Organizational Learning Theory and Districtwide Curriculum Reform: Teacher Learning and the Efficacy of Organizational Learning Mechanisms

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# **BOSTON COLLEGE**

# Lynch School of Education

Department of Educational Leadership and Higher Education

Professional School Administrator Program (PSAP)

# ORGANIZATIONAL LEARNING THEORY AND DISTRICTWIDE CURRICULUM REFORM: TEACHER LEARNING AND THE EFFICACY OF ORGANIZATIONAL LEARNING MECHANISMS

**Dissertation in Practice** 

By

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with Andrew Berrios, Tracy Curley, Marice Edouard-Vincent, and Bobbie Finnochio

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#### ORGANIZATIONAL LEARNING THEORY AND DISTRICTWIDE CURRICULUM REFORM: TEACHER LEARNING AND THE EFFICACY OF ORGANIZATIONAL LEARNING MECHANISMS

By

#### Ian P. Kelly

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#### Abstract

This qualitative case study examined the organizational learning mechanisms used by school and district leaders to support professional learning within the context of curriculum reform. Elements of organizational learning theory provided a conceptual framework through which the researcher explored how teachers learned and how district leaders supported their learning about a district-wide curriculum reform. Data were collected through document review and semi-structured interviews with eighteen professionals from an urban district in the Northeast. Findings showed that (a) the district implemented an integrated system of organizational learning mechanisms to support teacher/instructional coach learning relevant to curriculum reform efforts, (b) teachers and coaches perceived these learning mechanisms to be effective in supporting their learning and (c) teachers and coaches demonstrated varying levels of understanding regarding the district's curriculum reform priorities. Recommendations included: (a) enhancements to school and district strategic planning documents, (b) connecting principals closely to the teaching and learning operations of the district and (c) implementing feedback mechanisms to monitor individual interpretations of district priorities.

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#### Chapter 1

#### **Introduction**<sup>1</sup>

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, 2011; 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 problem of practice (Bryk, Sebring,

<sup>&</sup>lt;sup>1</sup> 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

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, interdistrict 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 threestage 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) are 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

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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)

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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

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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.

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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

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).

Elements of organizational learning mechanisms\*

\*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

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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

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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<sup>2</sup>

#### **Research Design**

This study aimed to examine how district and school leaders use organizational learning theory (OLT) to 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 (OLMs) 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 OLT 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 represented the phenomenon that Yin (2009) was referring to while the individual professionals represent the context in which OLMs were situated. A case study design

<sup>&</sup>lt;sup>2</sup> 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

allowed the team to (a) study the experiences of individuals from across the district's organizational hierarchy and (b) leverage an analysis of the collective experiences of individuals to make inferences about the presence and function of OLMs in the Belvedere Schools.

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**

Selection of a research site that would allow for an effective analysis of OLT and OLMs within the context of curriculum reform required careful consideration on the part of the research team. 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 would qualify districts as potential research sites. (1) The district must, through review of strategic planning documents, evidence the implementation of curriculum reforms for at least three continuous years and (2) the district must serve between 5,000 - 10,000 students.

The duration of the curriculum reform was an important criteria given the research team's desire to uncover and analyze the existence and efficacy of organizational learning mechanisms. The longer a reform had been in place, the more likely the team believed it would be that (a) professionals were aware of and able to talk

about the reform and (b) organizational learning mechanisms were in place to support the reform. The team considered the size of the district to be a relevant selection criterion based on the logic that a smaller district might 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 administrators (n=3), principals (n=4), instructional coaches (n=4), and classroom teachers (n=6). This pool of eighteen participants represented the 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 appropriate or standards for sample sizes in qualitative research, the team sought to balance research goals and purposes,

drawing a representative perspective from the district, and the time and resources available for the project (Mason, 2010; Patton, 2002).

#### Instrumentation

The research team developed in-person interview and document review protocols that were tuned to reflect 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. From here, the team worked to frame the questions in the vernacular of Belvedere's ongoing curriculum reform efforts. Taking this step ensured that participants would understand the questions and, therefore, provides 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 describe to the interviewer what they believed the questions were asking them. Doing so provided the research team with 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. The research team reviewed participant responses 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, this time, 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 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). 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 protected the identity of participants and the research site.

### **Confidentiality and Consent**

Informed consent and participant confidentiality were essential to both the well being of participants and the validity of 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 their confidential

participation (See Appendix E for informed consent form). 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.

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 pages provide a detailed description of data collection and analysis procedures.

### **Data Collection and Analysis**

**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 D. 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, webbased platform was preferred but this preference 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 served to further inform our understanding of participants' experiences and the language and definitions of the district's reform efforts. Employing this added 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 document and transcript review attempted to identify and establish the extent to which ongoing curriculum reform efforts and district organizational learning mechanisms were aligned and agreed upon 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 (OLMs) 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 include the Superintendent, central office administrators, 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 were key starting points 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 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 was 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

Table 2

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.

Internal validity checks.

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.

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.

**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, & Li, 2008; Yin, 2009). The case study protocol utilized a format adapted from Brerton, Kitchenham, Budgen, and Li (2008) to clearly spell out the processes, procedures, and decision-making criteria for all elements of the current study (See Appendix F for protocol). 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<sup>3</sup>

The team research project focused on district and building level leaders' use of organizational learning theory (Argyris & Schon, 1978; Argote & Miron-Spektor, 2011; March & Simon, 1958) to implement and support curriculum reform. The demands and pace of the current education reform agenda in Massachusetts coupled with educators' moral and ethical responsibilities for students create a situation that requires effective leadership and districts that are characterized by professional learning. Educational leaders who support high levels of organizational learning build the internal accountability necessary for success within the context of rapid change (Collinson & Cook, 2007; Cousins, 1997; Darling-Hammond, Cobb, & Bullmaster, 1998; Elmore, 2006; Spillane & Thompson, 1997; Weick, 1998).

Research was conducted in an urban district of approximately 7,000 students in eleven schools. This district was situated in a community of approximately 53,000 residents in the Northeastern United States. The community represents a culturally and socio-economically diverse population that is reflected in the composition of the student population of the schools. The demographic breakdown of the student body is 39% White, 4% Black, 5% Asian, and 48% Hispanic. 79% of the student population was identified as economically disadvantaged and 14% receive services through special education.

In 2012, the research site partnered with other local school districts in an attempt to provide continuous learning experiences for transient students shared between the districts. Continuity of learning for transient students through a common curriculum was one of the primary goals of this partnership. This shared goal was the impetus for a

<sup>&</sup>lt;sup>3</sup> This chapter was written individually by Ian P. Kelly, M.Ed.

curriculum reform initiative launched in 2012 that continues today. The reform aimed to use a shared instructional design framework to shape curriculum maps and related units of study. From a brief review of publicly available district documents, including district and school improvement plans, it became clear that this curriculum reform had received attention in the form of dedicated personnel, professional training, and multiple curriculum committees throughout the district's professional hierarchy. The duration of the reform and the sustained attention it has received created an ideal situation for observing and analyzing organizational learning theory in practice.

A qualitative case study methodology (Creswell, 2008; Maxwell, 2013; Merriam, 2009; Yin, 2009) was used to gain insight into the systems and structures that the district employed to support organizational learning and curriculum reform. Data collection consisted of (a) semi-structured in-person interviews of school and district level administrators, instructional coaches and classroom teachers and (b) review and analysis of archival documents.

Multi-tiered data analysis took place during and after data collection using a constant comparative methodology (Miles, Huberman & Saldana, 2014). Defined characteristics of organizational learning, organizational learning mechanisms, and situated learning served as *a priori* conceptual frameworks for initial descriptive coding. This first level of coding and analysis provided the research team with an opportunity to look across the district at the presence of the curriculum reform and the organizational learning mechanisms designed to support it. The second level of analysis employed pattern coding to look at qualitative data from all eighteen participants to identify and

articulate similarities and differences in knowledge and understanding of the reform and the organizational learning mechanisms employed to implement and support it.

# **Research Questions**

The research site implemented Understanding by Design (Wiggins & McTighe, 1998) as a curriculum design framework for grades kindergarten through eight in 2012. An initial review of publicly accessible district level documents (district improvement plans, school improvement plans, etc.) indicated that the district had invested time and energy into planning and executing this reform initiative. Multi-tiered, interdisciplinary curriculum teams were formed to drive curriculum planning and professional development efforts and a central office administrator was hired for the sole purpose of coordinating this curriculum reform work. While much was happening across the district to support this work, classroom teachers were ultimately responsible for the implementation of the curriculum reform. As such, the learning and knowledge of teachers and coaches as it relates to the reform as well as the district's approach to supporting learning will provide insights into organizational learning throughout the district.

The specific focus of the research project will seek to answer the questions: (1) How do teachers and coaches learn about ongoing curriculum reform efforts in Belvedere? And (2) what inferences might the learning of teachers and coaches allow us to draw about the existence and efficacy of organizational learning mechanisms designed to support their learning?

## **Literature Review**

The current study is part of a broader examination of organizational learning within the Belvedere Public Schools. The research team's project focuses on organizational learning (Argyris & Schon, 1978; March & Simon, 1958) and organizational learning mechanisms (Popper & Lipshitz, 1998; Schechter & Atarchi, 2014) as theoretical frameworks. Conceptually, the research project sought to apply organizational learning theory in order to understand how district and building leaders implement and support curriculum reform efforts. While the research team did not anticipate participants speaking to and referencing the vernacular associated with the theoretical framework of this study, the theoretical framework provided a set of concepts through which we could analyze and interpret the actions and behaviors described by participants. My individual study focused specifically on teacher learning as it related to curriculum reform efforts and the organizational learning mechanisms employed to implement and support those efforts. As such, the situated learning of teachers within the district was a critical theoretical framework on which data collection and analysis were constructed.

The following literature review expands on the research team's preceding review of organizational learning theory and organizational learning mechanisms by first providing the reader with a closer look at individual learning and its relationship to organizational learning. The literature review then explores the concept of situated learning and cognition as a secondary theoretical framework for the current study.

# **Learning Defined**

For many years human learning was perceived as an individual act in which the learner internalized information from the physical world through direct experience (Bandura, 1977; Piaget, 1968; Thorndike, 1932). As theories of human learning evolved, ongoing research painted a far more complex picture of the cognitive processes and contextual variables that influence learning. Contemporary theories describe human learning as a developmental process that involves the learner's ability to acquire, process, store, retrieve, and apply information in novel contexts (Bransford, Brown, & Cocking, 2006; Bruning, Schraw, & Norby, 2011; Flavell, 1979; Gredler, 1992; Pintrich, 2002). Additionally, contextual theories of human learning also assert that humans learn within and influence situated contexts that are social, historical, and cultural (Bandura, 2006; Knapp, 2008; Lave & Wegner, 1995; Vygotsky, 1978). School districts are one social and cultural context in which teachers learn and, through their work with students and colleagues, reshape the social, cultural, and historical context of the district.

While it is clear that human learning is situated within social, cultural, and historical contexts, scholars of organizational learning theory have not attained consensus on the exact relationship between individual and organizational learning (Antonacopoulou, 2006; Argryis & Schon, 1978; Hedberg, 1981; Kim, 1993; March & Simon, 1958; Shaw & Perkins, 1992). While this relationship remains unresolved, there are points of consensus on organizational and human learning theories relevant to the current study. The first agreed upon position is that individual and organizational learning cannot be separated (Brown & Duguid, 1990; Friedman, 2001). The second position of agreement is that human learning is situated in natural, cultural, and social contexts (Cole & Engestrom, 1993; Starratt, 2000; Vygotsky, 1978). These two positions are explored further in the following pages.

#### Interdependence of Individual and Organizational Learning

Organizations, by their nature, are collections of individuals who seek to build a shared and common purpose and thus provide the social and cultural context for learning (Argyris & Schon, 1978). While the exact nature of the relationship between individual learning and organizational learning remains unspecified, the connection between the two is inarguable (Argote & Miron-Spektor, 2011; Brown & Duguid, 1990; Kim, 1993). Individual learning is both situated within and constrained by the organization in which the individual is a member (Antonacopoulou, 2006; Lave & Wegner, 1995; Starratt, 2012).

The common purpose of an organization gives rise to the shared norms, strategies, and assumptions that compose theories of action (Argyris & Schon, 1978). Theories of action state causal relationships between what organizations hope to achieve and the behaviors that they believe will ensure that those goals are realized. These causal relationships then inform the design of task systems, "... the design for work and a division of labor" (Argryis & Schon, 1978, pp. 14). Theories of action and task systems carry both explicit and implicit messages about the priorities and values of the organization. These messages have significant implications for the enculturation and learning of individuals within the organization. The explicit and implicit messages carried through the theory of action and related task systems are observed, experienced, and interpreted by members of the organization (Dodgson, 1993; Rook, 2013).

The individual's interpretations of organizational theory of action are referred to

as in the organizational mental models (Senge, 1990; Simon, 1991). The mental models that individuals formulate over time and experience shape their behaviors and actions within the organization (Bandura, 2006; Knapp, 2008; Lave & Wegner, 1995; Vygotsky, 1978). Thus, an individual's learning about the organization is both situated in and constrained by the organization. Given that (a) individual learning is situated in the organizational context, (b) the organizational theory of action and task systems exert an influence on individual learning, and (c) the learning of the individual influences the organization and its learning, it is important to understand theories of contextual learning as a theoretical framework for this study. Contextual theories of human learning will provided a framework for data collection and analysis that supported important insights into (a) how teachers and coaches learn about the current curriculum reform and (b) the existence and function of organizational learning mechanisms designed to support their learning.

# **Contextual Theories of Human Learning**

Vygotsky (1978) articulated a contextual theory of human learning. His work established the idea that human psychological processes are "culturally mediated, historically developing, and arise from practical activity" (Cole, 1997, p. 91). Since Vygotsky's work, scholars continue to explore and expand upon contextual theories of human learning (Bandura, 1997; Bronfenbrenner, 1979; Brown & Duguid, 1990; Collinson & Cook, 2007; Kolb, 1984; Lave & Wenger, 1991; Simon, 1991; Starratt, 2012) These theories vary in name but most of them presuppose that human learning is situated in a cultural, social, and historical context. Given the social and cultural dimensions of organizational learning, contextual theories of human learning present an appropriate theoretical framework for data collection and analysis within the current study focusing on teacher perceptions of curriculum reform and organizational learning. The following pages explore contextual learning theories including situated learning and communities of practice.

**Situated learning.** Situated learning theory is characterized by the belief that learning occurs within and is mediated by the social and cultural context in which human beings interact, work, and play (Brown, Collins, & Duguid, 1996; Kimbell & Hildreth, 2008; Kolb, 1984; Lave & Wenger, 1991; Orr, 1997). In his foreword to Lave and Wenger's (1991) seminal work *Situated Learning: Legitimate Peripheral Participation*, Hanks (1991) articulated the contextual dependency of situated learning, "Rather than asking what kinds of cognitive processes and conceptual structures are involved, they ask what kinds of social engagements provide the proper context for learning to take place" (p.14).

According to some learning theories, organizations are collections of people who aim to develop shared, common goals and purposes (Argyris & Schon, 1978). School districts also aim to establish common goals and purposes. In the case of the current study, the district's common goal and purpose aims to bring continuity to curriculum and instruction across the district's eleven schools. To achieve this goal, the district has established task systems to support the development of curriculum and the professional learning of educators. Given the interdependent relationship between individual and organizational learning and the socio-cultural nature of human learning, situated learning theory provided a valuable framework for building insights into how teachers and coaches learned about the operational curriculum reform in their district. It is the sociocultural nature of learning and, in the case of the current study, professional learning that created a situation in which the literature and research considering communities of practice became relevant as a framework for further analysis of organizational learning.

**Communities of practice.** "Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavor" (Wenger, 2011, pp. 1). Teachers and administrators working within the district shared a common human endeavor. This endeavor sought to reform the district's curriculum and bring continuity to learning expectations across the eleven schools. Given their shared human endeavor and learning, it can be said that these professionals participated in a community of practice (Lave, 1993; Wenger & Snyder, 2000). Conceptually, communities of practice provide a valuable analytical framework through which the context for professional learning and the district's organizational learning mechanisms were situated. The notion that teachers learn most effectively when they engage with colleagues in resolving job embedded problems of practice is consistent with situated learning theory and is well established (Avalos, 2010; Erickson, Brandes, Mitchell & Mitchell, 2005; Hadar & Brody, 2010; McLaughlin & Talbert, 2001).

The current study focused on teacher learning situated within a district engaged in curriculum reform since 2012. This study assumed the position that (a) organizational and individual learning is interdependent phenomena and (b) that teacher learning is situated in communities of practice. This study employed qualitative methods to explore the perspectives of instructional coaches and classroom teachers on district and school leaders' use of organizational learning theory to implement and support curriculum

reform.

## **Methods Justification and Data Analysis**

The current study employed a qualitative single case study methodology (Creswell, 2008; Maxwell, 2013; Patton, 2002; Stake, 1998; Yin, 2009) to examine how district and building leaders use organizational learning theory to support curriculum reform. My specific study attempted to answer the following research questions: (1) how do teachers and coaches learn about ongoing curriculum reform efforts in Belvedere? And (2) what inferences might the learning of teachers and coaches allow us to draw about the existence and efficacy of organizational learning mechanisms designed to support their learning?

# **Participants**

Purposeful and convenience sampling were used to select participants for in person interviews (Merriam, 2009; Patton, 2002; Weiss, 1995). Participating teachers and curriculum coaches were selected from the schools of participating principals. Once participating principals and schools were identified, staff lists were acquired and used to generate a random sample of potential participants that included teachers and curriculum coaches. All staff members in participating schools were assigned an identification number and a random number generator was used to select sixty potential participants. A recruitment email was sent to those identified and (see Appendix G for recruitment email) four participants were acquired. A second round of forty potential participants were selected and emailed using the same random number generation method. One participant was gathered during the second round of recruitment. A third and final round of potential candidates were selected and contacted using the same procedures detailed above. No participants were gathered in the third attempt to solicit participants.

Through three attempts to recruit participants, five teachers and instructional coaches agreed to participate in the study. This sample size was insufficient to meet the research goals of the current study. As a result, the researcher selected a school from which there were no participants and contacted the principal to ask for support in recruiting teachers and coaches to take part in interviews for the study. The principal agreed to help and five staff members were provided classroom coverage so that they could participate. This brought the total sample size to ten teachers and curriculum coaches. Participant descriptive data follows.

Participants represented a broad spectrum of experience spanning professional specializations (classroom teachers [n=6], instructional coaches [n=4], teachers of English Language Learners [n=1], and special educators [n=2]). Given their varied expertise and their experience in multiple schools in Belvedere (n = 7) most participants were able to provide a broad and rich perspective on organizational learning in the district. Teachers and content coaches represented a broad range in terms of years of experience. Three participants fell into the zero-to-five year range, four in the five-to-ten range, one in the eleven-to-fifteen range, none in the fifteen-to-twenty range and two with twenty-or-more years of experience. Only one participant in the sample has worked in a district outside of Belvedere. Here again, the breadth of time spent in the district provided the opportunity to analyze organizational learning from many different angles. The Belvedere Public Schools operates multiple schools that employ non-traditional school schedules that provide additional learning time for students and collaborative time for

teachers. Four of the ten participating teachers and instructional coaches worked in a school a non-traditional schedule. The six remaining participants worked in schools with traditional school schedules.

# **Instrumentation and Data Collection**

Archival document review. Document review procedures were employed to support, contextualize, and supplement data gathered through in person interviews (Berger, 2014; Creswell, 2008; Merriam, 2009; Patton, 2002). Document review was conducted in two phases, pre-interview and post-interview. The pre-interview document analysis focused on building the research team's contextual understanding of the ongoing work in the Belvedere Public Schools (Merriam, 2009). The post-interview round of document analysis was conducted to further contextualize and to confirm/disconfirm data gathered through participant interviews.

**Pre-interview document review.** Document review was conducted using publicly accessible documents. The research team reviewed district and school based web sites to acquire these documents. Given the study's focus on organizational learning within the context of ongoing curriculum reform, it was important to build a conceptual understanding of the work underway through strategic planning and curriculum documents. This review supported my research in two primary ways. First, the information I gathered through pre-interview document review helped me to shape my interview questions and provided me with the background knowledge to support informed follow up questions during interviews. Secondarily, my knowledge of the district's work improved my credibility with participants. Their time is incredibly valuable and I felt it was important to demonstrate to them that I was informed about their work and conducting a legitimate inquiry through this research. In turn I believe that this helped to create an environment in which participants were open and honest in response to my questions.

**Post interview document review.** A second review of documents was conducted during and after participant interviews. This review consisted of primary source documents gathered from participants during interviews (Merriam, 2009). These materials included meeting agendas and notes, internal communications, and internal digital resources developed by the district. During the data analysis phase of this research project, these primary source documents represented a rich source of information that was used to contextualize data gathered during interviews and to confirm/disconfirm participant responses. These documents were also critical in the analysis of key elements of the theoretical framework including organizational knowledge, organizational memory, information distribution and information retrieval.

Semi-structured in-person interviews. Participant interviews were a primary source of evidence in the current study. As such, the quality of interview questions was (a) an important methodological consideration and (b) critical to ensuring results that were both relevant to the theoretical framework and research questions and valid. Interview protocols were first developed using Schechter and Atarchi's (2014) questionnaire as a guide to ensure that key elements of the organizational learning theoretical framework were addressed through the questions. Once initial questions were developed, I added questions that addressed other elements of my theoretical framework for this study. These included situated learning and communities of practice.

Once the interview protocols were drafted, the research team reviewed them to ensure that all data collection needs were addressed. As each individual study addressed different elements of the overarching theoretical framework, it was important to ensure that the interview protocols were designed to capture data that effectively addressed the needs of each study. To accomplish this goal all questions were coded according to which elements of the theoretical framework they addressed and to which individual studies they were relevant. Once coded a gap analysis was conducted by each member of the team that identified which of their research needs were adequately addressed within the protocol and which research needs required attention within the protocol. The gap analysis was then used to revise existing questions and, when necessary, add additional questions to support the data collection needs across these studies. Interview protocols were then subjected to reliability and validity checks.

Cognitive interviewing was employed first to ensure that the interview questions addressed the concepts they were designed to probe (Merriam, 2009). In this phase of development, three cognitive interviews were conducted. During the interview volunteers were asked to review the questions and identify what they believed the questions were asking them. Responses were recorded and used to refine the interview questions. Revised protocols were field tested and again revised based upon the feedback from these mock interviews. The final interview protocol can be found in Appendices A-D.

Semi-structured, in-person interviews were conducted with four content area coaches and six teachers. These interviews aimed to identify (a) what teacher and coaches understand about district priorities around curriculum reform and (b) the organizational learning mechanisms that teachers and coaches rely on for learning (Creswell, 2008; Merriam, 2009; Seidman, 2006). In-person interviews were conducted at various school sites at times that were convenient for participants. All interviews were recorded with the consent of participants. The informed consent form can be found in Appendix E. Interview protocols were semi-structured to support uniform data collection but provide flexibility for follow up questions to dig more deeply into relevant topics or to manage unforeseen responses from participants (Creswell, 2008; Merriam, 2009).

Once complete, interviews were transcribed using a web based transcription service. Each completed transcript was reviewed in conjunction with the audio recording from the interview to check for accuracy and correct any mistakes made by the transcription service. Transcripts were then emailed to individual participants for review and, if necessary, corrections. Corrected and finalized interview transcripts were stored in an encrypted, password protected research database to ensure the confidentiality of participants. Once stored all audio files were destroyed to further protect the identity of participants.

#### **Data Analysis**

The interdependent nature of this team research project required a high degree of collaboration and coordination during the analysis phase of this study. As data was gathered, the research team employed a constant comparative methodology (Miles, Huberman, & Saldana, 2014). This practice engaged the team in ongoing dialog regarding the process and progress of the research as well as reflection on the data collection and evolving analysis. Doing so supported the overall validity and reliability of the analysis and consequent findings (Merriam, 2009; Miles, Huberman & Saldana, 2014).

**Coding.** Coffee and Atkinson (1996) discuss coding as "... conceptualizing the data, raising questions, providing provisional answers about the relationships among and within the data, and discovering the data" (pp. 31). Coffey and Atkinson's (1996) description of the coding process coupled with the interrelated nature of our team's theoretical framework and research questions made collaborative coding using a constant comparative method the appropriate choice for this research project.

Early in the coding process, the research team employed descriptive coding with a small sample of interview transcripts. This served three goals. First, the process of collaborative descriptive coding allowed us to refine the codes and develop a shared understanding of their application in the broader coding process. Secondarily, this collaborative coding allowed us to calibrate code application across the team thus enhancing continuity in coding and the reliability and validity of findings. Finally, this engaged the team in "discovering the data" (Coffey & Atkinson, 1996). Through collaborative coding early in the process we were able to enhance our collective interpretation and understanding of the phenomenon we were discovering through the data.

Throughout the coding process I employed memos and diagrams to further my understanding and analysis of the data. These memos and diagrams provided me with critical opportunities to reflect on the data and the themes that were emerging through it. Strauss and Corbin (1990) suggest that memos and diagrams are "…important elements of analysis and should *never* be omitted, regardless of how pressed for time the analyst might be" (pp. 198). Memos and diagrams were critical to the efficacy of my analysis in that they required me to step back from the data, reflect, consolidate my thinking, and

deepen my understanding of the phenomenon I was uncovering through my work (Strauss & Corbin, 1990).

#### Results

Through this study, I sought to understand (1) what teachers and instructional coaches know and perceive about the district's ongoing curriculum reform priorities and (2) the existence and efficacy of district organizational learning mechanisms used to support teacher and coach learning relevant to ongoing curriculum reform efforts. My analysis of interview transcripts and archival documents yielded two major findings.

The first finding indicated that the Belvedere Public School system employed an integrated system of organizational learning mechanisms. This integrated system employed print/digital resources, human information networks, and collaborative structures for professional learning. These three organizational learning mechanisms were described as in interdependent and fluid system that supported professional learning.

The second finding indicated that, despite this integrated system of organizational learning mechanisms, teachers and coaches held varying perspectives and understandings of district priorities. Through analysis of district strategic planning documents and interview transcripts it became clear that the district had articulated a broad range of strategic priorities and that these priorities were not (a) aligned between strategic planning documents or (b) commonly understood to be strategic priorities by study participants. As we shall see, the broad range of priorities and the relatively low levels of alignment and common understanding created obstacles to efficient organizational learning.

### **Integrated Organizational Learning Mechanisms: Tools for Professional Learning**

In order to gain insights into the organizational learning mechanisms (OLMs) that the district employed to support professional learning relevant to the ongoing curriculum reform, teachers and coaches were asked to identify where they gather information relevant to district curriculum reform priorities. Through their responses, participants identified three interrelated OLMs as critical information acquisition points, (1) collaborative team structures, (2) print/digital resources and (3) human information networks.

**Collaborative team structures.** Socio-cultural theories of human learning suggest that knowledge is (a) culturally mediated and (b) socially constructed. It is within these cultural and social contexts that individuals like teachers and instructional coaches work to interpret and make sense of relevant organizational information. As such, teachers and coaches were asked to discuss the opportunities that they have to engage collaboratively with colleagues in the district's ongoing curriculum reform initiatives. In all interviews, teachers and coaches referred to two collaborative team structures, common panning time (CPT) and professional learning communities (PLC) as their primary source for professional learning as it relates to ongoing curriculum reform. Both CPT and PLC refer to job-alike teams of professionals (i.e. third grade teachers, science teachers, special educators, etc.) that meet regularly to plan curriculum, analyze student performance, and revise curriculum.

After identifying CPT and PLC as primary sources of professional learning, probing questions were employed to gain a deeper understanding of the reasons teachers and coaches perceived these collaborative team structures to be effective. Through this secondary line of inquiry, teachers and coaches indicated that these OLMs were useful to

them because they provided a forum to discuss the ongoing curriculum reform, to share ideas and expertise with colleagues, and to plan learning opportunities for students. In their explanations teachers and coaches consistently (80% of participants) referenced (a) print and digital resources provided by the district as supports for their learning and (b) human information networks that they leverage for professional learning.

**Print/digital mechanisms for organizational learning.** Organizations store information and knowledge in many formats and in different locations. Organizational knowledge can be stored, amongst other places, in media (documents, spreadsheets, email, etc.) and in people who might hold historical organizational information or specialized training/expertise critical to the organization's function. Regardless of the format, these systems for retention and storage of organizational knowledge are known as organizational memory. Organizational memory (OM) is a critical component of OLMs in that it serves as a repository for (a) functional and procedural information and (b) expert knowledge and perspective. In addition to a repository, print/digital sources of OM provide an added benefit to organizations in that they codify knowledge that (a) can easily be distributed and referenced within the organization and (b) is more objective than knowledge stored and distributed by individuals within the organization.

The Belvedere Public Schools invested significant time and energy in developing curriculum maps and, as a result, codified student learning expectations and created a rich source of organizational memory that teachers and coaches identified as a (a) focal point for information acquisition/retrieval and (b) a cornerstone of collaborative structures for organizational learning.

During interviews with instructional coaches and classroom teachers, participants

were asked to identify where they go to get information about district curriculum priorities. The goal in asking questions on this subject was to gain insight into the ways in which these individuals acquire/retrieve information and what organizational memory mechanisms they rely upon to access that information. Reliably, participants referred to the curriculum maps as a primary source of information related to the ongoing curriculum reform.

In talking about the curriculum maps as a source of information, teachers shared that they went first to these documents because they reflected the tangible outcomes of the reform initiative and that they were relevant to (a) their day to day work in the classroom and (b) their professional learning. I will tackle the application in day-to-day work here and discuss the relationship of curriculum maps to professional learning later in the analysis.

Teachers and coaches cited two ways in which the curriculum maps served as primary sources of information within the context of the ongoing curriculum reform. First, curriculum documents codify the tangible scope and sequence of the content for teaching and learning. Teachers expressed that this structure assured them that, as one teacher put it, they were "covering everything they need to cover." Secondarily, teachers and coaches shared that the maps also support coherence between multiple moving parts of the overall curriculum reform effort. One classroom teacher discussed this coherence building extensively during her interview, "I have to follow my curriculum map for reading, so we have four themes a year. Within those are the negotiable and nonnegotiable. I have to follow parts and others not so much. There are certain stories that we have to use. Then there's other stories over here [indicating a different location on the

curriculum map], that if I want to put in I can." During this conversation the teacher shared that both the non-negotiable elements of the curriculum are identified through the maps but that the negotiable elements were also identified within the maps. She cited that the maps included suggestions for stories and resources drawn from other print and digital resources provided by the district. Another teacher also highlighted the use of the curriculum maps to align standards with district wide benchmark assessments.

In addition to laying out a scope and sequence of content standards, the curriculum maps encapsulated the timing of benchmark assessments and the use of new curriculum resources. Both new and veteran teachers expressed that they felt there were many moving parts (i.e. new print and digital resources, new technologies, etc.) within the current curriculum reform and that, at times, this felt overwhelming to them. They reported that, while it could feel overwhelming, the curriculum maps were reassuring because they were comprehensive and captured, as one teacher stated, "all that was going on with changes in curriculum."

As a print resource, the curriculum maps capture highly sophisticated and specialized organizational knowledge. These documents clearly represent the organizational knowledge embedded in the learning standards and their temporal sequence. That being said, it was only when these maps were situated, through participant responses, in the process of their development and revision within communities of practice (i.e. curriculum review committees) that the true complexity of the organizational knowledge they captured became clear. Teachers and instructional coaches (80% of participants) indicated that the district employed intentional and ongoing mechanisms to capture their feedback and, in turn, revise and improve the maps over time. As such, the curriculum maps also captured the learning and knowledge that teachers and instructional coaches constructed through their implementation of the curriculum and subsequent review of the curriculum in various communities of practice. In considering the types of organizational knowledge and learning embedded in and captured by the curriculum maps, the teachers' and coaches' perceived centrality of these maps to the human information networks and collaborative structures began to take shape.

Human information networks. Individuals within an organization, like print/digital resources, represent repositories of organizational memory in that they retain accumulated knowledge, organizational history, and practical experience. Beyond organizational memory mechanisms, individuals also represent information acquisition, interpretation, and distribution points. Given that (a) individual learning is situated in socio-cultural contexts and communities of practice and (b) individuals are critical sources of and distribution points for organizational information and knowledge, an analysis of the human information networks was critical to gaining further understanding of how information moves through Belvedere's organizational learning mechanisms.

In order to explore the distribution of information, the researcher asked teachers and instructional coaches to identify who they go to for (a) organizational information relevant to the ongoing curriculum reform and (b) expert professional advice. In response to this line of inquiry, participants reliably identified curriculum directors, instructional coaches, and teachers as primary information sources. When describing professional pathways to information, coaches and teachers described a clearly defined, integrated, fluid human information network supporting the interpretation, acquisition, and retrieval

of organizational information.

Relationships within these human networks were described as being both linear and non-linear in nature. Teachers and coaches did express primary sources for information acquisition and retrieval, i.e. teachers go to coaches first and coaches go to curriculum directors first. However, both groups of participants described situations in which they would go directly to curriculum directors or higher-level central office administrators to acquire/retrieve information relevant to the district curriculum priorities. One teacher described the fluid nature of professional relationships within these human networks,

In the past where I was teaching both content areas I would always just go to my literacy coach and my math coach. They would work within their network to come up with whatever we were asking for. Beyond that, if I needed something more I could always go to the STEM director who also was math, and then our elementary reading director, both really good sources.

All participants indicated that they felt comfortable accessing information in this way and that they were encouraged to do so.

In all interviews with teachers, responses about information retrieval and distribution consistently referred to literacy and math coaches as a primary resource for ongoing learning relative to curriculum reform efforts. Paralleling this, all curriculum



coaches interviewed identified curriculum directors as their primary source of information and learning relevant to the district's curriculum priorities. In interviews with teachers and coaches, individuals also indicated comfort moving in a non-linear pathway through the network of human resources in order to gain the information they were looking for. Figure 2 depicts the linear and nonlinear pathways of information distribution and acquisition within BPS OLMs.

# *Figure 2:* Human information networks that facilitate the distribution of organizational information The coinciding linear/nonlinear nature of the relationships within these human

resource networks demonstrated that professionals within the Belvedere Public Schools felt that human resources are accessible and that the district expected and supported this type of collegial interaction and learning. These human resource networks for organizational learning were consistent with socio-cultural theories of learning and research supporting learning in communities of practice. While the analysis to this point has defined the basic pathways by which information appears to move within these human information networks, it is also important to note the nature of the interactions within these networks, as they also appeared to influence individual and organizational learning.

During interviews, participants were asked to identify where they go to gather information and expertise relevant to the district's curriculum priorities. While they were not asked to do so, every participant went on to describe the content and quality of those interactions. In describing the nature of their interactions, all participants described exchanges characterized as supportive, collaborative and, solution oriented. In a discussion with one participant who had worked in different roles and buildings across the district, captured both the movement of information and the open and fluid nature of human information distribution and acquisition within the district,

You don't have to even go to a colleague just within your grade level. There were many times at the Smith Elementary where I would seek out someone from a different grade level and say, "The fourth grade we are always in this. We need an outside view. What do you think about this? Or how does this relate to your grade level so that I can see how it builds into my grade level?" Or if I talk to a fifth grade teacher, "Where do my kids need to go with this? Am I heading in the right direction with this standard or topic or whatever?"

This interaction was noteworthy for two reasons. First, as mentioned above, it captured the fluid nature of collaborative interactions and, therefore, the movement of information within the district. Eight of the ten teachers and coaches interviewed shared anecdotes that echoed this type of interaction. As far as organizational learning is concerned, this was critical in that it captured information distribution, information interpretation, information acquisition/retrieval, and organizational memory. Colleagues in Belvedere were perceived as sources of organizational knowledge and memory as indicated by teachers and coaches consistently pointing to one another as sources of information and advice. This perception is what initiated the information acquisition, distribution, and retrieval from perceived source of organizational knowledge/memory to the individual seeking that knowledge/memory. In turn, this process of distribution, interpretation, and retrieval supported individual learning.

Secondarily, the anecdote cited above provided insight into the individual learning of professionals in Belvedere. Autonomy, empowerment, and ownership are

essential to individual learning and Belvedere created these conditions. In those teacher's words she captured the empowerment she feels to approach colleagues that are in direct proximity to her in terms of both physical location and role as well as those who are not in direct proximity to her physical location or role in the district. This interaction with the participant also indicates the autonomy and ownership that she feels not only in terms of seeking information but also in terms of asking important questions about the curriculum and seeking solutions to problems of practice.

Teachers and coaches know where to go and feel comfortable going to colleagues to gain information and advice as it relates to the ongoing curriculum reform and other aspects of their work. This comfort and trust in one another to solve pressing problems of practice suggest that teachers and coaches feel both empowered in and ownership of the curriculum. As discussed earlier, the curriculum maps provided important guidance in terms of the elements of the curriculum that were expected as well as those that were negotiable. Here we saw that the human information network composed of curriculum directors, instructional coaches, and teachers believed that they had the autonomy to interpret the maps, to solve problems with colleagues, and to make adjustments to practice in the classroom based on organizational learning and knowledge.

Interdependence of OLMs in the Belvedere Schools. In all interviews it was noteworthy that teachers and coaches did not, at any point, refer to or discuss any element of district organizational learning mechanisms as stand alone entities. As discussed earlier, teachers and coaches discussed the utility of curriculum maps in the classroom but shared that these maps provided common ground for rich professional dialog and problem solving within the collaborative structures implemented by the district. 100% of
teachers and curriculum coaches reported that instructional coaches and/or curriculum directors were present and available to support the review of curriculum maps, student assessment data, or teacher problem solving.

Beyond the interdependent elements of the districts organizational learning mechanisms, teachers and coaches also described another layer of interdependence in the planning and evolution of the organizational learning mechanisms themselves. Teachers and coaches were asked to discuss and describe the opportunities that they had to (a) engage in decision making and planning as it relates to the ongoing curriculum reform and (b) provide feedback about the implementation and ongoing work relative to the curriculum reform. In all instances, teachers and coaches discussed specific mechanisms that the district employs to engage teachers in the implementation and ongoing refinement of the district curriculum priorities and the organizational learning mechanisms employed to support and sustain them. This theme was present in all interviews but the nuanced descriptions of this phenomenon were consistent in interviews with teachers who had accumulated five or more years (n = 8) within the Belvedere schools and/or who had served in multiple roles/buildings (n = 4) within the district.

Teachers and coaches with more extensive experience in and perspective on the district's curriculum priorities spoke at length about the cyclical nature of feedback and improvement in BPS. These teachers and coaches described one system put in place by the curriculum director, "... they are constantly updating, [curriculum director] is great at the end of the year asking a team of teachers to come together to say, 'What worked? What didn't work? What have we added? How do we update it?' Then let's get back to the teachers." This anecdotal description of the curriculum revision process is indicative

of the district's ongoing use of collaborative mechanisms for organizational learning that provide individuals with communities of practice in which they interpreted organizational information and built new understanding of the district's curriculum priorities.

Furthermore, teachers and coaches viewed the curriculum revision system described above as a legitimate feedback channel in that individuals saw their feedback and ideas reflected in the updated curriculum maps. One teacher provided a particularly relevant statement describing the legitimacy they perceived in the process, "Yeah. They [the curriculum maps] definitely look different. I know personally, from a [content area] perspective, the curriculum was all over the place... the curriculum was difficult to follow. And it did get changed a lot this past summer. Yeah, it's an improvement." This revision process clearly employed the feedback that teachers provided to improve the curriculum maps and, therefore, the ongoing curriculum reform efforts of the district. Here again, the statements of teachers and instructional coaches reflect feelings of empowerment and ownership that were critical to individual and organizational learning. The data described here suggested that the integrated system of OLMs employed by the district were perceived as effective and appeared to have a positive influence on the learning of teachers and instructional coaches.

#### **Teacher Learning and the Efficacy of Organizational Learning Mechanisms**

As described above, the Belvedere Public Schools deployed an integrated system of organizational learning mechanisms (OLMs) to support professional learning for teachers and coaches. The study's second research question focused on examining the efficacy of the district's OLMs through the lens of what teachers and instructional coaches knew about the ongoing curriculum reform. In exploring teacher knowledge of

the ongoing curriculum efforts, it became clear that (a) the district's stated curriculum priorities in strategic planning documents and interviews with district leaders were both broad in scope and low in agreement and (b) teachers and coaches awareness of and ability to articulate curriculum priorities varied widely.

Strategic curriculum priorities: A framework for professional learning. Before analyzing the efficacy of the district's OLMs, it was necessary to understand which curriculum priorities were most important to the district and, therefore, which curriculum priorities we would expect to hear teachers and instructional coaches refer to during interviews. To conduct this initial inquiry, the researcher reviewed district level strategic planning documents and the interview transcripts of central office administrators and principals.

A review of district and building level strategic planning documents yielded data that indicated a broad range of strategic priorities and a low level of alignment between plans. District improvement plans (n=3) yielded 340 strategic priorities while school improvement plans (n=4) yielded forty-six strategic priorities. Within district and school improvement plans, 3.8% and 8.7%, respectively, of strategic priorities were directly aligned with the ongoing curriculum reform efforts of this district. In terms of alignment across school improvement plans, 6.5% of the forty-six identified strategic priorities appeared in all four of the plans reviewed. The broad scope of priorities coupled with a low level of alignment within and between strategic planning documents suggested that participants' responses may reflect variations in which curriculum reforms teachers and coaches perceive to be the priorities of the district.

To further create the context in which teacher and coach perceptions of district

priorities were situated, the researcher reviewed the interview transcripts of all building and district leaders (n=8) who participated in the study. When asked to identify district curriculum priorities, district and school leaders articulated eleven unique initiatives/priorities (See Table 3). Within those eight priorities the two mentioned most frequently were (1) curriculum alignment to the Common Core State Standards (62.5% of leaders) and (2) inter-district collaboration (62.5% of leaders). Here we can see that the articulated priorities (those identified through interviews) were for more narrow in scope and tighter in alignment than the written priorities (those identified through document review). This data stands in contrast to the information found through a review of strategic planning documents and suggests that teachers and instructional coaches may be more aligned around district curriculum priorities than document analysis would indicate.

Table 3

Priority	Admin	Principal	Teacher/Coach
Curriculum alignment to CCSS	62.5%	25%	60%
Inter-district collaboration	62.5%	50%	50%
New reading series	25%	50%	30%
Curriculum maps	12.5%	0%	30%
New math program	0%	0%	30%
Four Rs	12.5%	25%	20%
UbD	25%	25%	10%
Transient populations	12.5%	0%	10%
Professional development	12.5%	0%	10%
Reading partnership	12.5%	25%	10%
UDL	0%	0%	10%
ELL and literacy	0%	0%	10%
Online assessment tool	0%	0%	10%

District priorities identified by participants.

Keys to Literacy	0%	0%	10%
Math instructional practices	12.5%	25%	0%
Literacy instructional practices	12.5%	25%	0%

District and school level documents articulated a broad range of strategic priorities (n=46 and n=340 respectively) in the Belvedere Public Schools. Participant interviews with school and district leaders articulated a set of strategic priorities that were far more focused (n=16) than those articulated in the documents. Documents achieved a level of priority agreement (3.8% in district improvement plans and 6.5% in school improvement plans) that was far lower than that achieved between participating school and district leaders (62.5% of school and district leaders). The high volume of identified priorities coupled with relatively low levels of agreement between documents and school/district leaders may have created a situation in which (a) the district's print and digital resources may have sent information that was inconsistent with that being communicated by leaders and, as a result, caused teachers and coaches to have a hard time articulating a consistent understanding of the district's strategic priorities.

**Teacher and coach perceptions of district priorities.** During in-person interviews, classroom teachers and curriculum coaches were also asked to identify the district's curriculum priorities. Review of transcripts revealed sixteen unique curriculum priorities (See Table 3) Consistent with district/school leaders, 60% of teachers and coaches identified (1) curriculum alignment with Common Core State Standards and (2) inter-district collaboration as district priorities. This analysis suggests that individual perceptions of district priorities within the organization are, to some extent, aligned (60% of teachers and coaches/62.5% of district and school leaders). While this is certainly positive, the curriculum priorities articulated through interviews did not align with the written curriculum priorities that appeared most frequently in district/school improvement plans.

Relative to the disparate district priorities identified through document review, participant interviews framed a more cohesive (sixteen identified priorities) and aligned (62.5% of leaders and 60% of teachers/coaches match on curriculum alignment to CCSS and inter-district collaboration) picture of district curriculum priorities. This data indicates that the human sources appear to be a more reliable and trusted source of organizational information than the print resources represented by the strategic planning documents (See Table 4). Furthermore, the current analysis suggests that the integrated system of OLMs employed by the district supports the learning of teachers and instructional coaches.

#### Table 4

District I nority Augnment. Documen	i Review VS. I	ariicipuni Kesponse	
Source	n	# of Priorities	% Agreement
District improvement plans	3	340	3.8%
School improvement plans	4	46	6.5%
School/district leaders	8	11	62.5%
Teachers/coaches	10	16	60%

District Priority Alignment: Document Review vs. Participant Response

# Discussion

Organizational learning theory suggests that an organization's theory of action represents the causal relationship that an organization draws between its goals and the behaviors it believes are necessary to achieve those goals (Argyris & Schon, 1978). Based upon those beliefs, organizations build task systems (organizational learning mechanisms) that are intended to operationalize coordinated behaviors and, in theory, achieve organizational goals. Individuals work within task systems and, through their work and experience, develop mental models that represent their interpretation of the organizational theory of action. The notion that organizational learning mechanisms (OLMs) are designed to achieve desired organizational outcomes and that they influence individual interpretations of the district's theory of action was critically important to the current study.

As part of a broader study focusing on district and school leaders' application of organizational learning theory to implement and support curriculum reform, the current study investigated the organizational learning mechanisms (OLMs) employed by the district to support the learning of teachers and instructional coaches. This inquiry was driven by two overarching research questions: (1) how do teachers and coaches learn about ongoing curriculum reform efforts in Belvedere? And (2) what inferences might the learning of teachers and coaches allow us to draw about the existence and efficacy of organizational learning mechanisms designed to support their learning?

The initial analysis conducted sought to understand how the district's teachers and instructional coaches learned about the ongoing curriculum reform. Participant responses indicated that the district employed an integrated system of OLMs that were the focal point of professional learning for teachers and coaches. These OLMs include collaborative teaming structures, digital/print resources, and human resource networks. Secondary analysis sought to gain insight into the efficacy of district OLMs by

identifying what teachers and coaches perceive to be the curricular focus and priorities of the district and the extent to which those perceived priorities align with the priorities identified by school and district leaders. Through this line of inquiry, data indicated that 60% of teachers and coaches identified curriculum priorities consistent with those articulated by school and district leaders.

The corollary to this alignment between teachers, instructional coaches, and school/district leaders is the misalignment. While data indicated that 60% of teachers and coaches identified the same priorities as school/district leaders, this same data indicated that 40% of teachers and coaches were not able to identify curriculum priorities consistent with school/district leaders. Given that (a) the individual mental models, accurate or inaccurate, of the organization strongly influence behavior and (b) the finding that teachers and coaches rely heavily on human resource networks and collaborative teaming structures, the alignment/misalignment of individual perceptions of district curriculum priorities was critically important to the development of recommendations.

If the human resource networks in Belvedere heavily influenced the distribution and perception of critical district information, how might those networks be improved to enhance organizational learning across the Belvedere schools? If accurate/inaccurate mental models representing district curriculum priorities influenced individuals working within human resource networks, what might the district do to ensure a higher degree of accuracy in individual interpretations of curriculum priorities throughout the school system? The following pages provide detail and rationale for three overarching recommendations that attempt to answer these questions: (1) Improve the articulation and alignment of district/school strategic planning documents and establish them as key resources for organizational learning, (2) Deploy and monitor collaborative structures at the building level that connect principals more closely to the human resource networks that support organizational learning, and (3) Implement feedback mechanisms that measure and monitor organizational learning relevant to ongoing curriculum reform efforts.

# Articulation and Alignment of Strategic Planning Documents

Digital/print resources are critical repositories of organizational memory. As we saw in Belvedere, the curriculum maps developed by professionals in the district codified the curriculum and all of the organizational knowledge brought to bear in their initial creation and subsequent revision over time. Teachers and instructional coaches perceived the curriculum documents as fluid and evolving over time based upon their analysis and subsequent feedback to the district. This in turn engendered teacher/coach ownership of an empowerment within the ongoing curriculum development process. As a result, the curriculum documents were highly regarded by coaches and teachers and provided not only a map for their work in the classroom but guideposts for their work within the collaborative teaming structures established by the district.

Given the value and potential seen in the curriculum maps, the district should make every effort to elevate the status of school and district improvement plans to parallel that of the curriculum maps. To do so, I strongly recommend that these documents (a) include fewer, high leverage strategic priorities that are consistent across schools and departments, and (b) articulate those strategic priorities in clear, accessible language with sufficient detail to support stakeholder understanding.

As they are currently structured, the scope and variance of district priorities across

school and district improvement plans creates a situation in which people are (a) unable to gain a clear understanding of true district priorities and (b) unable to focus on those key priorities. By trimming down the documents to include only key strategic initiatives and ensuring that those strategic initiatives are identified in all school/district improvement plans, Belvedere will increase the probability that professionals within the district will develop accurate mental models of district curriculum priorities.

Current school and district improvement plans are not written in accessible language or with sufficient detail. These issues diminish the value of these documents and, as a result, none of the teachers and instructional coaches identified them as a source of information relating to the ongoing curriculum reform. These strategic planning documents should be written in clear, jargon free language and with sufficient detail to ensure that any stakeholder is able to read and understand the strategic priorities of the district. Doing so increases the probability that (a) individuals will build accurate representations of the district's strategic curriculum priorities and (b) that the documents will be perceived as valuable to the organization. In this way the strategic planning documents could complement the curriculum maps as guideposts for work and enhanced organizational learning.

#### **Collaborative Structures that Connect Principals**

Principals who are perceived to be instructional leaders are an essential component of effective schools (Babo & Ramaswami, 2011; Catano & Stronge, 2007; Glasman & Heck, 1992; Hallinger, 2003). In Belvedere, (a) principals are perceived as essential to the management and operations of the schools but are absent in participant discussions of teaching and learning and (b) principals engage differently in the teaching

and learning systems of their schools. As a result, I believe that this may have contributed to the varying perceptions of district priorities and, therefore, present unintended barriers to organizational learning.

As teachers and coaches indicated that principals were effective in the management and operations of their buildings, I strongly recommend the district maintain these functional systems and structures while considering recommendations to systematically connect principals to building level teaching and learning operations. Specifically the district should ensure that all principals meet regularly with instructional coaches to review current issues relating to teaching and learning.

Instructional coaches and principals represent rich sources of organizational knowledge relevant to (a) the implementation of district curriculum priorities and (b) the practices and needs of teachers. In some instances, principals and instructional coaches meet regularly to share and process this information and to coordinate planning and support for the teaching and learning mechanisms in the building. In buildings where this practice is not present, opportunities for information distribution and interpretation are missed and, therefore, organizational learning is stifled. The systematic connection of principals and instructional coaches may build greater continuity in terms of interpretation of and focus on district curriculum priorities and, in doing so, remove barriers to organizational learning.

While accountability was not a focus of the current study, it was addressed in the connected studies of superintendents and central office administrators. To support this research, teachers and coaches were asked to identify the district's accountability mechanisms. Student performance data (80% of participants) and educator evaluation

(70% of participants) were identified as key accountability mechanisms employed by Belvedere. The current recommendation to systematically connect principals to building level teaching and learning processes may also add value to the district's educator evaluation accountability mechanism.

Instructional coaches work directly with teachers to support classroom practice and with teacher teams to support work during common planning time and professional learning communities. As such, they possess critical organizational knowledge about teaching, learning, and teacher interpretations of district priorities. Principals who access this source of organizational knowledge retrieve useful information that could be used to enhance their work to support teachers and teams of teachers. In addition, this kind of information sharing may support more consistent communication from principals and instructional coaches and, potentially, decreasing the variability in teacher interpretations of district curriculum priorities.

#### **Feedback Mechanisms for Organizational Learning**

An organization's theory of action articulates goal-oriented behavior and drives the development of organizational learning mechanisms (OLMs). As discussed earlier, the individuals within those OLMs, through time, experience and interaction with the organization, develop mental models of the theory of action. As we saw in Belvedere, the development of curriculum maps by collaborative teams was a key OLM that supported the district's theory of action.

What stands out most clearly about this specific OLM is that a feedback mechanism was embedded and utilized to continually monitor and improve the OLM. Through my analysis it became clear that the teachers perceived that their feedback was

valued and used to improve the curriculum maps and, consequently, held the maps in high regard as a resource that supports their work in the classroom and learning with colleagues. This feedback mechanism provides a strong model for systems that could be used to monitor, refine, and, ultimately, ensure ownership of the district's theory of action as articulated in its strategic priorities.

Given the power of the feedback mechanism employed in the revision of curriculum maps, I strongly recommend that the district employ a monitoring tool specifically designed to (a) gain insights into professional perceptions of district priorities, (b) assess the overall efficacy of district organizational learning mechanisms, and (c) solicit feedback on the district's strategic priorities and the PLMs designed to support their implementation. This monitoring tool would most likely manifest in a survey, as the time involved in conducting in person interviews is not feasible to execute with any regularity or fidelity. The survey should gather enough information to address the three design elements above but be short enough that it could be administered two to three times per year. In this way the district would create a feedback mechanisms that provided key data relevant to the efficacy of organizational learning mechanisms.

The Belvedere schools implemented an integrated system of organizational learning mechanisms that were narrowly tailored to support district curriculum priorities. These OLMs demonstrated a degree of efficacy in the degree to which teachers, instructional coaches, and school/district leaders identified the same perceived district curriculum priorities. These OLMs are well established and perceived as effective. The recommendations set forth here aimed to support the district in making adjustments to their established OLMs that would further enhance organizational learning across the

district.

# Limitations

This individual study aimed to explore and understand (a) how teachers and instructional coaches learn within the context of ongoing curriculum reform efforts and (b) the efficacy of organizational learning mechanisms employed to support the learning of teachers and instructional coaches. The qualitative case study methodology utilized to conduct this study provided a rich and contextualized understanding of the district's efforts. That being said, the time intensive nature of the methodology precluded the ability to (a) interview a larger sample of teachers from across the district and (b) employ direct observations of individuals and working groups.

Future research should address these limitations so that a more comprehensive analysis of individual and organizational learning is possible. Direct observations would greatly enhance the validity of this line of research by allowing the researcher to see the organizational learning mechanisms in use. Future research could also address the issue of sample size by employing survey methods. Administering a survey would allow for the collection of far more data and may paint a more representative picture of perceived district priorities.

Sampling methods also present a limitation to the current study. Random sampling was used to solicit participants and five of the ten individuals included in this study were gathered this way. After three rounds of random solicitation, convenience sampling was used to gain the remaining participants needed. This may have influenced the results of this study as principals may have selected "willing" teachers or teachers with a specific viewpoint on district reforms. As such results may have been biased by this sampling decision.

# **Chapter 4**<sup>4</sup>

## Introduction

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

<sup>&</sup>lt;sup>4</sup> 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

- The district had established effective collaborative structures, however, inequities in time available for professional learning between traditionally scheduled and non-traditionally scheduled schools appeared to impact the use and perceived efficacy of existing organizational learning mechanisms.
- The district had established strong leadership teams to carry the curriculum work forward, but these teams lacked strategic overlap to support effective organizational learning.
- 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 aim to build on the existing strengths of the Belvedere schools and to enhance organizational learning. The recommendations included: (1) providing equitable time for professional learning across all schools, (2) building strategic connections between key district leadership teams, and (3) 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 5. 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 5 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). Agreement in perceptions between those distributing and those receiving information appears 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 facilitates organizational learning.

#### Table 5

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

Common	Coaches/	Coaches/	Yes
Planning time	Teachers	Teachers	
Professional	Coaches/	Coaches/	Yes
Learning	Teachers	Teachers	
	Common Planning time Professional Learning	CommonCoaches/Planning timeTeachersProfessionalCoaches/LearningTeachersCommunitiesCoaches/	CommonCoaches/Coaches/Planning timeTeachersTeachersProfessionalCoaches/Coaches/LearningTeachersTeachersCommunitiesCoaches/Coaches/

# Individual and organizational learning: The impact of cohesion. As stated

earlier, the cohesive nature of Belvedere's collaborative structures appears to support the accurate and efficient distribution of organizational information and, thereby, supported organizational learning. Participant responses, particularly at the teacher/coach level, suggest 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 provide teachers and instructional coaches with socially mediated learning opportunities in communities of practice. These structures are situated in direct proximity to teaching and learning and, therefore, represent organizational learning mechanisms that are 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 nontraditional 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 that, 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 2: District Mathematics MCAS Performance



Figure 3: District ELA 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 2 and 3 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.

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 nontraditionally 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 in 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 captures the existing structure of the district's OLMs while at the same time hi-lighting 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.

As seen in areas D, E, and F of Figure 4, 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



Figure 4: Strategic connections for information distribution and interpretation

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 (1) management and operations and (2) 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 the disconnect between building principals and the teaching/learning mechanisms of the district were perceived by participants from across

the district's hierarchy, those perceptions were reinforced by structural processes and procedures within the district.

More specifically, this structural division begins centrally and, as a result, is reflected at the building level. As illustrated in Figure 4, district leaders move 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 positions instructional coaches as a primary resources 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, in addition, 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 Between 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 indicates that this disconnection 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



Figure 5: Structural influences on information interpretation.

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.

As described by participants, the current leadership structure (See Figure 5) 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 5, 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 and support (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 that is naturally

limited by the meeting structure currently employed by the district. Figure 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

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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

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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: (1) Ensuring equal time for professional learning across the district's schools, (2) Establishing strategic connections between key human organizational learning mechanisms, and (3) 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 is 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? 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? (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?

	Focus: Information distribution
Question 7	What skills do you feel principals need to lead the implementation of a curriculum reform initiative (UbD)? 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)? Focus: Information acquisition, information distribution
Question 9	How does that equate to what is offered to the principals? (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 I Years of experience in c	Education: 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
Question 2	What is the district's plan for addressing those priorities? Focus: Theory of action, theory in use, task systems, mental models
Question 3	What does the superintendent do to communicate district priorities around curriculum initiatives? Focus: Information acquisition
Question 4	How do you communicate your understanding of district priorities around curriculum to the superintendent? Focus: Information distribution, theory of action, task systems
Question 5	Does your superintendent employ methods to check for your (principal) understanding of their intentions/tasks? Focus: Information interpretation, theory of action
Question 6	Do you feel your superintendent attempts to develop you as a professional in explaining their interpretation/s of district priorities or assigned tasks? Probe: How do you check for understanding amongst your faculty members? Focus: Information interpretation
Question 7	How do you receive the bulk of your information from your superintendent? Focus: Information Distribution

Question 8	What do you feel are the most effective communication methods your superintendent utilizes? Probe: How do you share information with staff? Focus: Information distribution, task systems
Question 9	How often does your superintendent formally communicate with his/her principals (meetings/memos)? Focus: Information distribution, task systems
Question 10	How does your superintendent ensure that new and old information is accessible? (OM) What role do you play in making sure that prioritized information is retained future use? Focus: Organizational memory, task systems
Question 11	How does your superintendent ensure protocols and directives are followed? Focus: Organizational memory, task systems
Question 12	What steps does your superintendent take to ensure that principals can easily retrieve prioritized information? Probe: How do you ensure resources are readily available to your faculty? (IR) Focus: Information retrieval
Question 13	What steps do you take in communicating to your superintendent potential communication breakdowns? Probe: How do you address any breakdowns in the accessibility of prioritized information? Focus: Information retrieval

## Appendix D Teacher Interview Protocol

Name: Position: Years of experience Years of experience	ce: ce in current role:
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	<ul> <li>What opportunities do you have to learn about these curriculum priorities/initiatives?</li> <li>Probe: If specific professional development opportunities are mentioned, ask the participant to describe:</li> <li>Probe: Who facilitated the session(s)?</li> <li>Probe: What did you do during the session(s)?</li> <li>Probe: What did you learn as a result of the session(s)?</li> </ul>
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 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

## Why have I been asked to take part in the study?

- 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

### What do I do first?

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

#### What is this Study about?

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

#### Who will take part in this Study

• Approximately 20 school leaders involved in curriculum reform (i.e. superintendents, curriculum development administrators, school principals, and teachers)

#### 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.

### 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, Ian Kelly, Principal Investigator, will permanently delete all audio files.
- 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 \_\_\_\_\_

## Appendix F Case Study Protocol

- 1. Background
  - a. Identify previous research on topic
  - b. Define the main research question being addressed by this study
  - c. Identify additional research questions that will be addressed
- 2. Design
  - a. Identify whether single case or multiple case and embedded or holistic designs will be used, and show the logical links between these research questions
  - b. Describe the object of study (e.g. a new testing procedure; a new feature in a browser)
  - c. Identify any propositions or sub-questions derived from each research question and the measures to be used to investigate the propositions
- 3. Case Selection
  - a. Criteria for selection
- 4. Case Study Procedures and Roles
  - a. Procedures for governing field procedures
  - b. Roles of case study research team members
- 5. Data Collection
  - a. Identify the data to be collected
  - b. Define a data collection plan
  - c. Define how the data will be stored
- 6. Analysis
  - a. Identify the criteria for interpreting case study findings
  - b. Identify which data elements are used to address which research question/sub question/proposition and how the data elements will be combined to answer the question
  - c. Consider the range of possible outcomes and identify alternative explanations of the outcomes and, identify any information that is needed to distinguish between these
  - d. The analysis should take place as the case study task progresses
- 7. Plan Validity
  - a. Construct validity: show that the correct operational measures are planned for the concepts being studied.
  - b. Internal validity: show causal relationship between outcomes and intervention/treatment
  - c. External validity: identify the domain to which study findings can be generalized.

## 8. Study Limitations

- a. Specify residual validity issues including potential conflicts of interest.
- 9. Reporting
  - a. Identify target audience and relationship to larger studies.
- 10. Schedule
  - a. Give time estimates for all major steps of the case study.

#### Appendix G Recruitment Email

Dear\_\_\_\_\_,

My name is Ian Kelly and I am writing to you because you have been randomly selected as a potential participant in a research project I am conducting with a team of my colleagues in your district. Our study focuses on the district's recent implementation of curriculum reforms such as the yearlong plans and Understanding by Design (UbD). Our goal is to understand (a) how the district implemented these reforms, (b) the ways in which professional learning was/is supported throughout the district, and (c) how the district might improve their approach to reform and change in the future. Beyond Belvedere, it is also our hope that our study will be helpful to other school districts as they consider how best to support professional learning when implementing change.

Participation in this study would require a brief thirty to forty-five minutes in person interview. If you choose to participate, two or three members of our research team will visit your school at a time that is convenient for you to conduct this interview. Any information that you might share during an interview is strictly confidential. Should you participate in the project, the interview team will review the measures that we take to ensure confidentiality and anonymity for our participants prior to the interview.

If you would be willing to participate or would like to learn more about our research, please do not hesitate to contact me directly.

Sincerely,

Ian P. Kelly, M.Ed. Principal Investigator