplished” (p. 49). As we describe in more detail below, our ongoing study of distributed leadership suggest that school administrators connect with the technical core in ways that are often not captured in formal accounts and structures (e.g., supervising teaching, faculty meetings, grade level meetings).

Second, the focus on boundary practices and objects helps illuminate how the institutional sector connects with administration and the technical core. As with any occupation, teaching does not happen in a vacuum. Like flying a plane or performing surgery, the practice of teaching is constituted in part by the tools and instruments used to carry it out. Therefore, in order to understand the relations between institutional

environments and teaching, we need to pay more attention to the tools through which teachers, administrators and other policy makers individually and collectively work on instructional improvement. Working in an institutional perspective, this means paying attention to the ways in which the tools that educators design and use contribute (or not) to patterns of loose and tight coupling.

The distributed leadership study, for example, shows that an array of boundary objects connect a school's administrative or leadership community (including administrators and lead teachers) with the teaching community. Student test scores, samples of students' work, and students' writing folders are some examples of the boundary objects that connect the technical core with the school administration (Coldren & Spillane, under review). These boundary objects that have practical use inside of schools but clearly reflect norms and meaning systems originating outside the school (e.g., accountability). For example at Hillside Elementary (pseudonym) on Chicago's south side, the principal uses monthly reviews of students' writing folders to connect with the teaching community. As the principal explained it, "I can tell a lot of what's happening in the classroom by just reading folders and providing feedback to teachers. I can see people who maybe need to work a little on certain things.... It forced teachers to actually teach writing as a subject and not just as a homework assignment and encouraged them to use the writing as an integrated thing, not as a stand-alone." Commenting on students' writing samples, and sending written feedback to her teachers, this principal's work becomes more tightly coupled with writing instruction. As a Hillside teacher explained, "I switch my whole day around so they [students] get almost an hour to work on this because I realize all these different issues

and problems that the kids have because I can't write the stories for them. I have received notes from Mrs. Nelson. We have to turn in compositions monthly.... But that is what I've had to change in my approach this year is giving them more time to think, more time to work, more time to review the process."

Boundary objects can also connect the technical core to the broader institutional environment including the policy environment and professional environment. For example, in our work on distributed leadership student test score data from the district office was a central tool in both leadership and teaching activities in the schools we studied. Similarly, Cobb and McClain's work in two school districts show how instructional materials, pacing guides, and instructional plans served as boundary objects among the district mathematics leadership community, school leadership community, and mathematics teaching community (forthcoming).

Work on the implementation of mathematics standards also illuminates how boundary objects connect the technical core with the broader institutional environment (Spillane, in press). State and district mathematics and science standards, student test scores on state tests, national standards, textbooks and curricular programs, and journal articles served as objects around which local educators frequently organized their efforts to reform instructional practice. These objects were key in district policymaking activities, in school level activities designed to reform instruction, and in teachers' efforts to rethink their practice. Different combinations of these boundary objects were salient in different school districts and schools. In some school districts, state standards guided district policymaking efforts, while in other districts national standards were equally important (e.g., National Council of Teachers of Mathematics Standards).

In a rural school district, for example, teachers worked together with support from mathematics educators in a neighboring university to implement the mathematics standards. A middle school teacher served as an important boundary spanner moving between the teaching community, district leadership community, and university

mathematics education community. Trying out new ideas about mathematics education in their classrooms, these teachers worked together to help out implementation problems. Their ongoing conversations enabled teachers to develop deeper understandings of central reform ideas. Teachers reported using a variety of materials, the NCTM standards, and Maryln Burns's videotapes, to focus their conversations about the mathematics reforms. One teacher described how these materials facilitated their discussions about mathematics practice:

We . . . lifted the [NCTM] standards, and tried to study the standards and go to presentations about them. We've looked at Marilyn Burns tapes, we've looked at Deborah Ball . . . and a couple of our people here have . . .

A new middle school mathematics curriculum and the adoption of Investigations Math in all elementary grades also helped focus and ground teachers' conversations about mathematics instruction providing common points of reference. One teacher explained that when she first heard about the importance of discourse in mathematics she and some of her colleagues were not entirely sure what it meant: "We were reading and hearing about classroom discourse, but we didn't quite know what it meant at that point."

Getting together to talk about the role of discourse with other teachers, however, she developed a better understanding of the importance of discourse in mathematics. These discussions allowed teachers to exchange ideas and check out their emerging understandings of ideas such as mathematical problem solving and discourse. Boundary objects of various sorts – national standards, curricular materials – helped framed these teachers' practice both in the classroom and as they worked with colleagues to figure out what standards entailed for their teaching practice.

While tools are constitutive of day-to-day practice in schools, they do not determine it. Take the student test score data, for example, that the district office sends to all schools and which figured prominently in the leadership activities we observed in the schools in the Distributed Leadership Study. While the test score data helped define the leadership and teaching activities in these schools, it was also used in distinctly different ways across schools. At some schools, test score data was re-analyzed by the school leadership community so that trends across time were identified and represented using a variety of displays. These representations were then used as a basis for a discussion among school leaders and teachers. In other schools, school leaders simply told teachers in meetings what particular language arts or reading skills they needed to focus on based on the student test data they had received from the district office. Boundary objects do not simply carry meanings from one community to another but rather serve as points around which interconnections between communities emerge (Cobb & McClain, forthcoming). In this case, student test score data connected the district leadership community with the school leadership community and the teaching community but because particular schools different routines and practices, the manner in which this boundary object was used differed from one school to the next.

Finally, paying attention to individuals who span different communities of practice –mathematics education leadership, school leadership, teaching, – we offer a richer and perhaps more accurate picture of how relations between institutional environments, instruction, school administration, evolve. For example, in our work on distributed leaders, lead teachers frequently can serve as boundary spanners, connecting the teaching community with the school leadership community, especially in

mathematics and science, and the broader institutional environment. These boundary spanners inhabit different communities of practice and in doing so can help establish tighter coupling between the technical core, administration, policy, professional associations, universities, private foundations and so on.

Conclusion

The specter of “loose coupling,” has had something of a stranglehold on implementation scholarship for the past twenty years or more. Treating instruction as a monolithic or unitary practice, it was relative easy to conclude that instruction was decoupled or loosely coupled from administration and policy. We showed, however, drawing on recent implementation research that treating teaching as a unitary practice is problematic in that it glosses over patterns of tight and loose coupling between the institutional environment and instruction. Looking carefully *within* instructional practice and acknowledging its multiple dimensions is critical to understanding tight and loose coupling in the educational sector.

Individual and organizational responses to external pressures to reform instruction will depend on the instructional context in which pressures are being exerted. The foregoing discussion can guide identification of behavior that individuals and organizations may demonstrate in response to policy action and pressures.

The degree of coupling between policy and administration and the technical core will vary by subject area. Variations in views of subject matter are hypothesized to determined individual and organizational responses to institutional pressures of schooling. So, for example, a school may agree with a state initiative to hold teachers more accountable for meeting content area standards. Depending, however, on the

subject matter focus of the content standard (e.g., reading, mathematics, science or social studies) when internal expertise is perceived as being low (as is often the case in mathematics) and when subject area is perceived as being core dimension of schooling, the school community will respond by meeting new policy requirements and avoid conditions in which they might transform or reinterpret requirements.

These patterns are likely to be observed not only among individuals and organizations operating within the formal policy system (e.g. schools, districts) but will also be reflected in responses of actors within the extra system (universities, publishers, textbook companies, foundations.)

Hypothesis 1. The higher degree of expertise and autonomy perceived in relationship to subject matter, the greater the likelihood that individuals and organizations will transform policy requirements and adapt them in relationship to context.

Hypothesis 2. The low degree of priority perceived in relationship to subject matter, the less likely individual and organizational will respond to policy requirements.

We posited that patterns of coupling in the education sector can also vary by dimension of instruction. While policy and administration may be loosely coupled with one dimension of practice (such as the representations teachers use to teach students) it may be tightly coupled with another dimension (such as the topics taught by a teacher).

Identifying some key conceptual and methodological challenges involved in analyzing day-to-day practice in ways that are faithful to the institutional tradition, we

sketched a framework to guide such work. Appropriating concepts from socio-cultural theory, distributed and situated cognition, we showed how investigations of leadership and teaching activity in particular schools can remain faithful to the institutional tradition. Our framework draws attention to day-to-day activity and the tools used in the context of this activity, both instructional and leadership activity, in particular schools. The extent to which policy and practice are linked will depend in part on human agency and artifacts. Policy makers, administrators and teachers don't simply adopt norms. They are and can be agents in the development of the common meaning systems and symbolic processes that build up around particular sectors. The tools that they design to support these systems and processes are potent and largely overlooked dimensions of coupling in the education sector. We argued that these conceptual tools will uncover patterns of tight and loose coupling that would go unnoticed if the designed organization as reflected in formal structures and roles was the exclusive focus. By studying practice, we can investigate how institutional structure is embodied in activity, both the medium for that activity and the outcome of it.

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