ORGANIZATIONAL LEARNING THEORY AND DISTRICTWIDE CURRICULUM REFORM: THE ROLE OF CENTRAL OFFICE BOUNDARY SPANNERS IN ORGANIZATIONAL LEARNING

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Dissertation in Practice

By

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Abstract

This qualitative study examined the organizational learning mechanisms (OLMs) used by school district educational leaders to improve the implementation of curriculum reform. This portion of the study focused on the OLMs used by central office boundary spanners to help school principals implement curriculum reform chosen by school district leaders. Drawing from interview and document data analysis, the results of this study indicated that OLMs used by central office boundary spanners are critical to the successful implementation of school reform. Examples of the OLMs used by central office boundary spanners included utilizing online technology and providing whole and small group support as well as individualized coaching to help school principals implement curriculum reform. Frequent communication, collaborative opportunities, and consistent messaging with school principals surfaced as the key OLM techniques used by central office boundary spanners to consistently improve the implementation of school reform.

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Dedication

This is dedicated to my parents, Gerard and Noelzina Edouard, who have stood behind me since childhood until now to achieve this degree and beyond. I thank my parents for never limiting me even if it meant great sacrifice on their part. Additionally, I dedicate this work to my husband, Rodney Vincent, for supporting and encouraging me to stay focused on my dream. Thank you for never giving up on me, when I felt like this entire process was too much. Without your support and understanding, this chapter of my life would not have been the same. I dedicate this work to my children, Elidja and Eliana, who are my inspiration to continue making a difference in the lives of all that I encounter. Above all others, I thank God for His divine provision and grace. For He alone has sustained me, blessed me, and filled me with His Peace, "Shalom."

"For I know the plans, I have for you," declares the LORD, "plans to prosper you and not to harm you, plans to give you hope and a future." Jeremiah 29:11

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Chapter 1

INTRODUCTION[1]

Educational leaders are faced with a complex mix of competing interests, shifting demographics, and comprehensive reform demands (NCEE, 1983; NCLB, 2001; RTTT, 2009). Since the publication of A Nation at Risk (1983), American public schools have achieved mixed results in their pursuit of substantive and sustainable change (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Duncan & Murnane, 2014; Higgins, Ishimaru, Holcombe, & Fowler, 2012; Payne, 2013). Recent interdisciplinary research has established the efficacy of systems and structures that support organizational learning and suggests that school leaders who establish learning organizations may position their schools and districts to more effectively manage change and turbulence in public education (Koliba & Gajda, 2009; Knapp, Copland, Honig, Plecki, & Portin, 2010; Schlechty, 2009; Senge, 1990; Spillane, J. Parise, L. & Sherer, J., 2011; Waters & Marzano, 2009).

Supporting complex reform agendas and adapting to new conditions and demands requires highly skilled learning organizations (Argyris & Schon, 1976; Collinson & Cook, 2007; Elmore, 2006; Fullan & Hargreaves, 2012; Honig, 2008; O'Day, 2009; Shilling, 2013). When applied in the public school setting, organizational learning theory may support the development of schools and districts as successful learning organizations (Bryk, Gomez, & Grunow, 2011; Bryk, Camburn, & Louis, 1999; Bryk & Schneider, 2002; Collinson & Cook, 2007; Leithwood & Louis, 2000). While there is clarity around the need to build the organizational learning capacity of public school systems, doing so successfully and sustainably remains a tenacious

[1] This chapter was jointly written by the authors listed and reflects the team approach to this project: Andrew Berrios, Tracy Curley, Marice Edouard-Vincent, Bobbie Finnochio, and Ian Kelly.

problem of practice (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Duncan & Murnane, 2014; Higgins, Ishimaru, Holcombe, & Fowler, 2012; Payne, 2013).

This study explored organizational learning in the public school context and attempted to gain valuable insights into how school and district leaders leverage organizational learning theory to implement and support strategic curriculum reforms. It is our hope that this study will (a) add to and complement the existing research base on the use of organizational learning theory to enhance school performance and (b) provide school and district leaders with specific guidance on the application of organizational learning theory in practice. We believe that this study will support leaders by (a) building their understanding of organizational learning theory and organizational learning mechanisms, (b) providing insights into how information and knowledge moves within a district and where problems with organizational learning can occur, and (c) providing guidance in using organizational learning theory to support reform agendas at the school and district level.

Research Question

How do district and school leaders use organizational learning theory to implement and support curriculum reform?

LITERATURE REVIEW

Changing Instructional Practice

Raising academic achievement for all students remains a high priority for legislators, policy makers, and educators (NCEE, 1983; NCLB, 2001; RTTT, 2009). In addition to legislative demands, the labor market continues to emphasize the need for specific skills and competencies that support success in today's knowledge economy (Crawford & Irving, 2009;

Casner-Lotto & Benner, 2006; Hepworth & Smith, 2008; Lloyd, 2010). Adjusting curriculum, instruction, and assessment practices to reflect these demands requires fundamental changes to how local education agencies approach teaching and learning. Specifically, educational leaders have struggled to implement substantive and sustainable curricular reforms that have a lasting impact on teaching and learning (Burney & Elmore, 1997; Duncan & Murnane, 2014; O'Day & Quick, 2009; Payne, 2013; Shilling, 2013).

Successful school reform and improvement rely heavily on the knowledge and capacity of professionals at all levels of school district operations (Bryk, 2010; City, Elmore, Fiarman & Teitel, 2009; Elmore, 2006; Kruse, 2003). As such, building the knowledge and capacity of professionals at all levels of a district's organizational hierarchy is an instrumental endeavor for public education systems (Fullan, 1992). All school systems engage in organizational learning, the question central to this study focuses on (a) what types of mechanisms are in place to support professional learning and (b) the extent to which the efficacy of those mechanisms can be determined by examining the alignment of and agreement between professional perceptions of district curriculum reform priorities. Organizational learning theory (Argyris & Schon, 1978) and organizational learning mechanisms (Popper & Lipshitz, 1998; Schechter & Atarchi, 2014) provide a structured framework through which the district's approach to implementing and supporting curriculum reform was analyzed.

The following pages provide an overview of both the theoretical literature and empirical research associated with organizational learning theory (OLT) and organizational learning mechanisms (OLMs). Building a fundamental understanding of OLT clarified our research focus and highlighted the conceptual framework in which we situated our research methodology. In

addition, this review of the literature provided critical information about what constitutes organizational learning and the unique characteristics associated with this theoretical framework.

The review first addresses Understanding by Design. While this curriculum design framework was not central to the study, it was one of the primary ongoing curriculum reform initiatives in the Belvedere Public Schools at the time of this study. As such, this reform represented a concept and vernacular familiar to participants in the study. This familiarity was key to the study as it provided a medium through which the research team could discuss and study the unfamiliar concepts embedded in the OLT and OLMs theoretical framework.

The review then moves into a discussion of OLT in which embedded concepts including theory of action, theory in use, mental maps, and single/double loop learning are addressed. The review briefly address differences between individual learning and organizational learning before moving into a review of literature and research associated with the secondary conceptual framework for this study, organizational learning mechanisms (OLMs).

Curriculum Reform: Understanding by Design

The district selected for this research study was engaged in a focused, inter-district curriculum reform effort that began in 2012. The district and its partners selected and implemented an approach to curriculum planning known as Understanding by Design (Wiggins & McTighe, 1998). This approach to curriculum planning relies on a three-stage process that engages professionals in what is known as a backward design method.

The first phase asks professionals to identify desired results in terms of learning outcomes for students. Backward design focuses educational professionals on broad understandings and essential questions before considering how to teach a concept or skill. Once identified, the second stage of the backward design process requires professionals to determine

acceptable evidence. This stage of the process answers the question, "How will we know students have learned and do they demonstrate understanding of the established learning outcomes?" The third and final stage of the backward design process engages educators in planning learning experiences and instruction based upon the desired learning targets established in the second phase of backward design.

Organizational Learning

Organizational learning can be defined as a change in organizational knowledge or behavior that is a result of experience over time (Argyris & Schon, 1978; Argote & Miron-Spektor, 2011; Fiol, 1994; Fiol & Lyles, 1985; Levitt & March, 1988; Schulz, 2005). Learning within an organization is influenced by socio-cultural factors (Bransford, Brown, & Cocking, 2006; Bruning, Schraw, & Norby, 2011; Vygotsky, 1978) and is most effective when professionals are given the opportunity to learn from one another within the context of their work (Brown & Duguid, 1991; Elmore, 2006; Hargreaves & Shirley, 2009). This broad definition of organizational learning provided a framework through which we explore concepts embedded in organizational learning theory.

Organizational Learning Theory

March and Simon (1958) examined the theory of formal agencies in their work, *Organizations*. At the time, the concept of organizational learning was relatively undefined and lacked a substantive theoretical base. March and Simon (1958) captured this problem succinctly, "Much of what we know or believe about organizations is distilled from common sense and from the practical experience of executives. The great bulk of this wisdom has never been subjected to the rigorous scrutiny of the scientific method" (p.24). March and Simon's (1958) early work set the stage for the development of organizational learning theory (OLT) and identified the need for

future research into how organizations (a) engage individuals, (b) strategically plan for growth and learning, and (c) develop personnel and, as a result, the collective organization.

Building on the work of Marhc and Simon, Argyris & Schon (1978) further published *Organizational Learning: A Theory of Action Perspective.* This seminal work provided a conceptual frame for researchers and practitioners to study and analyze learning within the context of organizations. In this work, the authors described the fundamental concepts that compose organizational learning theory: task systems, theory of action, theory in use, mental models, single-loop learning, and double-loop learning. These concepts clarify the experiences of both the organization and individual within the learning process, specifically, the interaction between the organization's intended outcomes and how those at the individual level are educated or learn in the process of pursuing those intended outcomes.

Theory of action. Collinson and Cook (2007) describe an organization as "a collective that forms for a specific purpose that is beyond the reach of a single individual" (p. 8). The specific purpose that Collinson and Cook referred to is almost always paired with actions that the organization believes will result in attaining that purpose. This relationship between purpose and action is what Argyris and Schon (1978) referred to as theory of action (ToA). The causal relationships embedded in a ToA reflect the norms, strategies, and assumptions that organizations rely upon to pursue their specific purposes and goals (Argyris & Schon, 1978; DuFour & Eaker, 1998; Fullan, 2001; Fullan, 2007).

No Child Left Behind (2001) provides a salient case illustrating theory of action. NCLB's desired outcomes included ensuring that all students had access to (a) highly qualified teachers, (b) a standards based curriculum, and (c) an equal opportunity to achieve at high levels. NCLB articulated a number of actions to achieve these goals. These included but were not limited to (a)

more stringent requirements and monitoring of teacher licensing practices, (b) increased standardized testing, and (c) high-stakes accountability mechanisms to monitor the progress of schools. The causal relationships drawn between the desired outcomes for students and the regulatory mechanisms designed to achieve them provide insight into the norms, values, and assumptions of the educational reform context at the time the legislation was written.

Spillane, Parise, and Sherer (2011) conducted a case study that provides valuable insight into the theory of action concept. Their work focused on school leaders' use of organizational routines to couple government regulations and instructional practices at the classroom level. Spillane and colleagues built on the work of Feldman and Pentland (2003), utilizing organizational routines as a portion of the theoretical framework for their study. In their discussion of these routines they describe the ostensive and performative aspects of organizational routines. Paralleling the work of Argyris & Schon (1978), the ostensive aspect of organizational routines refers to the ideal or schematic form of a routine (ToA), while the performative aspect refers to the actual enactment of the ToA. Feldman and Pentland (2003) state this idea succinctly, "The ostensive aspect of the routine is the idea; the performative, the enactment" (p. 101). Argyris and Schon (1978) discussed how organizations enact ToA through task systems. Task systems provide the second portion of the conceptual framework for this study.

Task systems. Task systems are shaped by an organization's theory of action and are "a design for work and a division of labor" (Argyris & Schon, 1978, p.14). In school settings, task systems can be found at all levels of the organization with a broad range in complexity. Task systems manifest in the processes and procedures that teachers use to transition children from math to lunch and the broad strategic planning processes executed by central office

administrators to formulate multi-year improvement plans for an entire district (Halverson, 2003; Spillane, Parise, & Sherer, 2011; Spillane & Thompson, 1997). The notion that task systems are shaped by and reflect the district's most fundamental norms, strategies, and assumptions (the districts ToA) is an essential understanding when considering an analysis of district practices through the organizational learning framework. The bridge between the idea and the enactment is spanned by how members within the organization perceive the ToA and the extent to which they understand the ToA. The individual's perception, understanding, and enactment of ToA embody two additional concepts embedded in Argyris and Schon's (1978) organizational learning theory, theory in use and mental models.

Theory in use and mental models. Theories of action are abstract concepts. As stated earlier, they articulate a causal relationship between the desired goals of an organization and the behaviors that the organization believes necessary to attain those goals. In contrast, theory in use represents the observable behaviors of the organization or individuals within the organization (Argyris & Schon,1978). Put another way, theory in use is what an observer can see the organization or individuals within the organization doing. It is the observable behavior that sets theory in use apart from the norms, strategies, and assumptions that compose an organization's theory of action.

What the organization is actually doing is a function of individual behavior and, within the context of organizational learning, individual behavior is driven by individual perceptions of the organizations theory of action. These individual perceptions of what the organization wants and how they plan on getting it are formed through the individuals experiences with and learning from other individuals within the organization and with the organization itself. These interpretations are knows as mental models.

Through direct experiences and interactions with the organization over time, individuals construct, continuously review, and revise mental models that represent the organization's theory of action and task systems (Argyris, 1976; Argyris & Schon, 1978; Hedberg, 1981). The development of mental models is heavily influenced by the interactions between the individual and the organization. These mental representations of ToA and task systems help the individual understand and, ultimately, drive the execution of their perceived responsibilities within the organization. Mental models represent another critical element in the conceptual framework that frames the current study.

District and school leaders design task systems intended to implement the working theory of action. Teachers and other education professionals work within those task systems and, over time, accumulate experiences that shape how they perceive and understand the district's theory of action. These perceptions and understandings are the mental models that individuals construct and, consequently, use to guide their current and future work (Mohammed & Dumville, 2001). It is the actions of individuals that are the observable behavior known as theory in use.

Theory of action, task systems, theory in use, and mental models are key concepts that frame and, in the following pages, distinguish between two distinct types of learning within an organization; single-loop learning and double-loop learning (Argyris & Schon, 1978). Single-loop learning refers to changes in behavior that maintain the current theory of action. Double-loop learning refers to changes in behavior that redefine the norms, assumptions, and strategies that constitute the organization's theory of action. Both types of learning rely on a phenomenon known as error detection.

Error detection. The concept of error detection is essential to understanding learning within the context of OLT (Shaw & Perkins, 1992). Errors refer to a perceived incongruence

between observable behavior and an individual's expectation of behavior relative to their mental models of the organizational theory of action and task systems. In simple terms, an error occurs when an individual acts in a way or observes others acting in ways that are incongruent with their current perception (mental models) of the organizational theory of action and supporting task systems. It is here that the true power of mental models becomes clear. Given that error detection is a function of an individual's observation of behavior that is perceived to be incongruent with the organizational theory of action, the accuracy of and the extent to which individual mental models reflect the ToA articulated by the organization determines what is and is not considered an error.

An individual who holds accurate mental models of the organizational theory of action and task systems will potentially detect true errors that present opportunities for organizational learning. An individual who holds inaccurate mental models of the organizational theory of action and task systems may (a) fail to recognize errors or (b) interpret behaviors that are consistent with the organizational ToA as errors. In the case of inaccurate mental models, opportunities for individual and organizational learning are stifled or missed all together. In some instances these situations may result in learning that is counterproductive and harmful to the organization. As we can see, mental models, accurate or not, play a significant role in whether and how organizational learning will occur (Argyris, 1976; Argyris & Schon, 1978).

Single-loop and double loop learning. The process of single and double loop learning begins with error detection. When an error is detected the individual or the organization seeks to correct the perceived problem. The manner in which the perceived problem is corrected determines whether the organization is engaged in single loop learning or double loop learning. In a single-loop learning scenario, the error correction seeks to maintain the status quo and

preserve the current theory of action (Argyris, 1976; Argyris & Schon, 1978). Double loop learning, on the other hand, refers to error correction on the part of individuals or the organization as a whole that initiates a fundamental shift in the norms, strategies and assumptions of the organization (Argyris, 1976; Argyris & Schon, 1978). In this situation, the error or problem is so incongruent with the current theory of action that it cannot be resolved through the minor behavioral adjustments of single loop learning. In the case of double loop learning, the organization must look critically at its theory of action and redefine that theory to better match current demands.

The work of March and Simon (1958) and Argyris and Schon (1978) provided the foundational theoretical and conceptual frameworks for the current study. Theory of action, task systems, theory in use, and mental maps/images gave shape and direction to the development of data collection protocols and the subsequent analysis of organizational learning in service of the district's curriculum reform efforts. The research and literature in the decades following the work of March and Simon (1958) and Argyris and Schon (1978) defined the remaining elements of the theoretical and conceptual framework for the research team's investigation of organizational learning and curriculum reform. The following pages provide a brief treatment of this literature and research as well as an in depth review of organizational learning mechanisms.

Organizational Learning Mechanisms

During the two decades following Argyris and Schon's (1978) work research continued to explore and define organizational learning theory (Cook & Yanow, 1993; Duncan & Weiss, 1979; Fiol & Lyles, 1985; Herritt, Levinthal & March, 1985; Huber, 1991; Klimecki & Lassleben, 1998; Levinthal & March, 1981; Levitt & March, 1988; Nonaka, 1994; Senge, 1990; Walsh & Ungson, 1991; Weick, 1991; Weick & Roberts, 1993). This body of work provided

further definition for and understanding of OLT. As the field developed and so to did a significant theoretical division within the research community.

The central problem and debate involved (a) the fundamental relationship between individual learning and organizational learning and (b) whether or not organizations were capable of learning in the same way that humans learn. Popper and Lipshitz (1998) explored these issues through an exhaustive review of relevant literature and contributed a viable theoretical bridge between the various perspectives on these issues. The power of their work was based on (a) the identification and articulation of three divergent theoretical positions on the debate and, most relevant to the current study, (b) the articulation of organizational learning mechanisms as a concrete lens through which researchers could study organizational learning while circumventing the quagmire of individual vs. organizational learning.

Popper and Lipshitz (1998) articulated three positions taken by the theoretical community on the question of how individual and organizational learning are or are not related and congruent. The first position answered the question with a qualified yes. This theoretical position held that organizations are able to learn like human beings. The second position answered the question with an implied yes. Scholars here held that organizations were able to learn but that organizational learning was an extension of individual learning. The third and final position answered the question with a firm no. This theoretical position held that organizations do not possess systems and structures that parallel the biological cognitive networks involved in human learning and, therefore, organizations cannot learn as individuals learn.

While these theoretical positions provided structure and insight into the debate at the time, the theoretical bridge that Popper and Lipshitz (1998) offered to span this divide in the research community was the major contribution of their work. Building on the work of Cook and

Yanow (1993), Popper and Lipshitz proposed that organizational learning mechanisms provide a concrete framework through which researchers could study the "structural and procedural arrangements" (p.167) that result in learning. While the research and theoretical community could not agree on the questions surrounding the relationship between individual and organizational learning, the notion that all organizations engage in strategic activity to achieve goals is universally accepted and provided a path forward in studying organizational learning.

Popper and Lipshitz (1998) identify organizational learning mechanisms (OLMs) as a way to draw attention to the concrete, observable systems within an organization that promote individual and group learning (Popper & Lipshitz, 1998; Popper & Lipshitz, 2000). OLMs are institutionalized procedures and practices that organizations use to collect, analyze, store, disseminate, and use new information in service of organizational goals (Ellis, Margalit, & Segev, 2012; Ellis & Shpielberg, 2003; Popper & Lipshitz 1998, 2000; Schechter, 2008; Schechter & Asher, 2012; Schechter & Quadach, 2012; Schechter & Atarchi, 2014). Schechter and Feldman (2010) explain that OLMs function across various settings within organizations when individual members share and analyze knowledge. When organizational learning mechanisms effectively increase an individual's knowledge, the individual's newly acquired knowledge adds to the collective learning of the organization, thus, supporting the concept that OLM's support organizational learning.

Organizational learning mechanisms are closely tied to theory of action, task systems, theory in use, and mental maps (Argyris & Schon, 1978). OLMs are formal and informal task systems that organizations use to promote individual and organizational learning in service of the theory of action. OLMs can promote single or double loop learning by leveraging the errors that organizations and individuals detect based on comparisons between theory in use and mental

models. OLMs are composed of five distinct learning processes (Schechter & Atarchi, 2014). These processes are explored further in the following pages.

Organizational learning mechanisms: Five processes for organizational learning. Research exploring organizational learning mechanisms (OLMs) identifies five distinct but interrelated processes embedded on OLMs. These include organizational memory, information acquisition, information distribution, information retrieval, and information interpretation (Schechter & Quadach, 2013; Schechter & Atarchi, 2014). Building upon organizational learning research, Popper and Lipshitz (1998) identified organizational learning mechanisms as a way to draw attention to the concrete, observable systems within an organization that promote individual and group learning (p.170)**.** More specifically, these mechanisms represent the systems and structures that organizations use to acquire, retain, and transfer knowledge (Fiol & Lyles, 1985; Huber, 1991; March, 1991). Table 1 provides detailed definitions of each embedded learning process.

Table 1.1

*Elements of organizational learning mechanisms**

Attribute	Definition
Organizational Memory	The process and means by which organizational experiences are stored and coded into organizational memory for future use.
Information Acquisition	The process of obtaining knowledge.
Information Distribution	The process of sharing information that leads to understanding.
Information Retrieval	Organizational members draw on the encoded information to guide their decisions and actions.
Information Interpretation	A socio-cognitive process that ties meaning to the distributed information (Schechter & Quadach, 2012).

*Note: Adapted from "Toward an Organizational Model of Change in Elementary Schools: The Contribution of Organizational Learning Mechanisms," by Schechter, C. & Qadach, M., 2012, *Educational Administration Quarterly*, *48*

Organizational memory. Organizational memory refers to stored information that an organization accumulates through experience over time (Argote & Ingram, 2000; Argote & Miron-Spektor, 2011; Arrow, McGrath, & Berdahl, 2000; Kruse, 2003, Walsh & Ungson, 1991). At the individual level, knowledge is stored in the brain using a series of complex cognitive mechanisms for rehearsal and retrieval. At the organizational level, the storage of information is distributed across members, tools, and tasks (McGrath & Argote, 2002) and stored within individuals, culture, transformations, structures, and the ecology of the organization (Walsh & Ungson, 1991). In developing a theoretical framework for this study, it was critical to consider (a) where organizational information was stored and (b) the types of information stored. Schechter (2015) delineates between hard information and soft information, "Organizational memory includes hard data (rules and measurable facts) as well as soft information (e.g., tacit knowledge, expertise, and details about strategic decisions)" (p. 6).

A curriculum review committee in Belvedere, which may consist of district and building level leaders and teachers, serves as an illustrative example of organizational memory. As this committee works to solve problems of practice, they accumulate experience and knowledge and, therefore, learn. The knowledge generated through the committee's work is stored within the members of the committee and the products of their work (McGrath & Argote, 2002). The soft information (Schechter, 2015) stored in organizational memory might include the operational procedures and routines of the committee, the historical development of the committee, etc. The

hard information (Schechter, 2015) might include meeting agendas, meeting minutes, curriculum maps, etc.

Information acquisition. Information acquisition involves gaining new information and knowledge through (a) the knowledge and expertise of those currently in the organization, (b) direct experience over time, (c) drawing upon the knowledge of individuals outside of the organization, (d) hiring new staff with specialized knowledge and skills, and/or (e) observing and collecting information from other organizations (Huber, 1991; Schechter, 2015). Through these different approaches to acquiring new information, organizations engage in a phenomenon referred to as search (Huber, 1991). As organizations work to actualize the articulated theory of action, they may, depending on their circumstances and needs, engage in a search for new information. Search can involve (a) scanning the organization for new knowledge, (b) a focused search to identify alternative plans and paths, and (c) organizational performance monitoring.

Information distribution. Once information is acquired, organizations and individuals engage in both direct and indirect distribution of information. Direct distribution of information can happen through written communications, meetings, memos, policies, etc. Indirect distribution can happen through informal conversations between individuals within the organization or the modeling and behavior that individuals enact and observe through their work within the organization (Burch & Spillane, 2003; Schechter, 2015).

Information interpretation. The last domain of the learning cycle, information interpretation, involves learning through sense making (Weick, 1995; Coburn & Talbert, 2006). Individuals and groups hold preexisting beliefs that influence how information is interpreted, yet increased learning transpires when multiple interpretations are made and shared within the organization. These interpretations can range from large group meetings and trainings in

organizations to physical pieces of paper such as reports. It is the responsibility of central office leaders to ensure that the new information is properly understood.

Information retrieval. The ways in which organizations make decisions and take action depends, to some extent, on how information is retrieved (Walsh & Ungson, 1991; Weick, 1979). Like other elements of organizational learning mechanisms, retrieval is related to and influenced by all of the other elements embedded in OLMs. Within the context of OLMs, retrieval is heavily influenced by (a) information interpretation and (b) how and where information is stored in organizational memory.

The interpretation of organizational information influences the relative accuracy and quality of information that is drawn upon through retrieval to inform decisions. As individuals take in information, it is interpreted through their mental models of the organization (Argyris & Schon, 1978). These interpretations, as seen through these lens of error detection, vary in accuracy and quality based upon individual mental models. This variation can lead to broad interpretations of the organizational information that is ultimately retrieved and, as a result, can have less than positive influences on organizational decision-making.

The repositories and formats of organizational information also hold significant roles in the retrieval of organizational information. As Walsh and Ungson (1991) suggested, information is stored in locations that include individuals, culture, transformations, ecology, and structures. Schechter (2015) suggests two primary format domains for information storage, hard information and soft information. Hard information is tangible and can be seen (i.e. processes, policies, documents, etc.), soft information is often intangible and ambiguous (i.e. specialized expertise of individuals, social dynamics, etc.). The locations and formats of stored organizational information influence retrieval an that (a) the locations my or may not be known to those seeking

information and (b) the quality and clarity of information may vary widely based upon individual interpretations of information.

Organizational learning mechanisms (OLMs) are "institutionalized structural and procedural arrangements that allow organizations to systematically collect, analyze, store, disseminate, and use information relevant to the performance of the organization and its members" (Popper & Lipshitz, 1998, p. 170). These OLMs encapsulate five distinct learning processes (Schechter, 2015). These processes are information acquisition, information interpretation, information distribution, organizational memory, and information retrieval. Taken together these five learning processes represent the systems and structures that district and school leaders may use to implement curriculum reform.

Organizational Learning in Practice

Professional learning communities (PLCs) represent a concrete application of organizational learning theory and mechanisms and can provide clarity on the interrelated concepts embedded in the OLT and OLM literature (DuFour & Eaker, 1998; Stoll & Louis, 2007)**.** PLCs can be defined as a team of professionals who (a) share a vision and goals for their work, (b) seek collaborative solutions to problems of practice, (c) support ongoing professional learning, and (d) rely on performance data and other sources of information to make informed decisions (DuFour & Eaker, 1998; Levine & Shapiro, 2004). The defining characteristics of PLCS provide a meaningful context for the concepts embedded in organizational learning theory and mechanisms.

The notion that PLCs are built on shared vision and goals for the future (DuFour & Eaker, 1998) conceptually reflects the concept of organizational theory of action. The shared vision and goals of a PLC articulates the causal relationship that the group draws between

desired outcomes and the behaviors it believes necessary to achieve them. Seeking collaborative solutions to problems of practice reflects the concepts of error detection (the PLC perceives a problem relating to their practice), information retrieval and acquisition (the team seeks information and resources to solve the problem), and, depending on the outcome, single or double loop learning (the PLC solves the problem of practice and, as a result, learns). The solutions to problems of practice generate knowledge that is stored in organizational memory as either hard information (lesson plans, curriculum materials, etc.) or soft information (new teaching practices, new understandings about learning, etc.).

Organizational learning and curriculum reform.

School systems that leverage organizational learning theory (OLT) and organizational learning mechanisms (OLMs) may be better equipped to manage rapid changes in educational reform efforts and achieve successful outcomes for students (Collinson & Cook, 2007; Schechter & Atarchi, 2014). Schechter and Feldman (2010) suggest with the use of OLMs across settings, individual members can more effectively gain and share information that is central to individual and organizational learning. Given the growing body of research connecting school success and organizational learning, it is critical to continue exploring how organizational learning theory is understood and implemented in school settings.

The current study investigated how district and school leaders thought about and applied organizational learning theory to implement and support ongoing curriculum reforms. This research looked closely at how district and school leaders constructed theories of action and how those theories of action were brought to life via organizational learning mechanisms. The study analyzed the mental maps of professionals throughout the district and the extent to which those mental maps agreed or did not agree with the district's theory of action. This project adds to the

growing body of work focusing on organizational learning in school districts. In addition, this work makes specific contributions to the body of literature providing practicing school leaders with direct guidance in the application of organizational learning theory in the school setting. In the next chapter we detail the methodology employed to carry out this study.

Chapter 2

METHODOLOGY[2]

Research Design

This qualitative study aimed to examine how district and school leaders use organizational learning mechanisms to successfully implement and support ongoing curriculum reform. For the purpose of this research, we define organizational learning as a change in organizational knowledge or behavior that is a result of accumulated experience (Argote & Miron-Spektor, 2011; Argyris & Schon, 1978; Fiol & Lyles, 1985; Levitt & March, 1988; Schulz, 2005). Organizational learning mechanisms are "the concrete, observable organizational systems operated by individual organization members" that promote individual and group learning (Popper & Lipshitz, 1998, p. 170). OLMs provide the context in which individuals gain experience and build shared knowledge about and understanding of the organization's priorities and goals (Collinson & Cook, 2007; Schechter & Atarchi, 2014). Given our team's desire to gain insight into how school and district leaders used OLMs to implement and support curriculum reforms, a qualitative case study methodology was selected and shaped to execute that inquiry (Creswell, 2008; Yin, 2009).

This study utilized a qualitative single case study design. Yin (2009) states, "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 18). In this case, the OLMs that were deployed by the district leaders represented the phenomenon that Yin (2009) was referring to while the individual professionals represent the

[2] This chapter was jointly written by the authors listed and reflects the team approach to this project: Andrew Berrios, Tracy Curley, Marice Edouard-Vincent, Bobbie Finnochio, and Ian Kelly.

context in which OLMs were situated. A case study design allowed the team to (a) study the processes used by educational leaders from across the district's organizational hierarchy and (b) analyze of the collective processes used by many of these educational leaders to make inferences about the presence and function of OLMs at the research site.

To gain these insights, the research team utilized archival document review and semi-structured in-person interviews to collect data and triangulate information (Maxwell, 2013; Merriam, 2009; Yin, 2009). Data collection instruments and processes were designed to examine district practices through the OLT and OLM theoretical frameworks that give shape to this study. The following pages provide a detailed description of our collective methodology.

Site Selection

This research was conducted at the urban district of Belvedere, known for its successful curriculum reform efforts, in order to determine why it appears to be the standard bearer for school district improvement. We examined what specific practices district and school leaders have planned and operationalized to implement Understanding by Design (UbD) as a vehicle for development of successful curriculum reform (Wiggins & McTighe, 1998). Belvedere Public Schools is an urban New England district with a community of approximately 50,000 residents. Belvedere Public Schools served just under 7,000 students across ten schools: seven elementary schools, two middle schools, and one high school. The district's annual operating budget was roughly $90 million. Belvedere was selected as a site in part because of its manageable size and consistent good performance on state accountability measures. Despite being an urban district with a significant English language learner population and transient population, Belvedere was outperforming neighboring districts with similarly diverse student populations.

Selection of Belvedere allowed for an effective analysis of OLT and OLMs within the context of curriculum reform. To support the site selection process, the team employed criterion-based sampling (Creswell, 2008; LeCompte & Preissle, 1993; Maxwell, 2013; Miles & Huberman, 1994; Patton, 2002). Two criteria were identified that qualified Belvedere an ideal research sites. These criteria were:

1. The district, through review of strategic planning documents, evidenced the implementation of curriculum reforms for at least three continuous years.
2. The district served between 5,000 - 10,000 students.

The team believed that the duration of the curriculum reform was important because the researchers believed that any district which had committed less than three consecutive years may not provide the level of insight necessary for a thorough analysis of OLT and OLMs. The team also considered the size of the Belvedere district to be a relevant selection criteria based on the logic that a smaller district may conflate the results due to a lack of organizational complexity. On the other end of the spectrum, the team believed that the organizational complexity of districts serving populations greater than 10,000 students may be too broad to study effectively and, therefore, compromise the efficacy and quality of analysis.

Participant Selection

The research team's desire to gain a broad and rich understanding of OLT and OLMs within the context of Belvedere's ongoing curriculum reform efforts required careful consideration of participant selection. Drawing on qualitative case study literature, the team found Patton's (2002) notion of purposeful sampling compelling. Patton suggested, "the logic and power of purposeful sampling lies in selecting information rich cases for study in depth. Information rich cases are those from which one can learn a great deal about issues of central

importance to the purpose of the inquiry…" (p. 230). In considering those participants from whom we might learn the most, the team purposefully selected the superintendent (n=1), central office boundary spanners (n=3), principals (n=4), instructional coaches (n=4), and classroom teachers (n=6). This pool of eighteen participants represented the Belvedere district's organizational hierarchy and provided a sample sufficient to make inferences and generalizations based on our data. While there is little clarity on the issue of appropriateness or standards for sample sizes in qualitative research, the team sought to balance research goals and purposes, drawing a representative perspective from the Belvedere district, and the time and resources available for the project (Mason, 2010; Patton, 2002). For this study, the entire sample consisted of a superintendent, a chief administrative officer (CAO), two central office boundary spanners, four school principals, six teachers, and four school-based coaches. The total number of participants in the research study were 18 individuals.

Instrumentation

The research team developed in-person interview and document review protocols that reflected key concepts embedded in the theoretical frameworks of organizational learning theory and organizational learning mechanisms. The context and associated vernacular of the ongoing curriculum reform provided the language in which we framed our questions and embedded concepts from the theoretical framework. Key concepts situated within interview questions about the curriculum reform included Schechter & Atarchi's (2014) five elements of organizational learning mechanisms (information acquisition, information distribution, information interpretation, organizational memory, and information retrieval) and select elements (theory of action, mental maps, single loop learning, double loop learning, and theory in use) from the work of Argyris & Schon (1978).

Interview protocols. The team employed semi-structured interviews to explore the district's use of organizational learning mechanisms to support ongoing curriculum reform efforts (Creswell, 2008; Merriam, 2009). Semi-structured interviews balanced the need for systematic data collection while providing flexibility to pursue topics that surfaced through dialog with participants (Mason, 2010; Yin, 2009). In order to develop the protocols, the research team used a multi-step process to ensure that questions addressed the theoretical framework, were conceptually clear and accessible to participants and met the data collection requirements for all five individual studies (Maxwell, 2013; Merriam, 2009; Patton, 2002; Weiss, 1995).

Development of protocols began with a standard bank of interview questions adapted from the work of Schechter and Atarchi (2014). This starting point ensured that initial draft questions were tied closely to the theoretical frameworks guiding the study. Taking this step ensured that participants would understand the questions and, therefore, provide the rich data necessary to conduct our analysis of OLT and OLMs within the district. Once questions were reformulated to reflect the district's curriculum reforms, interview protocols were subjected to a number of reliability and validity checks.

Cognitive interviews were conducted to assess the construct validity of the questions (Hill, Thompson, & Williams, 1997; Merriam, 2009). During cognitive interviews, participants were asked to review interview questions and described to the interviewer what they believed the questions were asking them. As a result, the research team gained important feedback concerning the clarity and specificity of interview questions. Interview protocols were revised using the data gathered through cognitive interviews and were then subjected to formal pilot interviews. During pilot interviews, participants engaged in a mock interview scenario. All questions were asked and responses recorded. Participant responses were reviewed by the research team to assess the

extent to which the questions elicited the data necessary to examine organizational learning theory and mechanisms. Here, again, interview protocols were revised and finalized based on data gathered through the pilot interview process. Final interview protocols can be found in Appendices A through D.

Document review. Review and analysis of documents provide a rich source of data and information in qualitative research projects (Creswell, 2008; Merriam, 2009; Patton, 2002). Document review and analysis took place prior to and during fieldwork. In preparing for fieldwork, document review protocols (Appendix F) served as a means to develop a meaningful context for the ongoing curriculum reform efforts of the district. This approach provided important background information that supported data collection throughout the project. In addition to building context and supporting the research team's orientation to the subject, the initial archival document review served "as a stimulus for paths of inquiry that can be pursued only through direct observation and interviewing" (Patton, 2002, p. 294). During fieldwork, additional documents and work products were acquired for review during interviews. These documents were reviewed in light of our ongoing data collection and served to confirm or disconfirm data gathered during in person interviews (Merriam 2009; Patton, 2002).

Procurement and selection are two considerations that the team considered in developing a document review protocol (Berger, 2014; Creswell, 2008; Patton, 2002; Merriam, 2009). Initial documents selected for review consisted of publicly available materials accessed via the district's website. These artifacts included district improvement plans, district strategic plans, district professional development plans, school improvement plans, and curriculum documents relative to the ongoing reform effort. Access to organizational documents not publicly available and relevant to research were requested and gathered during in person interviews (Patton, 2002) by

asking participants if they would be willing to provide any documents that they believed to be relevant to the ongoing curriculum reform efforts of the district. These documents included teacher generated assessments, teacher generated lesson plans, professional development materials, internal communications, etc.

Authenticity of documents (Merriam, 2009) and confidentiality of documents (Patton, 2002) were also important considerations in developing the document review protocol. Merriam (2009) suggests that researchers consider the origin, purpose, author, and the context in which the document was produced. The team integrated authenticity checks into the document review protocol by having no fewer than two members examining the same documents. Confidentiality was also addressed through the document review protocol. When considering requirements for confidentiality, the research team relied on the work of Patton (2002). The identity of participants and the research site were protected by ensuring that private documents were not cited directly in the final report and by redacting all identifying information in documents maintained in hard copy by the research team.

Confidentiality and Consent

Informed consent and participant confidentiality were essential to both the well-being of participants and the validity of the data (Butin, 2010; Merriam, 2009). In the current study, these ethical issues were of central importance due to the inclusion of supervisors and subordinates in the participant pool. Protection of subordinates was critical because participants provided information that supervisors may perceive as critical or objectionable. Recognizing that participants who had any cause to be concerned about being identified or suffering adverse consequences as a result of participating in the study would likely withhold information or refrain from being open and honest in their responses, we sought informed consent from all

participants, ensuring that their participation was confidential. Prior to data collection and in adherence with Institutional Review Board (IRB) guidelines, institutional and individual forms of informed consent were reviewed and signed by site administrators and participants involved in this research study.

In addition to the confidentiality of individual participants, it was also important that the identity of the research site be protected (Creswell, 2008). Balancing external validity with the need to protect the identity of the research site was carefully considered. Pseudonyms for the district and individual schools were selected and used in the preparation of all documentation related to this research project. Beyond the basic protection of identity, the team thought carefully about the use of descriptive data as a possible threat to the anonymity of the district. Providing rich descriptive information to define the context for the current study was important to the transferability of our results (Lincoln & Guba, 1985). That being said, this rich contextual information could also provide readers with enough information to narrow locations and possibly identify the research site. The team reviewed and selected descriptive data that balanced the need to establish transferability with the ethical imperative to maintain the anonymity of the participating district.

Data Collection and Analysis

This research project leveraged semi-structured interviews, and an archival document review to triangulate evidence to examine organizational learning via organizational learning mechanisms in a district engaged in ongoing curriculum reform. The following sections provide a detailed description of data collection and analysis procedures.

Data collection. After acquiring IRB and research site approval, the research team engaged in fieldwork between August and December of 2015. During that time the research team

conducted semi-structured interviews and the collection and review of archival documents. Final protocols can be found in Appendices A through F. To ensure accurate and complete collection of data, in person interviews were recorded with the explicit permission of participants.

Data storage was a key consideration for the research team. A collaborative, web-based platform was preferred but needed to be balanced with the storage and safety of the data. Prior to selecting a service, privacy and data security policies were reviewed to ensure (a) compliance with all regulatory requirements and (b) appropriate protections against theft and loss of data. Once the review was complete, a secure, encrypted web-based service was selected for use. All print, digital and audio files were then stored using this service for the duration of this project.

Data analysis. The team employed a collaborative data analysis process to conduct coding, narrative analysis, and the development of research memos/journals for this project (Coffee & Atkinson, 1996; Maxwell, 2008). The team approach to analysis of documents and interview transcripts protected the analysis from research bias by ensuring that single interpretations did not compromise the validity data (Yin, 2009). This collaborative process ensured that two or more team members were involved in the coding of each document and transcript.

As suggested by Yin (2009), team members read all documents and transcripts in their entirety as the first stage of document and transcript analysis. In doing so, we gained perspective on whether and to what extent data sources could be used to further or increase knowledge around the curriculum reform and the district's use of organizational learning theory. Our initial reading further informed our understanding of participants' experiences and the language and definitions of the district's reform efforts. Employing this additional step within the analysis

process supported a comprehensive and valid review of district practices regarding curriculum reform and organizational learning.

The second phase of document and transcript analysis involved a line-by-line review of each document to identify key words and phrases that (a) referred specifically to the ongoing curriculum reform efforts, and/or (b) reflected elements of the organizational learning theoretical framework (Argyris & Schon, 1978; Schechter & Atarchi, 2014). This phase of analysis by the team served dual purposes. First, it provided initial insights into participant perception of the ongoing curriculum reform and the organizational learning mechanisms deployed to support them. Secondarily, the collaborative review of documents and transcripts provided multiple opportunities for the research team to calibrate operational definitions of concepts within the theoretical framework and, as a result, enhance the inter-rater reliability of our coding processes.

The third phase of the document and transcript review process attempted to identify and establish the extent to which ongoing curriculum reform efforts and district organizational learning mechanisms were aligned across the district. Using the theoretical and conceptual framework coding conducted in the previous round of review, the research team then identified the documents and transcripts in which those coded keywords and phrases appeared. As a result of this two-pronged coding mechanism, the team was able to gain insight into the extent to which district curriculum priorities and organizational learning mechanisms were aligned between and agreed upon throughout the district.

In person interviews and document review provided rich data sources that the team used to investigate the presence of organizational learning mechanisms within the district and the efficacy of those OLMs. Yin (2009) writes, “The same single case study may involve more than one unit of analysis. This occurs when, within a single case, attention is also given to a subunit or

subunits" (p. 50). Applied to our study, these subunits included the Superintendent, central office boundary spanners, principals, instructional coaches and teachers.

Data analysis focused upon providing insights into how district and school leaders leveraged organizational learning mechanisms to implement and support curriculum reform. Our data analysis proved to be ongoing and often coincided with ongoing data collection. Through this approach, the research team engaged in multiple opportunities to refocus and hone processes and protocols thereby strengthening the validity and reliability of our findings. (Maxwell, 2008). Data analysis consisted of three primary approaches, including coding, narrative analysis, and memos/displays.

Coding. Coding utilized an a-priori framework as a starting point for the process (Crabtree & Miller, 1999; Maxwell, 2008). This a-priori coding system reflected Schechter and Atarchi's (2014) five elements of organizational learning mechanisms (organizational memory, information acquisition, information interpretation, information distribution and information retrieval). Subsequent rounds of collaborative coding built on the initial theoretical coding. These secondary and tertiary rounds of collaborative coding included theoretical coding utilizing concepts that included theory of action, theory in use, mental maps, and task systems (Argyris & Schon, 1978) and concrete conceptual information driven by the district's ongoing curriculum reform priorities.

While a-priori coding was the primary mechanism deployed by the team, codes and coding evolved through a constant comparative methodology in which data were continuously reviewed and discussed throughout the collection and analysis process (Miles, Huberman, & Saldana, 2014). As the team became more familiar with the ongoing work of the district, team

perceptions and priorities shifted and codes and coding processes were modified to reflect the team's learning and experience within the district.

Narrative analysis. Narrative analysis supported the team in analyzing transcripts and archival documents, and identifying relationships between statements and actions within the context of the district under investigation and the OLT/OLM theoretical framework (Atkinson, 1992). The narrative analysis added value to findings and recommendation in that it uncovered relationships and patterns that the categorical nature of coding may have neglected. As such, the narrative analysis not only added analytical value, but also contributed to the internal and external validity of the overall study (Maxwell, 2008).

Memos. Memos added a third layer of analysis to the current study (Maxwell, 2013) and offered the research team opportunities to further deepen their collective understanding of the curriculum reform efforts and organizational learning mechanisms of the district. In addition the production of memos, journals entries, and graphics brought further clarity to the team's understanding of both the theoretical framework and its manifestation in the Belvedere Public Schools. As a result, the shared understanding developed by the team enhanced the overall reliability and validity of our findings and recommendations.

Validity and Reliability Considerations

Four tests are commonly used to establish the quality of social science research. These include construct validity, internal validity, external validity, and reliability (Yin, 2009). Each is addressed in the following pages.

Construct validity. Construct] validity refers to the identification of the "correct" measures of the concept studied (Yin, 2009). The team worked to ensure a comprehensive and shared understanding of key concepts embedded in the theoretical and conceptual frameworks for the study. A collective review of the literature and research addressing organizational learning theory and organizational learning mechanisms was a key starting point for the development of construct validity. Through this review, the research team developed the conceptual definitions that would support the formulation of methodology and the subsequent collection and analysis of data.

As the methodology for this study was developed, the team worked to ensure construct validity through use of cognitive interviewing and pilot interviews (Merriam, 2009) in developing interview protocols. Through cognitive interviews, educators were asked to review the interview questions and tell the researcher what they thought the question was asking them. In this way we were able to assess whether or not the questions were addressing the concepts they were designed to capture. Pilot interviews were then conducted to get a sense of the kinds of data the questions would elicit in the field. Feedback from cognitive and pilot interviews were used to revise and improve interview questions.

The constant comparative approach applied during the data collection and analysis phases of this project also helped to bolster construct validity (Miles, Huberman, & Saldana, 2014). Throughout data collection and analysis, the team met regularly to review data, discuss the project, and clarify our current understanding and perceptions of the district's work. As such, the team consistently reviewed its working definitions of concepts embedded in the theoretical framework in light of the ongoing research and data collection.

Internal validity. While the current study was not designed to draw a direct causal relationship between curriculum reform and the district's application of organizational learning theory, the research team aimed to understand and explain the relationship between ongoing curriculum reform efforts and the district's use of organizational learning theory to support that work. As such, the internal validity of this study was considered as the team designed and executed the current study. Using Yin's (2009) guidance, Table 2 presents the mechanisms employed by the team to strengthen internal validity.

Table 2.1

Internal Validity Checks

Strategy	Explanation
Peer review	The research team will present findings to colleagues who are both familiar and unfamiliar with the topic and study. The research team will provide peer colleagues with guiding questions to support critical analysis of the study and its findings.
Rival explanations	The research time will search for confirming and disconfirming explanations that may shed light on the relationships between constructs.
Methods and data triangulation	This study will employ multiple methods (interviews and document review). Data collected from these methods will be triangulated to analyze the constructs under investigation.
Investigator triangulation	Throughout the data collection and data analysis the research team will engage in collaborative inter-rater reliability checks and collaborative coding.
Participant feedback	Participants will be provided the opportunity to review interview transcripts for accuracy. Once complete, preliminary data analysis will be shared with participants to gather their insights and feedback.

External validity. External validity refers to the extent to which a study's findings can be generalized. The context of the current study was an important consideration in framing findings and recommendations. Every school district is unique in terms of, amongst other things,

its size, composition and operational policies and procedures. Given the wide variation between school systems and their organizational complexity, it was important that the team provide sufficient descriptive data to couch and contextualize our findings and recommendations. Doing so supported external validity by ensuring that findings and results are extrapolated carefully to settings in which it is reasonable for them to be applied.

Participant selection was also considered by the research team as a means to further support external validity. The scope and focus of the current study created a situation in which building a participant pool representative of the district was imperative. In building a representative sample the team also enhanced external validity by ensuring that participants from all hierarchical strata were represented in the sample.

Reliability. The reliability of this study related to whether or not the replication of the study would yield the same results (Merriam, 2009). To support reliability, the team employed the use of a case study design protocol and a case study database (Brereton, Kitchenham, & Budgen, 2008; Yin, 2009). The case study protocol utilized a format adapted from EASE (2008) to clearly spell out the processes, procedures, and decision-making criteria for all elements of the current study. In addition to a structured protocol to support the development of the study, the team also worked to ensure clarity and specificity in articulating all methodology so that others may repeat this work in future studies.

Chapter 3

INDIVIDUAL STUDY

by Marice M. Edouard-Vincent

Introduction

This individual study examined (a) the OLM practices used by central office *boundary spanners* to distribute information and (b) the extent to which these processes led to improved implementation of the curriculum reform (Schechter, 2008; Schechter & Asher, 2012; Schechter & Qadach, 2012; Schechter & Atarchi, 2014). See Figure 2.

A boundary spanner is defined as a central office staff member who employs certain practices and is tasked with directly supporting schools. Their role is to facilitate team building among the central office and district schools, as well as to facilitate district directive implementation through information distribution (Honig, 2006, p. 357).

According to Honig and Venkateswaran (2012), schools undergoing complex "change processes depend substantially on their school district central offices" (p. 202) for leadership and direction. Given this context, it was important to understand the mindset that central office boundary spanners possessed, along with the necessary strategies and behaviors they exhibited while interacting with school leaders to support curriculum reform. Boundary spanners must have a vested interest in a participatory and collaboratively mutual partnership.

The central office sector serves as a focal point tri-connector between the superintendent, the community, and the schools (Aldrich & Herker, 1977; Honig, 2006; Honig, 2008; Massell, 2000). Datnow and Stringfield (2000) determined that there exists a "direct relationship between the level of district support [via Central Office] and the level of reform model implementation in

the schools" (Mac Iver & Farley-Ripple, 2008, p. 35). Central office boundary spanners maintain a critical role in district reform initiatives, which ensures that initiatives promoted and produced improved outcomes on state assessments. "Wimpelberg (1987) pointed out candidly that despite the evidence of effective schools in some areas, most teachers and principals do not exhibit the characteristics of those found in 'effective schools' and there is a need for leadership at the district level to help assure that more individual schools become effective schools" (as cited in Mac Iver & Farley-Ripple, 2008, p. 8). Therefore, strategic central office leadership supports schools and provides improved instructional leadership that enables schools to demonstrate growth. See Figure 1 for an illustration of the instructional organizational chart and OLMs in Belvedere. This illustration diagrams the district hierarchy with the superintendent at the top of the organization, followed by the executive administrator of curriculum and development (EACD) directly reporting to the superintendent, and central office boundary spanners and building principals reporting directly to the EACD and superintendent. The image to the right represents the organizational learning mechanisms.

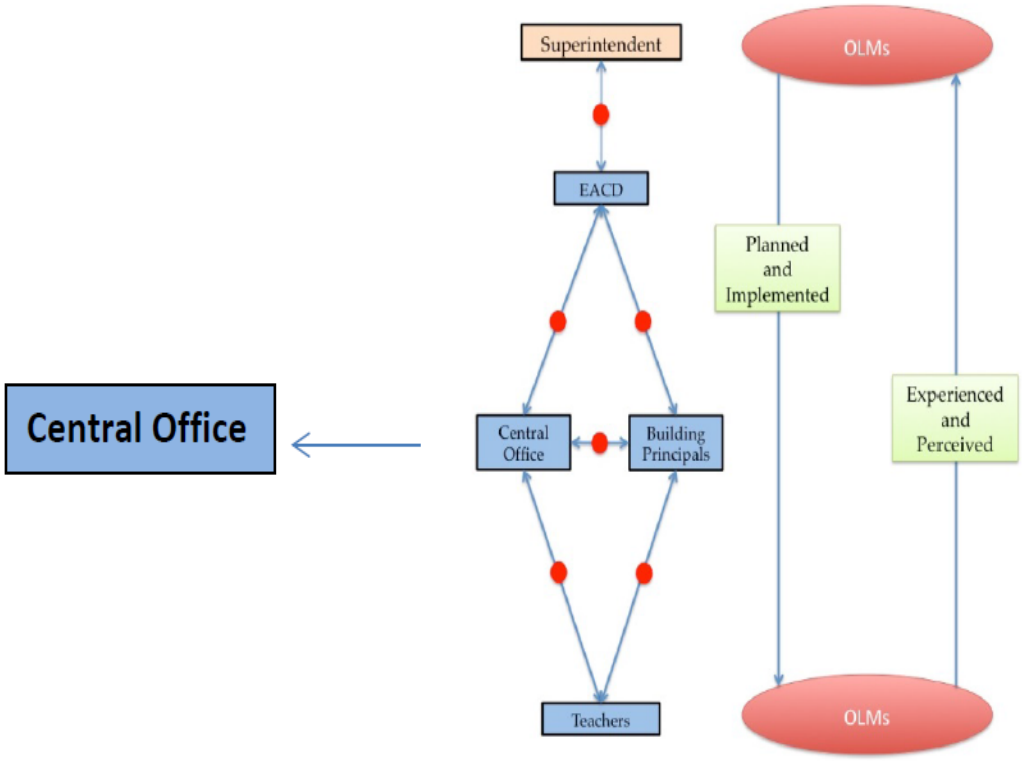

Figure 3.1 Instructional Organizational Chart and OLMs of Belvedere.

Literature Review

The purpose of this review of the literature is to first, explain the pivotal role played by, and functions performed by, central office and the central office boundary spanners in the curriculum reform process. The second purpose of this review of the literature is to explain the use of OLMs by boundary spanners in curriculum reform processes.

In response to the pressures of federal and state accountability systems, school districts are expected to demonstrate increased student achievement for all learners- including those who learn differently than traditional learners (Corcoran, Fuhrman, & Belcher, 2001; Collinson & Cook, 2007; Payne, 2013). The instructional approach that school districts have employed is to adopt curriculum reform initiatives.

> In the face of all this anti-district and anti-central office rhetoric, it is important to recognize the growing number of scholars who are emphasizing the importance of the district in school reform efforts and the research base that examines the role of central office (Mac Iver & Farley-Ripple, 2008, p. 3).

In order to examine the work of central office boundary spanners, a clear understanding of the roles of central office and central office boundary spanners is critical.

Central office. Central office departments are made up of educational leaders who make decisions about curriculum initiatives that impact all students, inclusive of English language learners and students with disabilities. Central office is actively involved in trying to increase student achievement for all learners (NCLB, 2001; National Commission on Excellence in Education, 1983; U.S. Department of Education Race To The Top, 2009). Central office has the responsibility of gathering all the information related to curriculum reform, diagnosing and digesting the new information in order to share it with schools, and monitoring the effectiveness and implementation of the new initiative. Central office filters and sifts through the curriculum reform initiative for the entire district.

Boundary spanners. Due to their distinctive position in the organization, central office boundary spanners are some of the most important role-players in the curriculum reform process. Most districts are organized in a hierarchical fashion with the superintendent at the top of the leadership structure, followed by central office boundary spanners, then principals, teachers, and students. Being connected to both the superintendent and the schools places central office boundary spanners in a unique position. Central office boundary spanners are the intermediaries between executing the superintendent's vision and assisting with the implementation of that vision at the school level. According to Honig (2006), an effective central office has the ability to

transform districts and accelerate student improvement. Furthermore, Leifer and Delbecq (1978) defined a *boundary* as "the demarcation line or region between one system and another, that protects the members of the system from extra-systemic influences and that regulates the flow of information, material, and people into or out of the system" (p. 41). Central office boundary spanners act as the gatekeepers of a district because they monitored and filtered everything that came in and everything that went out (Honig, 2006; Honig, 2012; Mac Iver & Farley-Ripple, 2008). More specifically, central office boundary spanners are seated in boundary spanning roles in an organization (Aldrich & Herker, 1977; Honig, 2006; Honig, 2008; Honig & Venkateswaran, 2012). According to authors, Aldrich and Herker (1977), "Boundary roles are a main line of organizational defense against information overload… Boundary roles serve a dual function in information transmittal, acting as both filters and facilitators" (p. 218). In other words, boundary spanners could be compared to air traffic controllers in that they set up the schedule of the times that planes can land safely, and they closely monitor the distance between planes in the sky during take off and landings. Boundary spanners selected the curriculum reform and they are responsible for timely, relevant implementation or the curriculum reform. Boundary spanners block or reduce distractions and competing interests so that principals can focus on the reform initiative.

Leifer and Delbecq (1978) found similar results in a different study. "Since the information from the environment must pass through the boundary of the organization before reaching organizational decision makers, boundary spanners function as exchange agents between the organization and its environment" (Leifer & Delbecq, 1978, p. 41). Not only did central office boundary spanners perform various functions and fulfill multiple roles in order to

effectively support schools, but these boundary spanners also were responsible for communicating between schools, central office and the environment.

Adding to this, another focus of this literature review was to examine how central office strategically supported school leaders by bringing knowledge to the entire organization and to the district. "The expertise of boundary role occupants in summarizing and interpreting information may be as important to organizational success as expertise in determining who gets what information, depending upon the uncertainty in the information processed" (Aldrich & Herker, 1977, p. 219). In short, central office boundary spanners are tasked with examining and interpreting information (Daft & Weick, 1984; Schechter & Qadach, 2012). Because of these reasons, it was important for central office boundary spanners to be experts in their field of curriculum reform. Thus, once the curriculum reform information was selected, central office devised a multi-step implementation model, which will be described later in this paper.

Again, central office boundary spanners played an integral role in implementing curriculum reform. Add to this, "central office may decide to select school improvement approaches based on broad districtwide needs identified through data analysis" (Agullard & Goughnour, 2006, p. 7). Curriculum reform initiatives were implemented in response to a noticeable data gap or academic drop in performance. In a similar way, Mac Iver and Farley-Ripple (2008) found that the district's performance was dictated by the specific actions and recommendations taken by central office. Furthermore, Mac Iver and Farley-Ripple (2008) noted that "finding the proper balance for the central office, between being responsive to schools as a 'service organization' and playing a more active role of pointing schools in particular staff development directions, has proved particularly important" (p. 51). When examining the impact of central office boundary spanners, it is evident that boundary spanners are vital to the reform

work that takes place between schools and central office. The following section will detail how central office boundary spanners provided support for organizational learning.

Central office provided support. Central office boundary spanners provided academic support to schools. According to Agullard and Goughnour (2006), "one way the central office supports school improvement is through assisting principals and/or school staff to understand and implement the structures. This demonstrates how central office staff have understood the specific structures, their intended use and the alignment with the district goal, and what effective implementation looks like" (p. 9). More importantly, Honig (2006) stated that "central office boundary spanners are to inform and support rather than direct and control" schools (p. 359). Since school leaders work independently they should welcome the support of central office when they have implemented a new initiative. Cross and Prusak (2002) stated that boundary spanners created opportunities to share expertise when presenting new initiatives.

I have noted that Johnson, Marietta, Higgins, Mapp, & Grossman (2015) defined the work of central office as falling into three distinct areas, which interacted in different ways. Moreover, Johnson et al. (2015) defined the three organizational elements of how central office supported school interactions as (a) resources, (b) systems, and (c) structures that interact in dynamic ways. Examples involve properly selecting materials (i.e., information acquisition) and implementing systems and creating structures (i.e., information distribution), which lay the groundwork for effective work with schools (Elmore, 2006; Hargreaves & Shirley, 2009). As such, the role of central office boundary spanners continues to play a key role in the implementation of curriculum reform. The following section will detail how central office boundary spanners provided direction for organizational learning.

Central office provided direction. Central office boundary spanners provided instructional guidance for the implementation of curriculum reform to school leaders through many modalities. Furthermore, "open communication is critical to school improvement. An important role of central office is to establish channels of communication for dissemination and collection of information" (Agullard & Goughnour, 2006, p. 10). Therefore, Agullard and Goughnour (2006) concluded that reliable, trustworthy communication is an integral factor in reforming districts. Later in this paper, I will detail how communication played an integral role in reforming the district of study.

Since central office played a vital role as a boundary spanner, knowledge will sometimes be stopped at central office due to blockages. Agullard and Goughnour (2006) spoke to this issue when they wrote that "central office [lacked] a systemic, coherent approach [and] cannot give schools the help they need to improve student learning. Instead, it pulls schools in competing directions, leaving them feeling isolated and adrift" (p. 3). When central office does not provide clear direction, school employees attributed this to confusion or a lack of leadership. "If principals and/or teachers perceive that the central office does not support their efforts, they may begin to pursue their own direction with no one to help them, thus leading to isolation" (Agullard & Goughnour, 2006, p. 9). Central office boundary spanners provided guidance so that principals do not get lost with their own ideas.

In addition, Cross and Prusak (2002) found that central office sometimes created bottlenecks that hold back the work, such as providing insufficient professional development to explain a new curriculum initiative. This lack of preparedness delays the distribution of information to principals by central office boundary spanners. As a result, principals are not prepared to support the full implementation of the curriculum reform initiative in their schools.

For example, Johnson et al. (2015) acknowledged that the "organizational distance between the central office and the classroom is often vast" (p. 37). This distance between central office and classrooms potentially slowed the implementation of an effective curriculum reform initiative, if proactive measures to close the distance are not in place.

Central office distributed and interpreted information as a means to ensure that the curriculum reform initiative was correctly implemented. The majority of the research on curriculum reform initiatives included the era of accountability. Most recently, a renewed sense of urgency has developed for curriculum reform movements, because federal funding is attached to improved student achievement results. The research of Gallucci (2008) concluded that "the persistent NCLB accountability pressures and calls to close achievement gaps between groups of students have created pressure for school districts to achieve system wide instructional improvement" (p. 542). Congruent to this assertion, Burch and Spillane (2003) found that "leaders in all schools responded to district pressures by accelerating literacy and mathematics reforms already under way" (p. 528). Central office boundary spanners provided clear direction and support to principals with the implementation of the reform initiative.

There is an abundance of literature that supports the role of central office being actively involved in reform initiatives at schools, and these reforms impact teaching and learning. Honig (2008) emphasized that central office involvement in school reform was "to improve teaching and learning" (p. 628). Adding to this, Burch and Spillane (2003) considered reform efforts as a vehicle for creating new opportunities for school administrators to be challenged and learn new instructional strategies. Later in this paper, I will detail how principals were provided with targeted, individualized support to learn new strategies in order to implement the curriculum

reform initiative. The following section will detail how central office boundary spanners incorporated organizational learning and the use of OLMs.

Organizational learning and OLMs. Boundary spanners' primary objective is to transfer information about the district's curriculum reform to school principals in order to help principals successfully implement these reforms in order to increase student achievement. In order to achieve this objective – boundary spanners must follow a series of steps which create a process. The study of central office boundary spanners, to improve this process is the study of organizational learning, and the processes they use to transfer information is OLMs.

Organizational learning. Higgins, Ishimaru, Holcombe, & Fowler's (2012) work focused on organizational learning in school districts. Their work examined what promoted the best learning in districts and increased student achievement. Higgins et al. (2012) looked at the three components of organizational learning: psychological safety, experimentation, and leading that all reinforce learning. More specifically, they examined two bifurcated branches of organizational learning research. The first branch of research looked at the *cognitive perspective*. The cognitive perspective looked at how knowledge was searched, processed, stored, and managed. The second branch of research looked at the *sociocultural branch*. The sociocultural perspective looked at the social interactions, relationships, and the social practices such as meetings where learning happened.

More specifically, by examining the types of supports provided by central office boundary spanners that were effective and ineffective, Honig (2012) found that central office boundary spanners fostered and shaped the development of principals. Indeed, that knowledge of the development of principals was a prerequisite in implementing curriculum reform. This work

highlighted the transition that central office has made from offering disconnected professional development for principals to intentional, school-based and job-embedded professional development. Additionally, Honig (2012) touched upon assistance relationships that included both sociocultural learning theory and cognitive theory and she stated that there needs to be a transition from solely supervising and monitoring principals to teaching job-embedded training and "deepening and improving people's work across settings" (Honig, 2012, p. 738). In fact, Honig (2012) confirmed the role of central office as an important support to schools. Therefore, central office boundary spanners have become the instructors of principals in order for the principals to be able to instruct teachers.

The research of Gallucci (2008) focused on the impact of organizational support for professional learning when a district implements a reform initiative. Similarly, Gallucci (2008) noted that curriculum reform can be difficult for teachers and principals to learn something new. Research by Gallucci (2008) reviewed the theoretical lens, Vygotsky Space. Vygotsky Space is a socio-cultural, "socio historical notion of development that describe learning and change as the internalization and transformation of cultural tools that occur as individuals participate in social practice" (p. 547). Their case study chronicled the learning, uncertainty and growth of a teacher, instructional coach, and principal as the school implemented a new curriculum. Moreover, Gallucci (2008) looked at organizational change as an outcome of organizational learning, which was the action of doing the implementation of curriculum reform. After attempting to determine if organizational learning was theory-driven or practice-oriented, Gallucci (2008) found that quality support and implementation of teacher learning can reform the school, administrators, and eventually, the district.

OLMs. Organizational learning mechanisms describe the specific steps that an organization takes while it is learning. "OLMs link learning in organizations to learning by organizations in a concrete, directly observable and malleable fashion. On the one hand they were organizational-level entities and processes. On the other, they were operated by individuals and, at times, dedicated to facilitating learning in organizations or to disseminating what individuals and groups learn throughout the organization" (Popper & Lipshitz, 2000, p. 185). Central office boundary spanners employed OLMs with the implementation of curriculum reform.

Schechter and Asher (2012) further defined OLMs as the 5 phases of information processing which include:

1. Information acquisition: the process of obtaining knowledge. This includes experiential learning (organizational experiments, organizational self-appraisal, such as action research); vicarious learning, in which organizations attempt to learn from strategies and technologies of other organizations; grafting or recruiting new members who possess knowledge that is not available to the organization; and searching and observing the environment.

2. Information distribution: the process of sharing information that leads to understanding through delivering new content (this may include delivery of materials as well).

3. Information interpretation: the process in which the distributed information is given meaning by the district so that the information can be understood.

4. Organizational memory: the processes and means by which organizational experiences are stored and coded and can be recalled at a later date.

5. Information retrieval: Retrieving information from memory for organizational use (Schechter & Asher, 2012, p. 140). Central office boundary spanners employed these five explicit steps in their work with principals on the curriculum reform initiative.

Conclusion to the Review of the Literature. Many scholars mentioned in this literature review have concluded that the central office plays an integral role in curriculum reform. According to Johnson, Marietta, Higgins, Mapp, and Grossman (2015), the most important thing that researchers in this field considered was that "the central office is responsible for serving all children in all schools" (p. 37). Furthermore, several other scholars agreed that the priority of central office was to provide all students with a quality education (Elmore, 2006; Fullan & Hargreaves, 1996; Waters & Marzano, 2009).

Cross and Prusak (2002) stated that effective boundary spanners were a "rare breed" because they needed to have deep intellectual capacity and strong interpersonal skills in order to effectively work with all the requirements of the role. Moreover, to be effective, these same boundary spanners developed a relationship of trust with school leaders (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010). Given how important this role is for supporting organizational learning, I chose to study the OLM processes used by central office boundary spanners in implementing curriculum reform, and attempted to discern their degree of success in implementing these reforms.

Methodology

This study provided concrete examples of how Belvedere Public Schools went about learning and implementing a curriculum reform initiative in the district.

The purpose of this research study was to determine an answer to the following research question: *What are the OLM practices used by central office boundary spanners to distribute information, and what is the extent to which these processes lead to improved implementation of the curriculum reform*? This section will present and discuss the research design, data collection, and analysis methods that were used to carry out this study, as well as the validity, reliability, and generalizability of the study.

In order to discover the answer to this research question, the researcher conducted a qualitative research study through a single case study design. A qualitative research study often has the following attributes: (a) it is conducted in the field, allowing direct interaction with the people being studied in their context; (b) researchers collect data themselves by examining documents, observing behavior, or interviewing participants; and (c) multiple sources of data are preferred over a single source, thus requiring the researcher to review all data, make sense of it, and organize it, and thus build patterns, categories, and themes from the bottom up (Creswell, 2009, p. 175-6). Yin (1984) stated that a "case study is an empirical inquiry which: investigates a contemporary phenomenon within its real-life context: when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (p. 23). I examined the role of central office in supporting school leaders to implement curriculum reform in a real-life context (Weiss, 1995; Patton, 2002; Creswell, 2002; Creswell, 2008; Merriam, 2009; Yin, 2009; Mason, 2010; Maxwell, 2013).

I utilized OLMs as the primary theoretical framework to determine to what extent OLMs supported the implementation of curriculum reform by boundary spanners. Schechter and Asher (2011) stated that "OLMs are the framework in which knowledge can be shared and analyzed by individual members and then become the property of the organization" (p. 141). This research examined how a district shared and analyzed information during the implementation of curriculum reform.

Participants. My study focused on two central office boundary spanners from a district whose entire central office consisted of ten boundary spanners, an assistant superintendent, and a curriculum director. The following data was based upon two 60-minute interviews that I conducted. The first interview was with an assistant superintendent and the second interview was with a director from central office. Due to the small size of the district central office, the roles could be easily identified because there was only one person representing that department. This issue could lead to problems in maintaining subject anonymity within this study; for this reason, I changed the name of the district and used pseudonyms for all participants' names and positions. The Belvedere boundary spanners who were interviewed in order to gather data about the Belvedere central office boundary spanner practices were the Belvedere assistant superintendent and a Belvedere director. The assistant superintendent was chosen as a data source because she was active in creating district directives. The Belvedere director was chosen because she is responsible for the information acquisition and information distribution of the district. The Belvedere central office boundary spanner interviews helped to explain how they created a system and helped to document the practices they consistently used to implement curriculum reform, by transferring information, with school principals and other school staff.

Instrumentation and data collection. I employed the following data instruments: (a) semi-structured interviews, (b) document review, (c) interview protocol, and (d) document review protocol (see Appendix A through Appendix F for additional documentation on these instrumentation sources). Ensuring reliability in this data-gathering method was challenging because each interview and document is unique in some way due to differences between interviewers in terms of the questions asked, the data collected, and the way that the data is interpreted due to the interactive nature of the interview and the various biases that impact human decision-making; however, this data-gathering method was reasonably reliable because Conway, Jako and Goodman (1995) demonstrated that these problems could be minimized through a number of interventions, such as improved standardization of questions. Research also shows that in terms of adverse impact, interviews give fairer outcomes than many other widely used tools and give participants an opportunity to reflect on their practice (Huffcut & Roth, 1998; Moscoso, 2000).

I generated audio recordings of the interviews using Rev.com, an audio recording software (Weiss, 1995; Maxwell, 2013). I then transcribed the interviews. "The actual process of making detailed transcripts [from recordings] … are the taken-for-granted features of people's talk and interaction that without recordings you would routinely fail to notice, fail to remember, or be unable to record in sufficient detail by taking hand-written notes as it happened" (Rapley, 2007). Thus, this process of audio recording, transcribing, and analyzing textual data is an accepted and reliable norm for interview-based research.

Online and archival documents were reviewed for the purpose of collecting evidence regarding the presence or absence of OLMs. I requested and received access to secure online data and in-house published documents. The review of a wide assortment of documents set the

stage for determining how the information flowed from central office to school leaders. I examined and coded the district improvement plan, professional development plans, district curriculum plans, and selected school improvement plans. Document selections were based on interviewee responses (LeCompte, Preissle, & Tesch, 1993; Merriam, 2009; Yin 2009).

Data analysis. Data analysis was an important step in conducting this study. "All qualitative data analysis is inductive and comparative in the service of developing common themes or patterns or categories that cut across the data. Qualitative data analysis should also be conducted along with (not after) data collection" (Merriam, 2009, p. 269). In collaboration with the group, I utilized a formal group coding system to analyze all combined data. The research team met monthly during the data collection phase of the study to code the data and discuss preliminary information. Throughout the study this approach was used to code all research data so that it could be easily shared amongst the other members of the research team.

All interviews were transcribed and coded. I then transcribed the interviews and also used an official transcription service. Once the transcription was completed, no fewer than two members of the group coded the interviews. Additionally, no fewer than two members of the group coded all electronic and hard copy documents (Miles & Huberman, 1994; Creswell, 2002).

All research information was stored in the secure online database system, Dedoose. All analyses included the review and coding of interview transcripts as well as reviewed documents. All initial coding was aligned to the five phases of OLMs: (a) information acquisition, (b) information distribution, (c) information interpretation, (d) organizational memory, and (e) retrieving information (Schechter & Atarchi, 2014). Moreover, after the initial rounds of coding, the data revealed the need for some additional levels of specific coding that were not anticipated based on the interviewee responses. In order to gather this data, I had to closely examine the

interview transcripts, which allowed me to successfully code the interview transcripts which was necessary for the entire research team to identify trends.

Validity and Reliability. In order to ensure validity and reliability, I triangulated the data with members of the dissertation group. We utilized inter-rater reliability checks as a dissertation group. Inter-rater reliability checks are used in group research projects because the researcher is usually considered the instrument in a qualitative study, and by using inter-rater reliability as a solidification tool, the inter-raters could become true validators of the findings of the qualitative study in order to avoid allowing the researcher to fall into the trap of having his or her bias influence the study's findings. Thus, the act of involving independent inter-raters, who have no prior connection with the study, in the analysis of the obtained data will provide substantiation of the researcher "instrument" and significantly reduce the chance of bias influencing the outcome (Marques & McCall, 2005, p. 440). Moreover, through the process and preparation of planning for the approval of the Institutional Review Board (IRB), that was the first step in ensuring that the research was humane to all parties involved (Butin, 2010).

Next, the collective dissertation group allowed for built-in monitoring and close internal supervision. This group field-tested questions with an existing principal. Additionally, the dissertation group remained in frequent contact with our group mentor, our chair, and our professors. I then employed frequent and clear communication with all members of the dissertation group, encouraging periodic review of the group memorandum of understanding, which further supported the validity and reliability of the work.

Researcher Bias and Limitations. Admittedly, I have spent my entire professional career in education in one school district. Currently, I am working in central office, which may limit my ability to view central office from different educational perspectives in a wholly

objective manner. Given that my current role is that of principal leader, I am responsible for supervising, coaching, and evaluating school principals. Because of these reasons, I believed there was justification in citing some researcher bias (Merriam, 2009; Yin, 2009). In order to reduce the possibility of bias, I utilized inter-rater reliability checks with other members of the research group who had not had experience working in a central office, nor had they had any special bias towards the proof of central office as being the source of student improvement over any other school management source.

I intended on interviewing other central office boundary spanners who were directly involved in curriculum reform. Unfortunately, both central office boundary spanners were on leave and they were not available for the duration of the research period. Nevertheless, I interviewed other boundary spanners, and they were both able to speak to the work of the district around curriculum reform. Lastly, although only two subjects were part of my individual research, I felt confident that the collective data of the 18 participants were valuable to the field of research.

Results

The following section specifically addresses the processes and OLMs used by central office boundary spanners at Belvedere. Results indicated that the use of technology integration to communicate information, whole group support and small group support surfaced as the specific OLM practices (information acquisition and information distribution) used in Belvedere to implement curriculum reform. The above-mentioned three practices demonstrated that communication, collaboration, and consistency were key themes or tenets of Belvedere as they implemented curriculum reform. The following section specifically addresses the processes and OLMs used by central office boundary spanners at Belvedere.

Formal responsibilities of boundary spanners. The central office boundary spanners interviewed at Belvedere are constantly moving between schools and central office. Their role was to take directions from the superintendent and to execute those directions with the help and assistance of the Belvedere schools. As part of their formal responsibilities, these central office boundary spanners actively supported schools, school leaders, and teachers with the information and support they needed to be able to more efficiently and effectively implement Belvedere district directives (see Figure 7, which visually depicts how central office boundary spanners duties interact with both central office and school-based stakeholders). Boundary spanners were directly responsible for delivery of information distribution from the Belvedere superintendent to the district's principals and school staff members (Schechter, 2008).

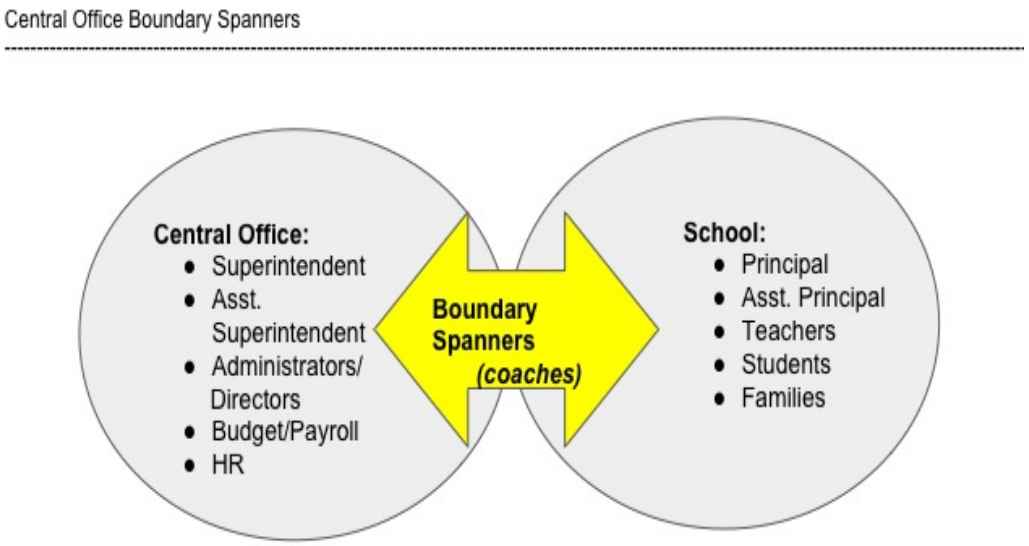

Figure 3.2 Belvedere Boundary Spanner Duties.

In addressing the aforementioned research question, I found that central office boundary spanners did many things to support curriculum reform, all of which focused on communication to distribute information about reform. This included: (a) technology integration, (b) whole group support, and (c) small group or individualized support. However, before I detail all the

findings, I will expound upon the practices of boundary spanners, which are relevant to the context of this research question. Central office boundary spanners in Belvedere used three consistent practices to distribute curriculum reform information. This data addressed my research question. The practices used in Belvedere included: (a) technology integration, (b) whole group support, and (c) small group or individualized support (see Figure 8, which depicts the three main practices that were employed in Belvedere to communicate with principals, including the use of technology, whole group support, and small group support).

Although the district traditionally used some form of technology to distribute information, these practices were used consistently throughout Belvedere district to maintain open communication with all stakeholders. Although technology is listed first, it was possible for the three categories to also occur in a different order. Technology included email, videos, and YouTube as the popular forms of communicating. Whole group support occurred through professional development sessions that included examination of year long plans, large forums, and meetings where all the boundary spanners met in one location. Small group support took place at the school site through personalized coaching and walkthroughs in most instances.

Information acquisition and distribution. Information acquisition was defined as the process of obtaining knowledge (Schechter & Qadach, 2012). Central office boundary spanners acquired information in multiple ways. Central office boundary spanners took strategic steps to train a multitude of administrators centrally, spearheaded by directors and coaches, before an initiative was started. Various curriculum vendors courted central office boundary spanners in the hopes of selling any new curriculum reform products. The opportunity to interact with vendors and report back to central office demonstrated an additional boundary-spanning role outside of the school. Furthermore, central office boundary spanners learned about curriculum

reform initiatives by administrators attending conferences and workshops. Thirdly, central office boundary spanners networked with neighboring districts that may have started new initiatives. It was evident that Information Acquisition in Belvedere was effectively used by boundary spanners in order to achieve coherence and maximize principal learning and eliminate confusion a problem that was very difficult to overcome for central office and school principals in the past.

Information distribution was defined as the process of sharing information that led to understanding (Schechter & Qadach, 2012). Central office boundary spanners distributed information in multiple ways. The three primary ways of communicating were through technology integration, whole group support and small group or individualized support. Evidence supported that Belvedere prioritized multiple ways of communicating in order to best support school leaders. Information Distribution was effectively used by boundary spanners in order to achieve consistent delivery of materials and overcome miscommunication or misunderstanding about the allocation of resources, a problem that was very difficult to overcome for central office and school principals in the past.

While these communication strategies were useful in acquiring and distributing information across the district, there are some untapped resources and areas that can help improve practices to support curriculum reform. Nonetheless, this study has contributed to our "understanding how to create school systems that can themselves be learning organizations to improve instruction and enhance student achievement" in Belvedere Public School district (Higgins et al., 2012, p. 69). Communication, collaboration, and consistency surfaced as key goals on which central office boundary spanners focused their efforts. Belvedere prioritized communication to inform all stakeholders about their curriculum reform initiatives. Moreover, Belvedere provided opportunities for collaboration among peers and collaborative learning for

all school leaders. Thirdly, Belvedere prioritized consistency of messaging, training, and support services for all school leaders.

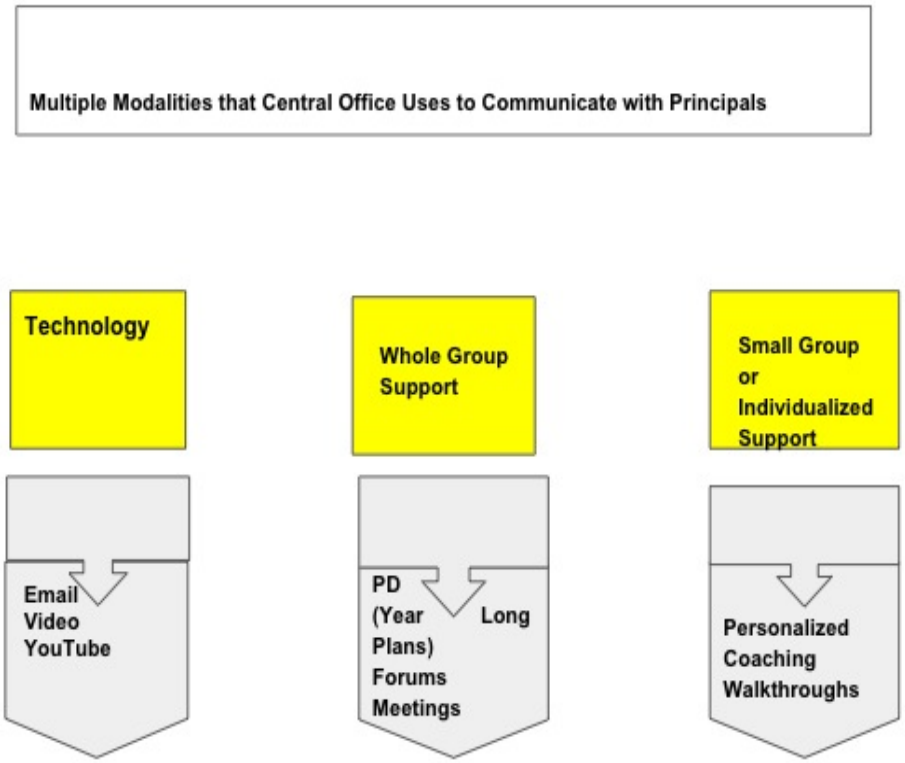

Figure 3.3 Belvedere Boundary Spanner Practices.

The use of technology to communicate information. Belvedere has leveraged the use of technology to communicate information districtwide. More specifically, Belvedere boundary spanners primarily utilized technology and social media to implement curriculum reform. The director emphasized that it is the 21st century and that it is important to get the message out to everyone involved in the instructional work. She said, "So welcome to the 21st century, I guess is the best way to do this. There are a lot of factors, and reasons we do certain things."

Email. Email was the first form of communication that Belvedere central office boundary spanners used to inform district principals that a new initiative was underway. An example of the

use of email to overcome a past bottleneck was when boundary spanners needed to send an important notification, email was used instead of calling each person individually. As a result of using this method, the boundary spanner was able to quickly communicate the same message to principals and other school administrators in the entire district far more effectively. “So there are a lot of factors, and then there’s good old email,” said the director. The director elaborated that email was used to make announcements “this is something that’s coming.” Once the principals have been notified via email, they are prepared for a presentation at one of their upcoming monthly cabinet meetings, a forum or professional development session. Email was used frequently and checked by everyone on almost a daily basis, which makes it a good medium to begin communication with all stakeholders.

Video. Belvedere central office boundary spanners used video to record important training and professional development sessions. An example of the use of video to overcome a past bottleneck was when curriculum partners of Belvedere such as Pearson were launching a literacy enhancement program. As a result of using this method, the boundary spanner was able to play the same video to both small and large audiences far more effectively. These informational sessions were recorded in order for all parties to have the same core knowledge. “...So another way that I've come to realize changes in education is, we have started to make informational videos. We will do it also through email, but we will make an informational video that staff can have access within the school and also at their home.” The implementation of video recording has brought consistency and coherence to the work and these recorded videos are now permanently stored as part of a technology library. The director said, “the videos from our partners or that we've developed ourselves are some of the things we like as a district. That helps

us or anyone, any staff who might come in mid through the year – any new staff." The implementation of video use is helpful to BPS.

YouTube. Belvedere central office boundary spanners have created a YouTube site that can be accessed by school principals and staff at school, at home, or on the go. This initiative was done to ensure that one clear and consistent message was being delivered to the entire district. All staff in Belvedere had access to the same information. An example of the use of YouTube to overcome a past bottleneck of repeating a professional development session when principals were absent for the training or new principals were hired and did not have the opportunity to participate in the original training. As a result of using this method, the boundary spanner was able to ensure that all principals heard the same message about the new science standards. "You can have access to my YouTube web page...Basically, that is one of the things we try to say that these are the best practices or policies that we have within our district," said the director. The focus was on exposing the entire district to what were the best practices, so that the entire district would continue to improve. The director quickly provided the YouTube address during our interview without any hesitation. "That knowing your time is valuable, they can be seen at home as well. That's a big factor for me as a director. That I realize not everyone can accomplish their planning, their instruction within their work time. That they access some of these things at home." These are some examples as to why the YouTube site is an important resource for Belvedere.

In summary, technology use, including email, videos, and YouTube, were considered the primary way and the fastest way to reach the entire school district and overcome bottlenecks that had prevented central office and school principals from communicating effectively in the past.

Technology was considered a best practice and the district is continuing to invest in technology to remain current and easily accessible to all.

The use of whole group support. The second practice that Belvedere employed to implement curriculum reform was to provide whole group support to all administrators. A key tool used in whole group support was the development of year long plans. The other whole group support opportunities occurred as large-scale meetings which included professional development sessions, cabinet meetings, and forums. Belvedere used whole group support as the second phase with the implementation of their curriculum reform initiative.

Year long plans. Year long plans (YLPs) are maps of instructional content-based material that will be covered and taught through a curriculum reform initiative. YLPs are a key tool used in whole group support to align the work of all schools. An example of the use of a YLP to overcome a past bottleneck was to foster curricula coherence amongst schools, so that all schools were meeting or exceeding district curricula requirements. As a result of using this method, the boundary spanner was able to ensure that all schools were developing curriculum that met the needs of diverse learners far more effectively. The assistant superintendent said, "In some schools, they are more developed than others, but I think in all schools, most groups understand the value of that time, and are really using it to push their instruction forward and to make sure that we're giving our kids lessons designed to meet their differentiated needs, that we're looking at assessing students regularly."

The director stated that "we are all teaching the same standards within the same time frame." The YLP was an initiative where the entire district used the same plan or guidebook. Through coaching support and working with central office boundary spanners, the assistant superintendent asked principals the following questions. "Is this the year long plan where we

need to be? What is the data telling us? Whether it's PARCC [Partnership for Assessment of Readiness for College and Careers] scores or our MCAS [Massachusetts Comprehensive Assessment System] scores, what are our scores telling us?" The YLPs were intended to be consistent across the Belvedere district, which allowed central office boundary spanners to ensure that the entire district was learning and on track together.

Professional development sessions. Professional development sessions were used to facilitate learning opportunities via formal coursework, conferences and informal learning opportunities situated in practice. An example of the use of a professional development session to overcome a past bottleneck was when professional development was delivered in different locations for different stakeholders. As a result of using this method, the boundary spanner was able to communicate and educate principals in one setting far more effectively. The Belvedere director reported that, "Number one is, let's talk any curriculum initiative, it would be professional development, that's the first way to do it." The belief in providing support and professional development was clearly articulated. Throughout the interview she further elaborated that "any key success to any curriculum reform initiative is professional development." In order to improve professional development, central office boundary spanners' primary role was to equip the central office, school principals, and thirdly the coaches with the core knowledge about the curriculum reform initiative. During the interview, the director restated "…well, with professional development always being the key." It was evident that both the assistant superintendent and the director believed that professional development and supporting principals were the primary function of a central office boundary spanner. The following portion will briefly explain the importance of cabinet meetings as a specific professional development practice.

Cabinet meetings. Cabinet meetings took place once a month with the Belvedere superintendent, assistant superintendents, directors, and principals. An example of the use of cabinet meetings to overcome a past bottleneck where critical stakeholders from the district were missing from the conversation allowed all stakeholders to be part of the conversation and contributors to the solution at the same time. As a result of using this method, the boundary spanner was able to share important information with the superintendent, directors, and principals at one time far more effectively. The director stated that information distribution was ongoing and that "it could be through me or through cabinet meetings." The cabinet meetings, spearheaded by the superintendent were held with the intention of delivering and revisiting the district's priorities. Additionally, the assistant superintendent stated that "we also meet with our assistant principals once a month separately. We want them to be instructional leaders in the building too, so we have a separate meeting with them." She further stated that, "I share the minutes of the cabinet meeting with the cabinet and the assistant principals (APs). We are now taking minutes in our AP meetings so that we have a record of where we were and where we need to go." Cabinet meetings provided an opportunity to explain, clarify, and reinforce the same message to all instructional leaders in the district. In all, this was a priority of the district to maintain consistent, communication lines during cabinet meetings.

Forums. A forum, as used by the Belvedere boundary spanners, is an informational meeting. An example of the use of a forum to overcome a past bottleneck of misinformation being shared about an instructional or operational concern could be immediately addressed by holding a forum. As a result of using this method, the boundary spanner was able to use these meetings when information needed to be shared quickly far more effectively. The director noted that forums took place on an as needed basis. "So we might have a forum with the principals. Be

it a cabinet meeting, be it a meeting with principals." Adding to this, the assistant superintendent also noted cabinet meetings, and "all-admin meetings" that happened twice a year, allowed principals to fully participate in their learning. It was evident that Belvedere prioritizes whole group support and clearly communicating to the larger community through professional development sessions, cabinet meetings and forums to saturate the district with the same message.

In summary, whole group support was a practice that Belvedere employed when implementing curriculum reform. The district held frequent professional development sessions with opportunities for schools to examine the district's YLPs. The review of the YLPs kept everyone focused on the same curriculum. Additionally, the district provided meetings and forums for all stakeholders to learn and strengthen their practice.

The use of small group support. The third practice that Belvedere employed to implement curriculum reform was to provide small group support or individualized support to all administrators through personalized coaching, and walkthroughs. An example of the use of small group support to overcome a past bottleneck where principals had to find the information independently or create his own understanding was to provide a coach or a director to support learning. As a result of using this method, the boundary spanner was able to provide one-on-one support and address most concerns in real time far more effectively. The individualized support allowed principals to firmly grasp the new content and address any misunderstandings in a personal way and in a small setting. According to the assistant superintendent:

> I think we've done a really good job of, like I said, working with the directors who may be they wear their content expert hat to support our lens, whether it's, 'I was a Science teacher, so I feel like I have a very strong knowledge of what's happening in Science

> classroom and of the standards.' I might not need the STEM [science, technology, engineering, and math] director to come with me, but my assistant principal might because her background might not be as strong. We've done a good job among us to acknowledge we're not wearing all these hats. We're not experts.

Adding to this, the director said, "…but I think information going back to administration for them to implement it successfully in their building probably requires a one-on-one conversation." Small group support promoted individualized learning and a growth mindset that everyone had something to learn. "I personally as a director have brought in professional development so maybe you're not in such a large group."

Personalized coaching. Belvedere provided coaching to principals at all elementary schools. Each school was assigned one literacy coach and one math coach. An example of the use of personalized coaching to overcome a past bottleneck may be when a principal does not have the content knowledge of calculus, so he may feel unable to support that teacher. As a result of using this method, the boundary spanner was able to model for the principal what was expected of his interactions and observations of teachers far more effectively. The director talked about behind-the-scenes work which involved first "...training my literacy coaches, so they would be familiar" with the curriculum reform initiative. The key for the director was that the curriculum reform initiative was "successfully" distributed and implemented to everyone in order to help ensure that the new information remained. According to the assistant superintendent:

> If we can't go in and help move instruction, we need to figure out how we can get support to go in and move instruction. It's one of those things. Things like A-NET

(Achievement Network) they happen four times a year to look at the data and be able to have a conversation with teachers about what you saw is so important and so powerful.

The assistant superintendent also emphasized that coaching support was an integral foundation for supporting curriculum reform initiatives in all schools. She said that our "instructional coaches, our ELA [English Language Arts] and math coaches that we have in every elementary school and every middle school, and we have an ELA coach here at the high school as well, they are the buffer zone." She further elaborated that "....the role they [coaches] play really is to support that transition from 'an initiative' to work that we do every day." Personalized coaching was exactly that personal, and if a principal needed additional support, Belvedere was willing to provide that support so that the principal could lead the work in his respective building, leading to better outcomes for students.

Walkthroughs. Walkthroughs were another means that Belvedere employed to support work around curriculum reform efforts. An example of the use of walkthroughs was to overcome a past bottleneck where classrooms were never visited. As a result of using this method, the boundary spanner was able to acknowledge best instructional practices and make recommendations about instructional shifts in the classroom far more effectively. The director stated "[we] check in through observations, walkthroughs, and looking at data. Then having those honest conversations. I do think the role of the principal probably is the most important. I can offer the information, but I am not at each of my buildings. That is where I truly rely on informing the administrators and they complete the implementation." The director realized that she was limited in that she could not be in all buildings at the same time, so building the capacity of principals was important. Likewise, the assistant superintendent stated that "we needed to be able to walk the walk when we are in classrooms, and really understand what we're seeing to be

able to push the rigor that we're seeing, and challenge teachers to grow." The assistant superintendent understood that "if we can't go in and help move instruction, we need to figure out how we can get support to go in and move instruction." One way of accomplishing this support was through walkthroughs and examining the instruction in real time. The data suggested that Belvedere was committed to supporting its leaders and increasing academic outcomes for all. According to the director:

> Data is one. The second thing is with the new evaluation system, we have the walkthroughs. I might not see every staff, but I have the ability to see the comments that are given to various staff from the other administrators, the other directors walking through. Then, I look at it through three measures. I look at it through the teacher level of data. Grade level data. The school data. I look at the district data. There might be something we just need to fix at our school. There might be something that we need to figure out we're doing really well at a district level. That we need to improve on from there. It has to be multiple measures of data with multiple factors to some of the data. I'd love to say that all our schools are the same, but they're not.

In summary, small group or individualized support was fully implemented in Belvedere through personalized coaching and walkthroughs. Coaches played an integral role in helping principals and teachers implement curriculum reform. In addition, coaches provided extra support to principals, when evaluating teachers outside of the principal's area of expertise. Walkthroughs provided an opportunity for coaches and directors to gather data about the progress of the reform at any given school. Coaches are able to help principals move the curriculum reform initiative to become the work that takes place in their schools every day.

Discussion

This research sought to study the application of Schechter's analysis to the processes employed by central office boundary spanners to successfully implement curriculum reform in their district. The selected district for this study, Belvedere, took many deliberate steps to educate all stakeholders about the curriculum reform initiative. Belvedere's central office boundary spanners supported teacher learning and professional development by providing social opportunities that included theory-based learning opportunities coupled with practice-based learning opportunities. Through examining organizational learning mechanisms, the research sought to determine how information regarding curriculum reform is best transferred from boundary spanners to school principals and administrators.

The data from this research overwhelmingly aligned with information acquisition and information distribution. Both central office boundary spanners spoke most compellingly about the multiple ways in which they explicitly communicated with principals. The intentional practices that Belvedere employed were concrete examples of information acquisition and information distribution. Information acquisition and information distribution surfaced as the two primary OLMs used by central office boundary spanners with the implementation of curriculum reform.

Belvedere central office boundary spanners have clearly implemented practices, which supported the implementation of curriculum reform through the use of technology integration, whole group support, and small group or individualized support. The findings indicated that these explicit practices have helped Belvedere to successfully transfer the information needed to implement curriculum reform.

Coaches played an integral role in promoting full implementation of the curriculum reform initiative. Coaches were involved in all levels of support from being part of the technology plan through videotaping to providing whole group and small group support at the individual school level. Coaches were school-based boundary spanners who also worked closely with the directors and central office boundary spanners moving back and forth between them all in order to ensure coherent communication among all the district entities through technology, whole group support, and small group support.

Key Themes in the Role of Central Office Boundary spanners. Several key themes emerged in the processes utilized by boundary spanners in their efforts to transfer information about curriculum reform to principals and administrators: communication, collaboration, and consistency.

Communication. Clear, consistent, communication strategies which presented in different forms helped Belvedere implement curriculum reform. The assistant superintendent said:

> The principals might have felt a little left out of the process. It's something we know we can do a better job at, but we know they are also busy with a lot of other things. If we can increase the communication between our directors at cabinet meetings and otherwise, then we can make sure we're having that consistent, clear communication.

This was the resounding message that was clearly stated in both interviews.

Findings from this study suggested that the district focused on communicating early and frequently. Communication was effectively used by boundary spanners in order to achieve a coherent message and eliminate confusion and misinterpretation a problem that was very

difficult to overcome for central office and school principals in the past. “We are really continuing to have these conversations about what our expectations are. This year, it’s rigor and relationships...It’s just constantly having that communication,” said the assistant superintendent. Communication was the major theme that surfaced around the effective practices used by central office boundary spanners. It was about communicating through technology, to large groups and to small groups or individuals. “I think the key on this [YouTube] is making sure that staff can have access to any of this information in the 21st century, be it in the workplace or at their home,” said the director. Moreover, the director felt the skills a principal needed in order to lead a curriculum reform initiative was “good leadership, a clear message, probably an open door policy to hear what’s working, what’s not working, and the ability to follow through, just to see that implementation is actually occurring.” Communication was the glue that kept Belvedere functioning effectively and in agreement. The director said:

> Check in through observations, walkthroughs. Looking at data. Then having those honest conversations. I do think the role of the principal probably is the most important. I can offer the information, but I am not at each of my buildings. That is where I truly rely on informing the administrators and they complete the implementation.

The director understood that having honest conversations and open communication would allow the curriculum reform initiative to be established. The director acknowledged that she was not at every building, so the work of messaging needed to be executed by the principal so the curriculum reform initiative can be implemented.

Collaboration. Findings from this study suggested that collaboration was the second theme that surfaced as a best practice by central office boundary spanners. Opportunities for collaboration have appeared as a core value for Belvedere. The district has included multiple

opportunities for collaboration in their monthly and weekly schedules. The assistant superintendent stated, “we work together to make sure we’re tag-teaming and getting what we need to get done.” The director emphasized collaboration by saying that the work isn’t only for principals but the whole administrative team. She said, “when we say school administration, for us in Belvedere it’s the principal the assistant or vice principal, and their coaches. So a collaboration that they’re all on board with the same message.” The assistant superintendent stated it this way, “it’s having those honest conversations, being able to work collaboratively, work with the coach, sit in a professional learning group, and work with your colleagues.” It is evident that Belvedere provided and promoted collaborative learning experiences for all school leaders. In summary, the director said, “Part of it is a collaboration. We have a saying here, ‘Work smarter, not harder.’ That learning all of this in isolation is a lot, but working together as a team to have an understanding of the instruction, of the data, and having that data improve upon us. So I think collaboration is key for this.”

Consistency. Findings from this study suggested that consistency was the third theme that surfaced as a best practice by central office boundary spanners when implementing curriculum reform with school principals. Consistency was effectively used by boundary spanners in order to achieve a coherent baseline of understanding for all principals and stakeholders, and overcome working in silos, a problem that was very difficult to overcome for central office and school principals in the past. The assistant superintendent stated, “We really need you to work with the coaches to make sure that they are sending a consistent message, because we can’t have each building acting on their own. We need to have all middle schools on the same page, that kind of thing.” Adding to this, the director had a similar perspective. She said, “I think the key here is making it a uniform message. I have six elementary schools... the message I’m giving is the same

message to all six of the schools." In fact, the assistant superintendent even asked, "Is that the message that we want to put out there?" regarding taking a moment to make sure that a clear, consistent message was always being shared. It was evident that Belvedere's commitment to consistency has been instrumental in strategically aligning the district around communicating a single message. The director said, "Clarity is very difficult. What I may have written down, put in a recording, could still be misinterpreted through someone else. That's what I've been working on with the coaches is that we work on it together as a group. Then disseminate it to the various schools."

Implications and recommendations. The implications for future practice are promising for successful, ongoing implementation of curriculum reform. There are a few areas of consideration for Belvedere Public Schools that result from this study. First, Belvedere will need to remain patient in order to acknowledge that change takes time and implementation can sometimes be slow while celebrating early implementation successes. Over time, the boundary spanners and other stakeholders will collectively improve as they learn together how to refine their learning strategies. Thus, Belvedere must keep in mind that it is a small district with a limited central office. Additionally, it is important to note that as school leaders are learning so are central office boundary spanners. Boundary spanners need ample opportunities to participate in their own professional development which may have certain budget implications. Lastly, Belvedere should look into opportunities to leverage and maximize external partners to assist in the learning strategy. In my experience, there are local and national organizations that would be willing to partner, support, and monitor implementation as boundary spanners. These local and national boundary spanners would partner with central office in order to accelerate learning on both sides of the district/school boundary.

Conclusion. In conclusion, Belvedere central office boundary spanners implemented curriculum reform with school principals while simultaneously providing quality professional development with relatively low impact on the district budget, which could be considered as inexpensive strategies. These best practices were clear, consistent, convenient, practical, repeatable, and fairly inexpensive. Again, this work can be replicated in other districts with minimal costs, and it has created opportunities for improved student outcomes (Elmore, 2006; Fullan & Hargreaves, 1996; Fullan, 2001; Fullan, 2007). Thus, it will be important to wait patiently for improved results, while building strong internal and external partnerships, so that Belvedere can maximize its boundary spanners who provide learning opportunities and promote successful implementation of the reform. Nevertheless, I remain confident that Belvedere will realize their goal of becoming an optimal learning community through coherent, consistent curriculum reform implementation.

Chapter 4

DISCUSSION[3]

School districts are large and complex human organizations. Historically, school systems have struggled to establish broad and sustainable change efforts due to their size and complexity. Organizational learning theory presents district and school leaders with a valuable theoretical framework that may support effective and sustained reforms in their districts and schools. As researchers, we sought to understand how district and school leaders used organizational learning theory to implement and support curriculum reform. Specifically, the current study aimed to develop a rich understanding of (a) the systems and structures employed by a school district to support organizational learning and implement curriculum reform and (b) district practices and procedures that enhanced or limited opportunities for organizational learning.

To investigate these problems of practice, the research team employed a qualitative case study methodology across five individual studies. The studies utilized an extensive review of district documents and eighteen in person interviews with a representative sample of administrators and teachers from three elementary and one middle school. Upon analysis, the results of individual studies produced four major themes that served as the basis for our collective findings:

1. The district had established effective collaborative structures that appeared to support individual and organizational learning
2. The district had established effective collaborative structures, however, inequities in time available for professional learning between traditionally scheduled and

[3] This chapter was jointly written by the authors listed and reflects the team approach to this project: Andrew Berrios, Tracy Curley, Marice Edouard-Vincent, Bobbie Finnochio, and Ian Kelly.

non-traditionally scheduled schools appeared to impact the use and perceived efficacy of existing organizational learning mechanisms.

3. The district had established strong leadership teams to carry the curriculum work forward, but these teams lacked strategic overlap to support effective organizational learning.
4. The district had established directors and coaches as the instructional leaders of district- and school-level curriculum reform efforts, thereby diminishing the connection of principals to the organizational learning process.

Based on these findings, the team developed a series of recommendations that aimed to build on the existing strengths of the Belvedere schools and to enhance organizational learning. The recommendations included: (a) providing equitable time for professional learning across all schools, (b) building strategic connections between key district leadership teams, and (c) integrating principals into the existing teaching/learning mechanisms of the district. The following pages provide a detailed summary of each finding before concluding with the chapter recommendations and a discussion of implications for practice.

Findings

Integrated Collaborative Structures. Belvedere's collaborative structures support the distribution of critical organizational information from one level of the district to the next. Data analysis identified a number of primary collaborative structures used to distribute through the organization's hierarchy. The collaborative structures at each level of the district are summarized in Table 4.1. During interviews, participants answered a series of questions that asked them to identify (a) to whom they go for information and (b) how they distribute information. Interestingly, and as Table 4.1 highlights, faculty meetings were the only

collaborative structure identified for which there was not agreement between participants who perceived the structure as a distribution point (principals) and participants who were the target audience for that information (teachers and coaches). Otherwise, agreement in perceptions between those distributing and those receiving information appeared to support the notion of relatively stable distribution of information throughout the district's hierarchy, supporting the finding that the cohesive nature of the collaborative structures facilitated organizational learning.

Table 4.1

Collaborative structures in the Belvedere Schools

Level	Structure	Distribution Point(s)	Acquisition Point(s)	Agreement
Central Office	Cabinet Meeting	Superintendent Assistant Superintendent	Principals Directors	Yes
Directors/ Principals	Directors Meeting	Director	Coaches	Yes
	Faculty Meeting	Principal	Faculty	No
Teacher/ Coach	Common Planning time	Coaches/ Teachers	Coaches/ Teachers	Yes
	Professional Learning Communities	Coaches/ Teachers	Coaches/ Teachers	Yes

Individual and organizational learning: The impact of cohesion. As stated earlier, the cohesive nature of Belvedere's collaborative structures appeared to support the accurate and efficient distribution of organizational information and, thereby, supported organizational learning. Participant responses, particularly at the teacher/coach level, suggested that these collaborative structures were critical to their professional learning and growth. At the teacher and coach level, the common planning time (CPT) and professional learning community (PLC) structures were identified as central to the ongoing growth and learning of teachers and coaches. In both structures, teams of teachers, coaches, and other licensed professionals worked to implement and refine curriculum, plan assessments, analyze student performance, and resolve other pressing problems of practice.

Consistent with research on human learning, these collaborative structures provided teachers and instructional coaches with socially mediated learning opportunities in communities of practice. These structures were situated in direct proximity to teaching and learning and, therefore, represented organizational learning mechanisms that were of critical importance to the implementation and efficacy of district curriculum reform priorities. While these collaborative structures were present and identified by all participants, transcript analysis uncovered a difference in the perceived efficacy of these structures by teachers and coaches working in schools with traditional schedules and those working in schools with non-traditional schedules.

Inequitable Time for Professional Learning. Our analysis indicated that (a) the Belvedere Schools took intentional and strategic measures to deploy an integrated system of collaborative professional structures throughout the district's hierarchy; (b) these structures appeared to have a positive impact on individual and organizational learning; and (c) there were

significant differences in terms of time available for and, therefore, access to these professional learning opportunities. As we shall see, the collaborative structures employed in Belvedere represented a strong foundation for organizational learning while, at the same time, presented with clear opportunities for growth.

Time and equitable opportunities for professional learning. While data indicated that Belvedere had deployed an effective system of collaborative structures that supported the distribution of information and organizational learning, there were disparities across the district in terms of the time available for and, therefore, the ability to access the collaborative structures. Two of the four participating schools operated non-traditional school schedules. These non-traditional school schedules included additional time on learning for students as well as additional collaborative time for teachers and other professionals. The other two participating schools operated traditional school schedules that did not include additional time on learning for students or collaborative time for teachers and other professionals. As we shall see, the variance between school schedules appeared to be the primary cause of differences in both the implementation and perceived efficacy of common planning time and professional learning communities.

Common planning time (CPT) was the organizational learning mechanism most impacted by the differences in school scheduling. Teachers and instructional coaches in schools operating traditional schedules reported having CPT once per week while teacher and coaches in schools operating non-traditional schedules reported having CPT daily. Each CPT was forty-five minutes in duration which, over the course of a 180 day school year, created a significant discrepancy in time afforded to professionals for collaboration and learning. Further exacerbating this inequity, schools operating non-traditional schedules also afforded teachers and instructional coaches two

hours of release time each week. Over the 180 day school year the cumulative impact amounted to approximately 26.25 hours of common planning time and collaborative work time for teachers in traditionally scheduled schools and approximately 205 hours of common planning time and collaborative work time for teachers in non-traditionally scheduled schools. Put simply, teachers and instructional coaches in traditionally scheduled schools appeared to access roughly 13% of the common planning and collaborative learning time of their colleagues in non-traditionally scheduled schools. This discrepancy manifested in (a) differential performance on standardized tests and (b) differing teacher perceptions of efficacy between participants across the two school scheduling models

Student achievement and time for professional learning. State standardized test results were collected and analyzed to gain a general understanding of student performance in traditionally scheduled and non-traditionally scheduled schools. Four years of data were acquired for three of the four participating schools.

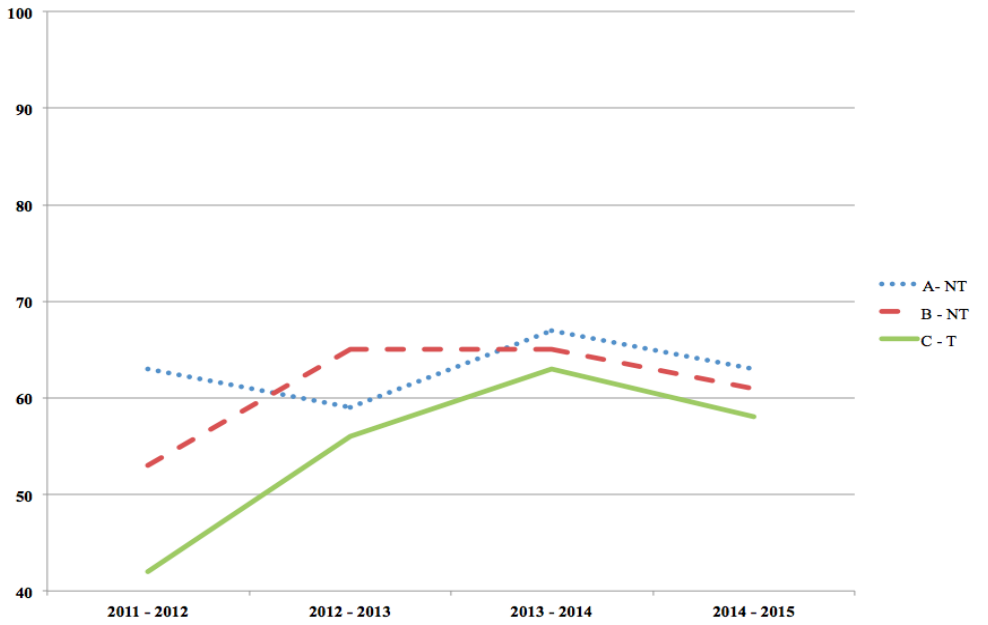

Figure 4.1: District mathematics MCAS performance. The figure captures the comparison of traditional and non-traditional school with regard to mathematics MCAS performance.

The fourth was excluded from the comparison due to the fact that it served different grade levels than the other three schools. Two of the elementary schools in the comparison were non-traditionally scheduled and the third was traditionally scheduled. Figures 4.1 and 4.2 summarize four years of student performance data in ELA and Math. Dashed lines represent the performance of non-traditionally scheduled schools, solid lines represent the performance of the traditionally scheduled school.

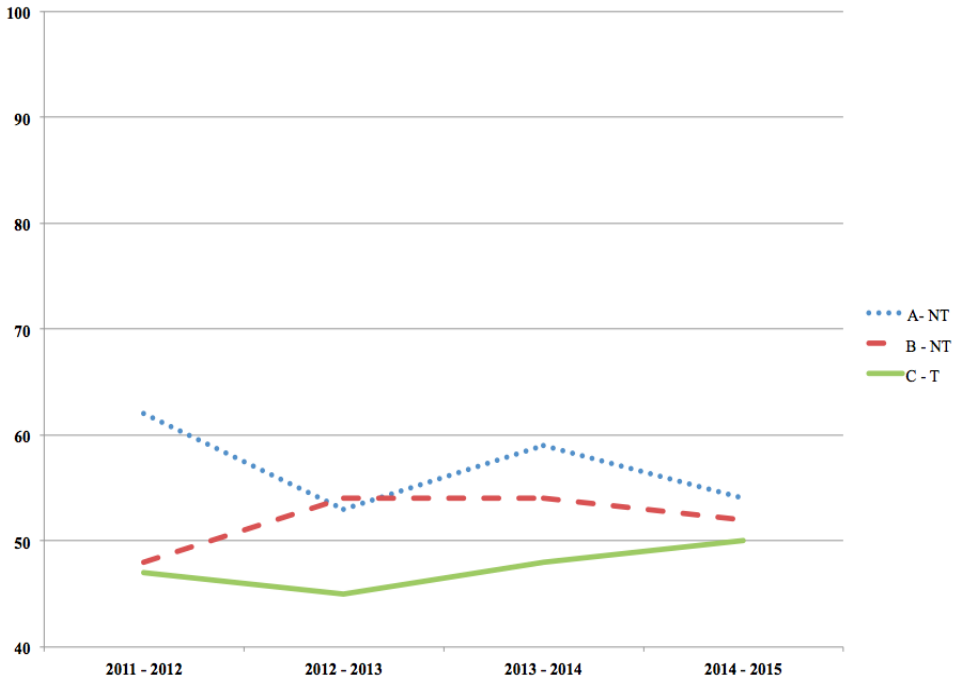

Figure 4.2: District ELA MCAS performance. The figure captures the comparison of traditional and non-traditional school performance with regard to ELA MCAS.

While it was not possible to draw a direct correlation between increased student performance and the additional professional opportunity to learn in non-traditionally scheduled schools, it was worth mentioning the difference in performance. Across four years of data on two standardized test measures the non-traditionally scheduled schools outperformed the traditionally scheduled schools.

Teacher/coach perceptions of efficacy. Beyond differences in student performance, teacher and coach perceptions of efficacy varied significantly between traditional and non-traditionally scheduled schools. One central office administrator recalled their experience in a non-traditionally scheduled school, "I was in a non-traditionally scheduled school, so we had more time, more consistent time to be able to do those things [work in collaborative teams]."

Consistent with the notion that affording more time for professional learning is beneficial, one principal qualified the difference as such, "This particular school has had a major turnaround because we, as a group with non-traditional schedules, we're a different school." Both administrators expressed perceptions of advantage in the non-traditionally scheduled schools and spoke to the belief that the additional time enhanced school performance.

Consistent with administrators, classroom teachers articulated perceived advantage and perceived benefits to school performance. A teacher who has worked in schools with both scheduling models made a poignant comparison, "In our school we have a 45-minute block every day to common plan within our grade level team because of the non-traditional schedule. Previously I had come from a school that we were lucky to get 45 minutes a week. Even then it was often getting taken over by data meetings or you know coaches and stuff. We have a lot of ownership. We do a lot of creating." This teacher's comments referred to (a) the advantage in terms of opportunities to learn in communities of practice through common planning time every day and (b) the benefits in terms of ownership and creativity.

Teachers and coaches in traditionally scheduled schools indicated that the scheduling inequities created a situation in which (a) they were not able to use the collaborative structures effectively due to time constraints, (b) the inequity acted as a basic limitation to their ability to effectively support students, and (c) tension between professionals with and without additional student and professional learning time was common. In their commentary, one professional in a traditionally scheduled school described the situation as such, "They all had an extra week [referring to additional time for student and professional learning]. Now you have in-district arguments amongst teachers. You're comparing us with them and they had an extra week and they get extra time in their day. They can do more with their kids than we can. There is friction

in the district with that." This professional's sentiments effectively captured those of other professionals in traditionally scheduled schools and reflected the ways in which this inequity may have had a negative impact on individual and organizational learning.

The district developed and implemented collaborative structures to support organizational learning relevant to ongoing curriculum reform efforts. While these collaborative structures were found consistently across the district, their implementation and perceived efficacy varied significantly between traditionally and non-traditionally scheduled schools. Schools that afforded teachers additional time to use the collaborative structures appeared to outperform schools that did not provide this time. Through our analysis of the collaborative structures used by the district, it also became evident that opportunities for individual and organizational learning may have been hindered in situations where the collaborative structures lacked strategic connections and overlap.

Collaborative Structures and the Need for Strategic Overlap. The collaborative structures employed by the Belvedere schools represented the primary mechanisms by which the district promoted professional learning relevant to curriculum priorities. As discussed earlier, these collaborative structures, particularly at the teacher/coach level, were perceived as effective professional learning mechanisms. While they were regarded as such, perceptions of efficacy did not explain the broad discrepancies between professional perceptions of district curriculum priorities within and across the hierarchical structure of the district. Further analysis of participant interview data uncovered that, while these mechanisms were effective in many ways, key collaborative structures at the district and central office level lacked strategic overlap that may have contributed to the lack of clarity around district priorities and, as such, had a deleterious effect on organizational learning.

The superintendent held monthly meetings with central office staff, building principals, and curriculum directors and indicated that this collaborative structure was one of the primary mechanisms used to distribute information to district leaders. Moving from the superintendent's meetings, curriculum directors and principals held meetings that either (a) distributed the information from the superintendent's meeting to their respective level of the organization or (b) processed and interpreted the information from the superintendent's meeting. In either situation the distribution and/or interpretation of this critical organizational information took place in isolation from other leaders. The actions taken by these discrete groups to work with and distribute information independently created a situation in which these key OLMs missed opportunities to strategically overlap as teams and process the district information in a broader community of practice. Figure 4.3 captures the existing structure of the district's OLMs, while at the same time highlighting the missed opportunities for strategic overlap between the OLMs.

Areas A, B, and C of the Venn diagram each represent one of three collaborative teams that operated as OLMs at the central office level (ELA curriculum meetings, STEM curriculum meetings, and principal meetings). In each area, a key group of district leaders, independent of the other groups represented by areas A, B, and C, distributed or interpreted information acquired during the monthly superintendent's meeting. Here we saw the missed opportunities for more strategic and intentional connections between these OLMs.

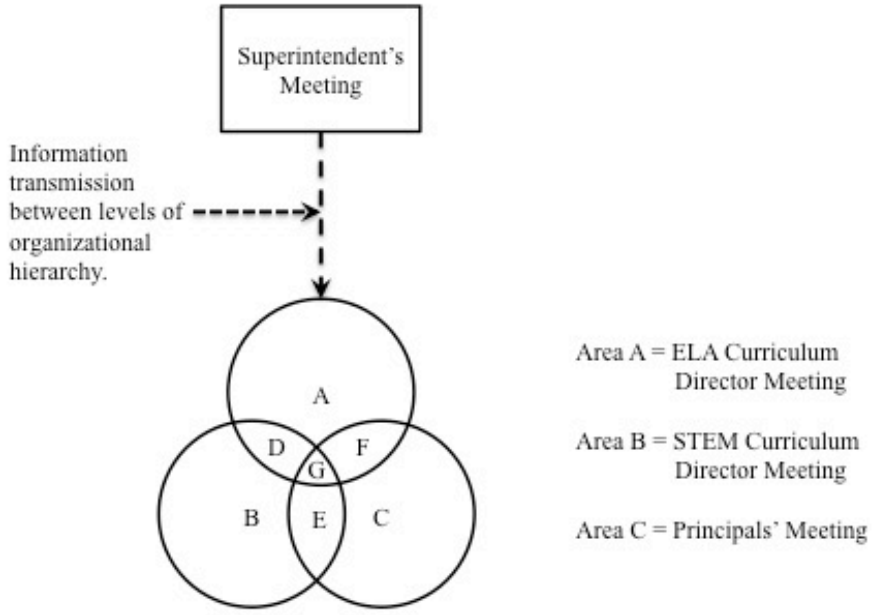

Figure 4.3: Strategic connections for information distribution and interpretation

As seen in areas D, E, and F of Figure 4.3, there were situations in which key district leaders distributed and/or interpreted information together, but these overlapping areas of OLMs were not systematically employed across the district. Area D represents the overlap of math and ELA instructional coaches that happened informally at the building level. Area E represents the overlap of principals and math coaches while area F represents the overlap between principals and ELA coaches. The interactions represented in areas D, E, and F are all informal OLMs that may or may not, depending on the composition of building and practices of principals and coaches, operate in all schools.

Area G represented the point of strategic overlap and connection that was not identified by any participant as an operational OLM within the district. Area G represents the possibility for a strategic and intentional overlap between the three leadership teams and, as we will discuss in our recommendations, an opportunity to increase the clarity of critical district information and agreement between stakeholders on district curriculum priorities.

Disconnect Between Teaching/Learning and Building Principals. Through the collection and analysis of data two distinct operational task systems were identified in the Belvedere Public Schools. These task systems, for the purpose of this discussion, are referred to as: (a) management and operations, and (b) teaching and learning. Management and operations functions included budget, policy, scheduling etc., while teaching/learning functions included all aspects of curriculum development, curriculum implementation, and students' achievement. Participants indicated that the superintendent and central office administrators straddled both domains and coordinated primarily with building principals on the management and operations of the district. Curriculum directors, instructional coaches, and teachers were consistently identified as the professionals responsible for the teaching and learning task systems. While the structure of district responsibilities appeared to support individual and organizational learning in Belvedere, two primary obstacles to improving organizational learning appear to exist.

The first obstacle to improving organizational learning manifested in the operational task systems within the district. This arrangement of management/operations and teaching/learning task systems created a situation in which participants perceived principals to be disconnected from the teaching/learning task systems of the district. When teachers and coaches were asked to identify to whom they go for (a) information relevant to the current curriculum reform and (b) expert professional advice, building principals were not identified. Instead, classroom teachers identified job-alike colleagues as their primary sources, while instructional coaches identified curriculum directors. These data points illuminated the composition of the teaching/learning task system of the district and underscored the extent to which building principals were perceived as separate from those systems. While, across the district hierarchy, there was a perceived

disconnect between building principals and the teaching/learning mechanisms of the district, those perceptions were reinforced by structural processes and procedures within the district.

More specifically, this structural division appeared to begin centrally and was reflected at the building level. As illustrated in Figure 4.3, district leaders moved away from the superintendent's meeting into job-alike or department-specific meetings that served to distribute and/or interpret that information. As coaches came together with curriculum directors at this level, principals were not present. Conversely, building principals convened meetings as a team to process and interpret the same information without curriculum directors or instructional coaches present. This may have contributed to the perception that principals were not a part of the curriculum director/curriculum coach instructional team and, therefore, disconnected from the teaching and learning task systems of the district.

The second obstacle to improving organizational learning manifested in the building based task systems that appeared to reinforce (a) the meeting structures at the district level and (b) the perceived disconnect between principals and teaching/learning task systems. This perception was rooted in data from transcripts indicating that instructional coaches were more involved when it came to providing support for teachers' professional development and learning. Instructional coaches and classroom teachers indicated that coaches facilitated weekly common planning time, contributed to professional learning groups, and coordinated with directors to plan/facilitate monthly professional development. Described by principals as anything from "point people" to "gatekeepers" with respect to curriculum information and expertise, they were perceived as responsible for the performative aspects of the teaching and learning task systems at the building level. From the teachers' point of view, coaches provided instructional leadership, while the principals assumed responsibility for the management and operations task systems.

Interestingly, teacher perception of principal involvement with teaching and learning task systems contradicted principal perceptions of their own involvement in teaching and learning. As one principal explained,

> Formally, I meet with my literacy and math coaches and my assistant principal every week, so that's an opportunity for them to fill me in on their weekly meetings and then also for me to check for understanding, to make sure that we're all on the same page when I come back from cabinet meeting or an all-admin meeting.

This data indicated that teachers may not possess information about how coaches interacted and communicated with building principals and other administrators that meet, weekly, to "strategize around how to support the coach and how to support the teachers." Regardless of the practices of principals and coaches, teachers appear to perceive a division of task systems that positioned instructional coaches as the primary resource for information and expertise relating to teaching and learning.

The Belvedere Public Schools have developed and deployed effective mechanisms for collaboration, leadership, and enhancing the practice of teachers and coaches throughout the district. With minor adjustments to these practices and procedures, the Belvedere schools can leverage established strengths to further support organizational learning and, potentially, enhance the implementation of curriculum reforms. In an effort to build on Belvedere's existing strengths and extend organizational learning, we move the following recommendations.

Recommendations

Data indicated that the Belvedere schools utilized a number of integrated systems and structures to support professional learning in service of ongoing district curriculum reform efforts. While these integrated systems were found to be effective in many ways, findings also indicated specific opportunities for growth that, if leveraged, may enhance opportunities for individual and organizational learning across the district.

Ensure Equitable Time for Professional Learning Across All schools. Opportunities for socio-cultural learning in communities of practice are central to learning. At the building level in Belvedere, common planning time (CPT) and professional learning communities (PLC) provided this research based learning context and were perceived by teachers and coaches as central to their professional learning. Schools participating in the current study operated both traditional and non-traditional school schedules. Non-traditional schedules afforded additional time for student and professional learning and, therefore, created inequities in opportunity to learn for students and staff. It is our strong recommendation that the district look for creative solutions that would provide schools and professionals across the district with equitable access to the collaborative professional learning structures deployed in Belvedere.

At the time of this study, teachers and coaches in traditionally scheduled schools had access to one CPT block per week (26.25 hours per year), while teachers and coaches in non-traditionally scheduled schools had access to one CPT block per day (135 hours per year) and an additional two hours of release time for collaborative work each week (70 hours per year). The cumulative impact of these inequities on opportunities for professional and, therefore, organizational learning cannot be understated. To make the comparison clear, this discrepancy creates as situation in which professionals in traditionally scheduled schools access 12.8% of the

total common planning and collaborative learning time as their colleagues in non-traditionally scheduled schools.

Beyond limitations to opportunity to learn, this significant inequity in access between schools creates friction amongst professionals and feelings of helplessness in teachers and coaches working in traditionally scheduled schools. Participants in traditional schools expressed frustration that they were compared to colleagues and schools who had clear advantages over them. We believe that in finding a way to provide equitable opportunities for professional and student learning across the district, Belvedere will enhance organizational learning and support collegiality across the district.

Establish Strategic Overlap of Key Leadership Teams. Belvedere has implemented effective collaborative structures and leadership teams throughout the district's hierarchy. Through our data collection and analysis, however, it became clear that a subset of the key leadership teams were not connected in strategic, intentional ways that support the effective interpretation and accurate distribution of key organizational information. More specifically, we found missing connections between meetings that included curriculum directors and coaches, and those that included building principals. Data indicated that this disconnect may result in disparate perceptions of district priorities throughout the district. As such, it is our recommendation that the district establish these connections by bringing curriculum directors, instructional coaches and building principals together, regularly at the district level, to discuss and address issues relevant to the district's curriculum priorities. In doing so we project that the district would (a) increase clarity about district priorities throughout the district; (b) elevate the efficacy of existing collaborative structures; and (c) as we will discuss later, connect building principals more closely to the teaching and learning mechanisms in Belvedere.

Increase clarity around district priorities. The broad range and limited alignment of perceived district priorities identified by participants in the current study reflected the breadth of individual interpretations of Belvedere's primary strategic curriculum reform initiatives. Information moves through organizations via individuals and groups of individuals. As organizational information moves among and between groups, it is interpreted based upon individual mental models of the district's priorities. As such, individual interpretations are not uniform and can alter, for better or for worse, the information before it is distributed further into the organization. This alteration of information is exacerbated as it is interpreted by and passes through additional individuals. This is analogous to the broken phone game and presents a logical explanation for the discrepancies between participants' identification of district priorities.

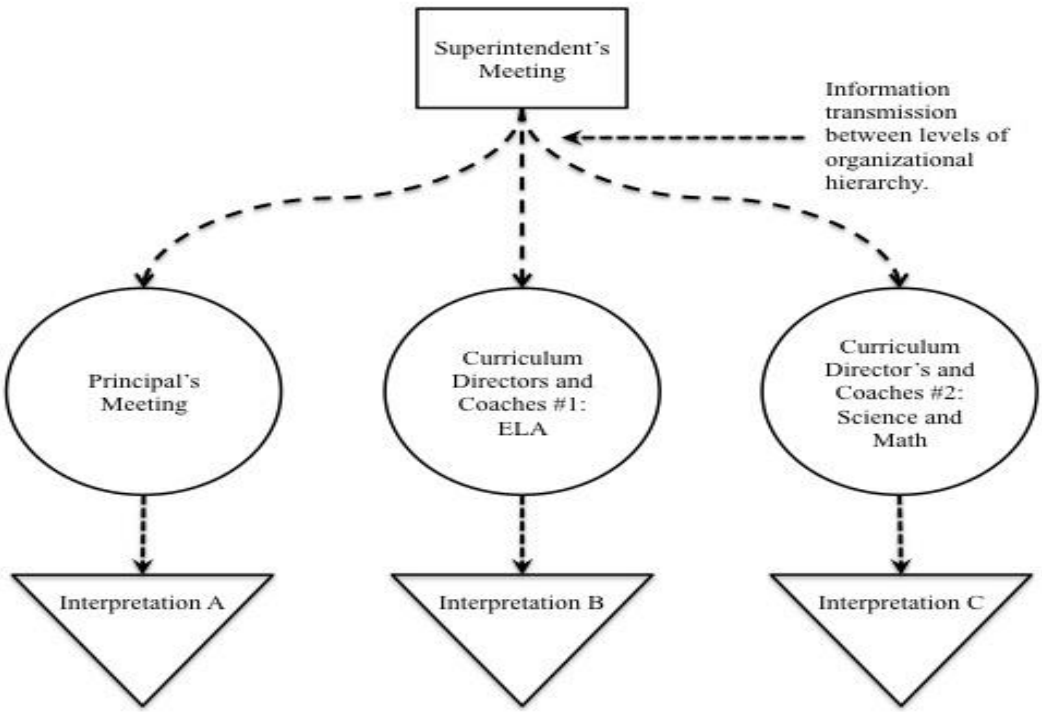

Figure 4.4: Structural influences on information interpretation. The figure highlights the isolated interpretation of information in the district.

As described by participants, the current leadership structure (See Figure 4.4) situates the superintendent's meeting as a focal point for the distribution of key organizational information. From that meeting, participants indicated that the information acquired during superintendent's meetings is then distributed via (a) meetings with instructional coaches from across the district, and (b) meetings between building principals. This structural arrangement between teams, as seen in Figure 4.4, creates multiple venues for the interpretation of critical information regarding district priorities and, as such, sets the stage for a higher degree of variance further into the human structure of the district.

Considering the impact of isolated interpretations of organizational information on the fidelity of that information as it is disseminated through the organization, the importance and impact of shared interpretations comes into focus. Connecting curriculum directors, instructional coaches and building principals to process, interpret, and develop a shared understanding of district priorities (organizational information) before distributing that information further into the district is an important step that may increase clarity and consistency around the district's strategic curriculum initiatives.

By bringing these key instructional leaders together to building shared understandings and interpretations, Belvedere may create a situation in which a continuous interpretation of Belvedere's strategic initiatives is more likely across individuals and groups throughout the district. In addition to this primary benefit, the district will also further its support of and coherence to the existing system of collaborative structures at the teacher/coach level.

Elevating the efficacy of existing collaborative structures. Common planning time (CPT) and professional learning communities (PLC) were the primary collaborative structures

for professional learning identified by teachers and coaches. Our evidence suggested that these meetings were productive, supporting (a) individuals with their practice and (b) the district in moving curriculum reform priorities forward. It is our belief that by aligning the interpretation of district curriculum priorities between curriculum directors, instructional coaches, and building principals the district stands to enhance the existing efficacy of CPT and PLC structures.

When discussing the collaborative structures in which they distribute and acquire organizational information, curriculum directors, principals, and coaches described team meetings in which they (a) bring and share important organizational knowledge and perspective, (b) work to interpret this shared pool of organizational information and knowledge, and (c) use this shared pool of organizational information to make decisions that influence their collaborative work at the building level. These behaviors are consistent with socio-cultural theories of human learning within communities of practice (Brown, Collins, & Duguid, 1996; Kimbell & Hildreth, 2008; Kolb, 1984; Lave & Wenger, 1991; Orr, 1997; Vygotsky, 1978) and have the potential to greatly enhance individual and organizational learning. The pressing issue, here, is that these three teams use a pool of information to inform their thinking and decision making, a pool that is naturally limited by the meeting structure currently employed by the district. Figure 4.4 captures the structure and portrays the isolated nature of these three teams of instructional leaders.

Each team's ability to process organizational information and make effective operational decisions is limited by the absence of rich organizational knowledge embedded in the other two teams. As a result, each of the three teams operates at less than optimal capacity and individual members of those teams carries structurally limited interpretations of district priorities and district needs back to their buildings. These narrow interpretations of district information and

priorities are transferred back to each building and used to inform the professional collaboration that occurs in CPT and PLC structures. Here, we see the direct link between district instructional leaders' mental models and the potential efficacy of building level CPT and PLC structures.

To further enhance the efficacy and rigor of the CPT and PLC structures, we believe that the district must bring together curriculum directors, instructional coaches and principals for the purpose of building shared mental models of district curriculum priorities. Doing so may enhance CPT and PLC work by ensuring coherence within and between professional teams and, consequently, ensuring more cohesive and valuable feedback/organizational information loops back from the CPT/PLC structure to the instructional leadership team. As a result, these instructional leadership teams would have the opportunity to enhance their work to identify critical issues relevant to teaching and learning across the district.

Integrate Principals into the District's Teaching/Learning Mechanisms. Principals in the Belvedere schools represent an integral part of the district's task systems. As we discussed earlier, building principals are perceived as an instrumental part of the management and operations task systems that support teaching and learning. Creating the conditions for professional and organizational learning is important, but the role of building principals must be perceived more broadly in Belvedere to include the role of instructional leader. Schools in which principals operate as instructional leaders are more likely to provide successful opportunities for professional and organizational learning (Mitchell & Sackney, 2006; Schecter & Qadach, 2012). With this in mind, we make our final recommendation to strategically integrate the building principals into a more direct and obvious role in the teaching and learning task systems of the district.

Strategic is a key qualifier in the articulation of this recommendation. The management and operations of the district are in good working order and building principals should not be removed from their key roles within those task systems. With minor adjustments to existing systems and structures on the teaching and learning side of the organization, the integration we recommend can be accomplished. More specifically we believe that by (a) combining district level meetings between curriculum directors, instructional coaches, and building principals and (b) ensuring that all principals meet with instructional coaches on a regular basis at the building level, the district will enhance its support of professional and organizational learning.

As suggested earlier, bringing curriculum directors, instructional coaches and building principals together to process and build shared mental models of critical district information will potentially support greater clarity around district priorities throughout the district and enhance the existing efficacy of PLC/CPT structures. Additionally, making this structural adjustment clearly ties principals to the teaching and learning task systems of the district. Centrally connecting district level instructional leaders supports the notion that the district should ensure that individual principals connect with instructional coaches at the building level on a regular basis.

In some instances, data indicated that principals in Belvedere make it a practice to meet regularly with the instructional coaches in their buildings. Doing so provides a critical opportunity for individual and organizational learning in that (a) the principal was able to check for understanding and alignment around district curriculum priorities, and (b) the principal was able to access important organizational information about the implementation and efficacy of the ongoing curriculum reform efforts. In buildings where this is not the practice of principals, opportunities for district alignment and organizational learning are missed. In prescribing this

practice, the district ensures that principals are more closely tied to and informed about the teaching and learning task systems within the district and, consequently, are better equipped to engage in those teaching and learning systems.

Limitations

The development and implementation of the current study was limited by a number of factors and readers should carefully consider the results and their ability to be generalized within the context of the following limitations.

Participant sample size represents a significant limitation to the current study. The study included semi-structured in person interviews with eighteen individuals representing central office administrators, principals, directors, coaches, and classroom teachers. The sample size represents a small portion, approximately 3.3%, of the district's overall teaching and administrative work force. While the in-depth interviews provided a rich perspective on organizational learning within the district, a broader sampling of participants would have added validity and supported generalization of results. Future research including a larger professional sample would support results that are more easily generalized.

The data collection and analysis ability of the current study was limited due to the time constraints of the research project. Due to time limitations, the research team was unable to employ direct observations of organizational learning mechanisms within the district. This data collection method would have complemented data collected through archival document review and in-person interviews thereby providing a more thorough and rich analysis of organizational learning.

Researcher bias must also be taken into account when considering the results of this study. While many steps were taken to mitigate the influence of potential bias on the part of the research team, the composition of the team may have influenced the results. At the time of the study, four members of the research team were building principals and one member was a central office administrator. A more diverse research team that included classroom teachers and/or non-education professionals may have provided additional and valuable perspective on organizational learning within the district.

It was beyond the scope of this study to explore the influence of the district's organizational learning mechanisms on teacher and coach perceptions of equity and, therefore, their perceptions of district values and beliefs about the professionals they employ. It was clear in many interviews with professionals in traditionally scheduled schools that they believed the district did not value them in the same way they valued professionals in non-traditionally scheduled schools. These perceptions are subtle and represent affective barriers to individual and organizational learning. Future inquiry into disparities in opportunities for professional learning would strengthen the existing research as it relates to organizational learning in school settings.

Conclusion

The current study explored how one district leveraged organizational learning theory to implement and support ongoing curriculum reforms. Through a qualitative case study methodology, the research team conducted an extensive review of archival documents and in-depth in person interviews with eighteen professionals in Belvedere. Participants included the superintendent, central office leaders, principals, instructional coaches, and classroom teachers.

Through the collection and analysis of data, it became clear that the Belvedere Public Schools employed an integrated system of organizational learning mechanisms (OLMs) that appear to support both individual and organizational learning. These OLMs included print/digital resources, human information networks, and collaborative teaming structures. While these OLMs appeared to be effective, the research team identified specific recommendations that may enhance overall organizational learning. These recommendations included: (a) ensuring equal time for professional learning across the district's schools, (b) establishing strategic connections between key human organizational learning mechanisms, and (c) the strategic integration of principals into the teaching and learning organizational learning mechanisms of the district.

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Appendix A

Superintendent/ Executive Administrators for Curriculum and Development Interview Protocol

Position:

Name of District:

Years of experience in Education:

Years of experience in current role:

Question 1: What are the district's major curriculum priorities/initiatives?

Probe: Can you tell me specifically about the UbD curriculum reform?

Question 2: What is the district's plan for addressing those priorities?

Question 3: How do you identify district priorities around curriculum?

Question 4: How do you communicate district priorities around curriculum to central office leaders? Principals? Teachers?

Question 5: How do you know if central office leaders and principals understand the goals and priorities associated with the UbD curriculum reform?

Question 6: How Do you check that district's goals and curriculum priorities are implemented?

Probe: How do you check?

Probe: How do you know if there is alignment between district and school priorities in regards to the UbD curriculum reform?

Question 7: How is information about district goals share with principals? Central office? Teachers?

Question 8: With whom, other than your staff, do you regularly communicate information about school and district curriculum priorities?

Question 9: How do you assure all information about UbD and curriculum resources are accessible for central office leaders? Principals? Teachers?

Probe: How do you know if the methods are effective?

Question 10: How do you know whether the leaders that need the information about the curriculum reform actually get it?

Question 11: What do you do if you realize there is a communication breakdown?

Question 12: Are there any other documents you think I should look at?

Appendix B

Central Office Interview Protocol

Name:

Position:

Name of District:

Years of experience in Education:

Years of experience in current role:

Optional Questions

Gender:

Race:

Age Span: ie. 20-30, 31-40, 41-50, 51-60, 61-70

Question 1: Tell me about how you get information before you select a curriculum reform initiative (UbD)?

Probe: Do you feel you get the information you need?

Probe: Is it enough information or too little?

Focus: Information acquisition

Question 2: What are the district's major curriculum priorities/initiatives?

Probe: Can you tell me specifically about the UbD curriculum reform?

Focus: Organizational memory

Question 3: How did you select this curriculum reform initiative (UbD)?

Focus: Information acquisition

Question 4: How do you inform principals about this curriculum reform initiative (UbD)? How do you make sense of it? How do you inform teachers?

Probe: How do you get the information you need to support English Language Learners?

Probe: How do you get the information you need to support Students With Disabilities?

Focus: Information acquisition, information interpretation

Question 5: How do you provision before you distribute the information to the principals? How do you provision before you distribute the information to teachers? (IA, ID, II, OM)

Focus: Information acquisition, information distribution, organizational memory

Question 6: How do you present it to principals? How do you distribute it (curriculum reform initiative/UbD) to schools? How do you present it to teachers? How do you distribute it?

Focus: Information distribution

Question 7: What skills do you feel principals need to lead the implementation of a curriculum reform initiative (UbD)? What skills do you feel teachers need?

Focus: Information acquisition, information interpretation, information interpretation, organizational memory

Question 8: So how do you build effective skills for principals around this curriculum reform initiative (UbD)? How do you build effective skills for teachers?

Focus: Information acquisition, information distribution

Question 9: How does that equate to what is offered to the principals? How does that equate with what is offered to teachers? (OM, IR)

Focus: Organizational memory, information retrieval

Question 10: How do you attempt to ensure clarity of communications and expectations around curriculum reform (UbD) to schools?

Focus: Information interpretation, information distribution

Question 11: How do you gather evidence of your own progress when working with schools? (OM, IR)

Focus: Organizational memory, information retrieval

Question 12: Do you have any documentation that would support what you just shared?

Probe: Do you have any documentation related to UbD?

Focus: Information retrieval

Appendix C

Principal Interview Protocol

Name:

Position:

Name of District:

Years of experience in Education:

Years of experience in current role:

Optional Questions

Gender:

Race:

Age Span: ie. 20-30, 31-40, 41-50, 51-60, 61-70

Question 1: What are the district's major curriculum priorities/initiatives?

Focus: Theory of action, theory in use, task systems, mental models

Probe: Can you tell me specifically about the district's implementation of Understanding by Design (UbD)?

Probe: Where might I or someone else find evidence of these initiatives?

Question 2: Who determined the district's curriculum priorities and what processes/structures were utilized to set those priorities?

Question 3: And how does central office communicate district priorities around curriculum initiatives?

Probe: Who, in particular, is responsible for communicating those priorities?

Question 4: What is the district's plan for addressing those priorities?

Question 5: What specific methods does your superintendent employ to communicate her plan of action associated with those intended goals/priorities?

Question 5a: And how about the Executive Administrator for Curriculum and Assessment? What is her role in communicating district priorities around curriculum?

Question 6: Once district priorities are communicated, how do you make sense of what's important?

Probe: What steps, if any, do you take to make sure you and superintendent are on the same page?

Question 7: How do you communicate your understanding of district priorities around curriculum back to the superintendent? How does she know whether you're on the same page?

Question 8: In turn, how do you communicate that same understanding to your staff?

Question 9: What methods do you use at the building level to check for teacher understanding of the priorities?

Probe: What steps do you take to ensure you and your staff are on the same page?

Question 10: What are the school-based priorities around curriculum?

Question 11: What are your plans for addressing them?

Question 12: What school-based structures exist to support professional development around the curriculum initiative?

Probe: What role do you play in and around these structures?

Question 12: What professional learning and/or development has to take place in order for priorities to be addressed?

Probe: At the district level?

Probe: At the school level?

Question 13: What role does your superintendent play in the professional development of school principals?

Probe: Identify specific actions of your super.

Question 14: In turn, what role do you play in the professional development of your staff?

Specifically, how do you support the development of your staff in terms of the curriculum reform efforts?

Probe: Identify specific practices, actions, activities.

Question 15: What superintendent actions do you find most beneficial in your learning both personal and professional?

Question 16: As you consider your actions, which do you think contribute most to the development of staff? How do you know?

Question 17: In what ways have you grown/developed since the start of the district's curriculum reform efforts?

Question 18: In what ways do you believe your staff has grown/developed in terms of the reform efforts? How do you know?

Question 19: In general, and even outside of the efforts around curriculum reform, how does the superintendent get important information to principals?

Question 20: How do you get important information to your staff?

Question 21: Where does documentation of this reform effort live?

Probe: Where is information stored at the district level?

Probe: At the school level?

Probe: Where can people go to access new and old information?

Question 22: What role, if any, does your superintendent play in making sure information is accessible to staff? What role do you play?

Appendix D

Teacher Interview Protocol

Name:

Position:

Years of experience:

Years of experience in current role:

Optional Questions

Gender:

Race:

Age Span: ie. 20-30, 31-40, 41-50, 51-60, 61-70

Question 1: What are the district's major curriculum priorities/initiatives?

Probe: Can you tell me specifically about the district's implementation of Understanding by Design (UbD)?

Probe: How do you define UbD?

Question 2: What is the district doing to support the curriculum priorities that you mentioned?

Question 3: What opportunities do you have to engage in these curriculum priorities/initiatives?

Probe: In the development and planning of curriculum?

Probe: In training that is relevant to the curriculum changes?

Question 4: What opportunities do you have to learn about these curriculum priorities/initiatives?

Probe: If specific professional development opportunities are mentioned, ask the participant to describe:

Probe: Who facilitated the session(s)?

Probe: What did you do during the session(s)?

Probe: What did you learn as a result of the session(s)?

Question 5: Are you provided opportunities to attend workshops and training sessions outside of the district? (Information acquisition)

Probe: If no, what type of training interests you most?

Probe: If yes, what kinds of workshops and training have you attended?

Probe: Does the district expect you to share information with your colleagues? (Information distribution)

Question 6: When you need information about curriculum priorities/initiatives, where do you go to get it?

Probe: Are there specific resources or people in the district who you can go to for support?

Question 7: Who do you seek out for expert professional advice? (Information distribution, organizational memory, information retrieval)

Probe: When considering who you reach out to, what criteria inform your choice?

Question 8: Are you provided opportunities to work collaboratively with colleagues? (Information distribution)

Probe: If so, what are those opportunities?

Probe: How do you use that time?

Question 9: How does the district get information about curriculum priorities/initiatives to you?

Probe: How do those work for you?

Probe: Are there ways that you prefer to get information?

Question 10: What is happening at the school level to address district priorities around curriculum?

Question 11: With whom, other than your staff, do you regularly communicate information around school and district priorities?

Question 12: Would you be willing to provide me with a few lesson plans and teacher generated assessments for review in our study?

Question 13: What, if any, opportunities do you have to provide your input and feedback to the school and district on curriculum reform efforts?

Probe: Do you believe that your feedback is accounted for and used in the ongoing curriculum reform efforts of the district?

Question 14: How have you used the year long plans and UbD units on your practice?

Probe: What factors drive your decision making in the implementation of these units?

Question 15: How would you rate the quality of the UbD units?

Scale: 1 – Low quality 3 – Reasonable quality 5 – High quality

Probe: When you consider the quality of the UbD units of study, what criteria factor into your rating of quality?

Appendix E

Archival Document Review

Stage	Timeline
1. Read all documents, no coding.	August 2015
2. Reflect and write initial summary of documents	
3. Code all documents for references to OLT/OLM/UbD	
4. While coding, record all keywords and phrases identified	
5. Using digital search tool, scan all documents for key words and phrases. Code keyword and phrase lists using document codes.	September 2015
6. Draft initial reflection/analysis of document review	

Appendix F

Informed Consent

Boston College Consent Form

Boston College Professional School Administrators Program (PSAP)

Informed Consent for Taking Part as a Subject in a Research Study

"District and School Leaders Methods of Implementing and Supporting Curriculum Reform"

Principal Investigator: Ian Kelly

<u>Why have I been asked to take part in the study?</u>

- Because you are a district leader, central office administrator, school leader or teacher over the age of 18
- Because you work with curriculum reform in schools

<u>What do I do first?</u>

- Before agreeing, please read this form.
- Before agreeing, please ask any questions you may have.

<u>What is this Study about?</u>

- What methods district and school leaders use to create and support curriculum reform.

<u>Who will take part in this Study?</u>

- **Approximately 30** school leaders involved in curriculum reform (i.e. superintendents, curriculum development administrators, school principals, and teachers) from Belvedere Public Schools.

If I agree to take part in this Study, what will I be asked to do?

1. Answer questions related to your experience with curriculum reform in your district for approx. 60 minutes.
2. If you do not wish to answer a question, you may choose to skip it.
3. Allow the *confidential* * interview to be recorded.
4. If you do not wish to have your answers recorded, please inform the interviewer, and your answers will not be recorded.

**Note: None of the Study participants will be identified by name. The recording will also be password protected in a secure research database. The recording will also be destroyed, without record, after May 01, 2016.*

What are the risks to being in the Study?

- There is a very small but potential risk that some school leaders and administrators, though unnamed, may be easily identified due to the uniqueness of their job title. This risk is minimal for teachers who participate in this Study.
- **There may be unknown risks at this time.**

What are the benefits to being in the Study?

- Information gathered in this Study may help administrators improve curriculum reform.

Will you be paid for participating in this study?

- There will be no payment to participate in this Study.

Will I be paid for conducting this study?

- There is no cost to you to be in this research study.

How will things I say be kept private?

- **All records (physical and electronic) collected during this study will be kept private. All interview transcripts and physical research materials are maintained in a locked office with the principal investigator. All electronic materials are stored in a secure database provided by Boston College.**

- **In any report published as a result of this study, the research team will not include any information that will make it possible to identify you. Doing so involves the use of pseudonyms for all individuals and schools participating in this study. The research team also considers carefully the use of direct quotes and the formats in which data are reported to further ensure confidentiality of participants.**

- All electronic information will be coded and secured using a password-protected file. All members of the research team Ian Kelly-Principal Investigator (PI), Andrew Berrios, Bobbie Finocchio, Marice Edouard-Vincent, and Tracy Curley will have access to the audio recordings. After May 1, 2016, all audio files will be permanently deleted by Ian Kelly, Principal Investigator.

- Only the research team will have access to information you provide. The Institutional Review Board at Boston College and internal Boston College auditors may review the research records upon request.

What if I choose to not take part or leave the Study?

- Taking part in the study is voluntary.
- If you choose not to be in this study, it will not affect your current or future relations with the University.
- You are free to quit at any time, for whatever reason.
- You will not be penalized or lose benefits if you stop taking part in the study.
- During the research process, you will be notified of any new findings from the research that may make you decide that you want to stop being in the study.

Will I be asked to leave the Study?

- We ask that you follow directions the best you can.
- If you are unable to do so, or the sponsor cancels the study, you may be asked to leave.

Who can I contact if I have any questions?

- The researchers conducting this study are Ian Kelly-Principal Investigator (PI), Andrew Berrios, Bobbie Finocchio, Marice Edouard-Vincent, and Tracy Curley. For questions or more information concerning this research you may contact Ian Kelly, Principal Investigator, at 774-292-6857 or ian23505@gmail.com.
- If you believe you may have suffered a research related injury, contact Rebecca Lowenhaupt at Rebecca.lowenhaupt@bc.edu who will give you further instructions.
- If you have any questions about your rights as a person in this research study, you may contact: Director, Office for Research Protections, Boston College at (617) 552-4778, or irb@bc.edu

Will I get a copy of this consent form?

- You will be given a copy of this form to keep for your records and future reference.

Statement of Consent:

- I have read (or have had read to me) the contents of this consent form.
- I have been encouraged to ask questions.
- I have received answers to my questions.
- I give my consent to be in this study.
- I have received (or will receive) a copy of this form.

Signatures/Dates:

Study Participant (Print Name): _____ Date _____

Participant or Legal Representative Signature: _____ Date _____