ORGANIZING DATA FOR INSTRUCTIONAL USE IN ONE ELEMENTARY SCHOOL: AN ACTION RESEARCH STUDY.

By

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The purpose of this action research study was to identify and improve organizational strategies for data use at East Omak Elementary in the Omak School District in Washington State. The study was conducted using Stinger’s (2007) action research process of “look, think, act” from fall of 2013 to spring of 2014. Throughout the cyclical process of action research, grade level teams developed data organizational tools that could be used for analyzing and interpreting data. During the “look” phase, grade level teams administered assessments and collected data. The study transitioned to the “think” phase in late fall 2013 by analyzing how data could be organized in a manner that provided teachers structure for interpreting and analyzing data, and into the “act” phase in the winter of 2014. The “act” phase consisted of developing four organizational tools that grade level teams used for interpreting and analyzing student data.

The major outcome of the study was the development of data organizational tools that grade level teams were able to use to analyze and interpret student academic growth. Conclusions of this study include beginning with the “end in mind,” that is first determining how data will be used, that teachers often lack the capacity to interpret data and need support in
developing this capacity, and proactive leadership practices and the action research process itself are useful mechanisms for supporting teacher data use.
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CHAPTER 1

INTRODUCTION

Introduction

The purpose of this action research study was to identify and improve organizational strategies for data use at one elementary school in Washington State. As Principal of the school, I am the lead researcher with members of the building level leadership team serving as co-researchers.

Background

In the field of education, there are numerous pressures from federal, state, and local accountability policies to improve student achievement (Knapp et al, 2006). Within these policies, use of data for improving instruction and student learning outcomes is a primary focus. At the federal level, the No Child Left Behind Act of 2001, the Office of Department of Education Elementary and Secondary Education Act, and the Obama administration’s American Recovery and Reinvestment Act of 2009 call upon schools to use assessment data to respond to student academic needs. In 2009, United States Secretary of Education, Arne Duncan spoke at the fourth annual Institute of Education Sciences research conference and explained how data should be used to guide reform.

The emphasis on data use is reflected at the state and local levels as well. Washington State’s Superintendent of Public Instruction Randy Dorn (Dorn announces remaining top agenda items for 2013 legislative session, 2012) presented that data should be used to improve instruction. Superintendent Dorn acknowledged that teachers and principals need support for developing skills to interpret and analyze data and has
requested $4.5 million during the 2013-15 biennium, to fund data coaches, to provide support and training for school districts that are identified for school improvement. Additionally, the state legislature approved Engrossed Substitute Senate Bill 5895 requiring the evaluation of teachers and principals to include criteria for using student achievement data. Beginning in the 2013-2014 school year, Washington State teachers will be evaluated on their use of student data to improve and align instruction with student needs. Principals will be evaluated on leading systemic use of student data through planning that leads to overall school improvement.

Schools throughout the country have been required to administer student assessments that provide performance evidence. Research demonstrates that teachers who use achievement data to align instruction with students’ needs significantly improve overall instruction, which leads to overall school improvement (Kerr et al, 2006; Olah, Lawrence & Riggan, 2010; Love, 2004; Blankenstein, 2004; Huffman & Kalnin, 2003). The process of using data can be described as a four step process: Collection of data, analysis of data, interpretation of data, planning and using data to improve instruction (Huffman & Kalnin, 2003; Marsh, 2012; Sanchez & Klien, 2009; Spillane, 2012). Marsh (2012) describes the process as a five step data system wherein teachers administer assessments to collect data, organize results according to standards, develop protocols or questions to make sense of the results, interpret and align interventions with results, and implement targeted interventions. Huffman and Kulnin’s (2003) research summarized this process with the following example.

At the end of the school year, teacher teams collected data, analyzed the data over the summer and identified a specific problem. The teams developed action plans based on the data to address the problem. The action plans required continuous process of collecting data, analysis, and monitoring. In the end, teams moved
toward establishing a continuous improvement cycle. (Huffman & Kulnin, 2003, p. 572)

Often schools do not continue the improvement cycle. Most commonly, schools use data for tasks such as setting goals as part of the school improvement process and do not revisit the data (Kerr et al., 2006; Spillane, 2012). The emerging research on data use suggests schools that organize and analyze student data in a continuous cycle improve teaching and learning.

Current research has also identified a number of barriers to effectively using data. Barriers such as lack of time to use data, staff capacity to understand data, and the absence of tools to organize data for analysis and interpretation are prevalent throughout the literature (Archbald, 2011; Huffman & Kulnin, 2003; Mandinach, Honey & Light, 2006; Marsh, 2012; Sanchez & Kline, 2009). There is little research available on how schools address the organization of the data in a format that can be used to improve instruction. The intent of this action research study is to identify organizational strategies that foster data use in one elementary school setting.

In summary, the literature and research to date on the use of data driven instruction in schools demonstrates positive impact on student learning. The process of organizing data for analysis and interpretation is a critical part of using data. There still remains a need for more research on how principals and teachers can organize data that leads to improved instruction that impacts student learning. This action research study explored how data can be organized to be useful to teachers for instructional planning at one elementary school in Washington State. As principal of the elementary school, I participated in the action research process as lead researcher and facilitator.
Action Research

The methodology guiding this study was action research. Action research is a participatory process that involves a team of people who have an interest in a localized problem that engage in systematic inquiry. Action research is described as a collaborative approach to inquiry or investigation that provides people with the means to take systematic action to resolve specific problems (Stringer, 2007). Action research has many forms, which include participants-as-researchers, participants networked to share knowledge, participants as problem formulators, researcher-as-colleague, and researcher-as-participant (Schwandt, 2007). Most of the approaches include participants researching a localized problem in a collaborative manner using some form of data. According to Herr and Anderson (2005) the idea of educational practitioners doing research in schools goes back at least as far as the late nineteenth and early twentieth century with the movement for the scientific study of education. The theoretical foundations of action research in education are grounded in the importance that John Dewey gave to human experience in the generation of knowledge. From Dewey, it was a short step to the notion of taking the professional experience of teachers and other practitioners and using it as a source of knowledge about teaching (Herr & Anderson, 2005). In action research, the role of the researcher is not that of an expert who does research but that of a resource person (Stringer, 2007).

Participatory action research is gaining popularity in many fields and especially in education (Herr & Anderson, 2005). In participatory action research, the researcher acts as a facilitator by supporting the team as they engage in systematic investigation. According to Stringer (2007) the primary purpose of action research is to provide the
means for people to engage in systematic inquiry and investigation to “design” an appropriate way to accomplishing a desired goal and to evaluate its effectiveness. Action research, however, is based on the proposition that generalized solutions may not fit particular contexts or groups of people and that the purpose of inquiry is to find an appropriate solution for the particular dynamics at work in a local situation (Stringer, 2007).

Stringer (2007) describes action research as a continuous process wherein participants “look, think, act” when performing action research. The process is similarly described by Kemmis and McTaggart (2008) as they present action research as a spiral of activity: plan, act, observe, and reflect. The objective of the “look” stage in the process is to gather information that will enable researchers to extend their understanding of the experience and perspective of the various stakeholders (Stringer, 2007). The “think” stage can be described as developing procedures for reviewing the collected data, utilizing the data, categorizing and coding, identifying themes, and organizing a category system (Stringer, 2007). Stringer describes two steps to processing the data: (a) Categorizing and coding procedure that identifies units of meaning (experience/perception) within the data and organizes them into a set of categories that typify or summarize the experiences and perspectives of participants, and (b) data analysis process selects key experiences or transformational moments and “unpacks” them to identify the elements that compose them, thus illuminating the nature of those experiences (Stringer, 2007, p. 98). The third stage in the process is to develop a plan and “act” on that plan. Following implementation of the plan, the process then begins again and often continues in a cyclical pattern. Stringer argued this process of reflection
and interpretation provides participants and other stakeholding audiences with new ways of thinking about the issues or localized problem investigated.

In the field of education, action research has enjoyed widespread success, both as an individual route to professional development and as a collaborative route to professional and institutional change (Herr & Anderson, 2005). Participatory action research has been demonstrated as an effective research process for developing, analyzing and implementing school improvement strategies. The participatory collaborative process of action research can develop buy-in from participants who are problem solving. Participatory action researchers in K-12 schools have found that time to participate in action research, lack of collegiality within participants, and lack of ownership for the problem can exist. Leadership must be willing to participate in the process to give validity to the work of participatory action research. As principal of the elementary school, I will be the lead researcher facilitating the “look, think, act” participatory action research process outline by Stringer (2007).

The Study

The specific purpose of this study was to improve the use of student data by developing data organizational tools at one public elementary school in Washington State. The school participating in this study is East Omak Elementary and is located in a rural community within Washington State. As principal of this school, I believe the school will improve instruction and ultimately student learning by using data organizational tools to analyze and interpret student data. The Washington State Office Superintendent of Public Instruction has identified East Omak Elementary as an “emerging” school in need of improvement. As principal, I believe it is necessary that
teachers and grade level teams develop data organizational tools for analyzing and interpreting data so that instruction can be aligned with student instructional needs.

East Omak Elementary School is in the Omak School District, located in North Central Washington State, with a town population of 5,000 citizens and a school district population of 1400 students. The school serves 300 children in grades three through five with an instructional staff of 20 teachers and 12 paraprofessionals. The demographics of the student body are 30% Native American, 20% Hispanic, 50% White Caucasian. Eighty percent of the student body qualifies for free/reduced lunch, and 18% qualify for special education services. The school has been identified by the state as an “emerging” school as outlined by the states accountability model. An “emerging” school is considered to be a school that is in the bottom twenty percent of the schools in the state according to academic achievement data from the Measurement of Student Progress state assessment.

During the last two years, school improvement efforts at East Omak Elementary have focused upon curricular development and instructional methodology. The school has implemented programs and assessments that provide rich data about student learning. However, the data is not organized in a manner that teachers can use to analyze, interpret and guide instruction.

There are a number of formative and summative assessments in place. The Northwest Evaluation Association (NWEA) Measurement of Academic Progress (MAP) is a formative assessment that is administered three times per year. MAP is an assessment that responds dynamically to the child and provides educators detailed insight
into student learning. East Omak Elementary has administered this assessment for 5 years.

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) is a web-based database that the school uses to enter student reading performance results. The data system tracks and measures progress at the student, class, and school level. Reports can be generated to provide immediate feedback on how children are progressing. The DIBELS data system is operated by the Center on Teaching and Learning at the University of Oregon. DIBELS assessment is specifically designed to assess the five early literacy components: Phonological Awareness, Alphabetic Principle, Vocabulary, Comprehension, and Fluency with Connected Text.

Accelerated Reader (AR) is a progress monitoring software that is primarily used as a comprehension tool. The software provides information about reading rates and the amount of reading a student completes. New during the 2013-2014 school year is Lexia Reading Core5, which is a reading support program that is technology-based and provides for differentiated reading practice. Lexia Core5 has an embedded assessment that provides educators norm-referenced measures that predict performance and prescribe instructional interventions to improve student reading skills.

The Measurement of Student Progress (MSP) is Washington State’s summative Reading, Mathematics, Science, and Writing exam that is administered once per year each spring. The previous school year’s MSP data is available the following September. In addition to the formal assessments, classroom based assessments are administered to provide teachers and students with immediate feedback on teaching and learning.
Prior to this study, grade level teams did not have a comprehensive data management system that compiled assessment data into an organized structure for teachers to use. There were a number of data sources available that were included in the development of the data organizational tools that teachers used to analyze, interpret and use for planning and aligning instruction. The action research team presumed that developing data organizational tools would support teachers’ analysis and interpretation of the data resulting in teachers have a clear lens of where each student is academically. Prior to this study, data were reviewed in a non-systematic way that resulted in teachers’ lack of understanding of what the data demonstrated. The specific purpose of this study was to improve the use of student data at one public elementary school in Washington State by developing organizational tools for analyzing and making instructional decisions.

This action research study used the elementary school’s existing Building Level Leadership Team (BLLT) as an action research team, and as building principal, I was the lead researcher. The BLLT is comprised of six staff members: A teacher from each of the third, fourth, and fifth grades, a special education teacher, a school librarian and a school counselor. Each of the team members were selected by their peers. The purpose of the BLLT is to facilitate and implement school-wide strategies to improve teaching and learning. These strategies include facilitating a school-wide Response to Intervention (RTI) program, participating in Washington State’s Principal Evaluation Project (TPEP), and aligning curriculum and instruction with the Common Core State Standards (CCSS). As the lead action researcher, I chose this team of individuals as co-researchers because they represent staff throughout the school and are involved with developing and initiating
school-wide improvement activities. Throughout this study, the action research team met at least twice per month over a six-month period.

Developing data Organizational tools for teachers and grade level team to use data in a meaningful manner will support the implementation of our Response to Intervention (RTI) program. The RTI program consists of providing academic support for all students within the general education classroom and during the daily literacy enrichment block. Special education students were provided support within the general education classroom as well instead of being pulled out to resource rooms. Teacher aids, special education teachers and classroom teachers worked together to provide targeted support and interventions for special education students. With the development of data organizational tools, staff would be able to work collaboratively by analyzing and interpreting data so that instruction can be aligned with student needs.

The Washington State Teacher and Principal Evaluation Project (TPEP) has listed evaluation criteria for using data to improve instruction. Both principals and teachers are required to be evaluated on the use of data. This action research study provided supports for the development of data organizational tools, which could also be used for monitoring student growth with evaluation criteria.

This action research study also supported the work of aligning curriculum and instruction with the Common Core State Standards (CCSS). As Washington State transitions to the new Common Core State Standards (CCSS), the Omak School district is providing professional development on the new standards and aligning curriculum and instruction with the new standards. Students at East Omak Elementary will be accountable for meeting the new standards during the 2014-2015 school year. Students
will be assessed using the Northwest Evaluation Association’s Measurement of Academic Progress Common Core aligned formative assessment. This action research study contributed to the alignment of curriculum and instruction with the CCSS. The action research team facilitated the collaboration within grade level teams to develop data organizational tools that could be used to analyze and align instruction. As a school principal of a school identified as needing improvement, I was very interested in researching how grade level teams could be supported in the development of data organizational tools that support teachers’ capacity to analyze and interpret data.

Questions guiding this action research study were: (a) What data are available to classroom teachers? (b) For what purposes do classroom teachers need data organized? (c) How can data that is available to classroom teachers be organized to be useful in planning instruction? (d) What supports do teachers need to analyze and use data? (e) What school-wide system structures support the organization of data for classroom use?

This study was conducted in four phases of looking at how data were currently being organized and used in making instructional decisions, thinking about how data could be organized in a meaningful manner to support the alignment of instruction, developing a plan to support the development of data organizational tools, and implementing supports for the development of data organizational tools. Throughout this process the action research team conducted informal interviews with grade level teams. During the month of September 2013, the “look” phase consisted of pulling all of the data sources together from both the current and prior school year. During the months of October through December 2013, the “think” phase was conducted and focused on collating, sharing and analyzing how the data could be organized. At the conclusion of
the “think” phase, the team moved to the act phase in January 2014 by bringing all of the research data together and developing recommendations for teacher professional development on organizing data.

Following the cycles of action research, the Building Level Leadership Team interviewed each of their respective grade level teams. The responses to the questions were used to identify barriers and supports necessary for further developing data organizational tools. The intent of this research was to positively impact student learning by providing staff with the ability to organize data in a meaningful manner so that teachers can interpret and analyze data that resulting in improved instruction.

Positionality

In this action research study, my positionality was one of an “insider” collaborating with other insiders, and the goal was to engage the group in inquiry and exploration, working as a collaborative team that influences organizational change (Herr & Anderson, 2005). As an elementary school principal for 10 years, I have had the opportunity to work with district school improvement committees and building level leadership teams. My work as a teacher and a school leader motivates me in developing system structures to improve teaching and learning for all students. The participants in this study know that I am committed to providing quality and targeted instruction for our students and that I continually strive to improve our educational program with data based decisions. My experience with school improvement strategies and using student achievement data to drive instruction will allow me to provide examples and research of effectively using student achievement data. Throughout this study, I reminded my co-
researchers of my positionality within this study and that my position was not one of an evaluator but one as a collaborative participant.

**Ethical Considerations**

This type of action research in the educational setting requires continuous communication and collaboration with co-researchers regarding sensitive data derived from juvenile human subjects. Participants needed to have a thorough understanding of how they would contribute to and participate in this study. I explained to the team in detail how participants would be involved within the study, and I received releases to participate in the study. The participant releases provided documentation of informed consent to participate in the study (Stringer 2007; Herr & Anderson, 2005). Assurance was provided to participants that their input and participation would be solely for contributing to the research study and not for evaluation. My position as lead-researcher and principal was to specifically communicate with participants that there are no personal or political agendas associated with the research. As co-researcher and principal, I communicated to participants that I am not acting in a position of power to influence discussions. Participants were assured the purpose of this study was to develop organizational tools for using data to improve instruction.

Prior to the study and throughout the study, I reiterated the importance of confidentiality regarding student achievement data that the team used during the process of developing a data management system as well as the confidentiality of participant contributions during team meetings. Participants were assured that as lead researcher I would protect the confidentiality of their contributions during the study. Since participants on the team are known to each other, confidentiality of individual team
member contributions during meetings was not possible. Participants were made aware of this during the consent process. All information and data gathered during the study was stored in a locked file either electronically or in my file cabinet within my school office.

**Organization**

The organization of the final dissertation includes four chapters: Introduction and framing of the research study; Literature Review of the current published research related to the study; Report of the study that includes a narrative chronological account of the study’s process; Conclusions that includes a discussion of the outcomes of the study and a reflection of the action research process outlined within this study.
Chapter 2
LITERATURE REVIEW

Introduction

The current educational system throughout the United States places great importance on school districts accountability for student achievement. No Child Left Behind (NCLB) legislation increased pressure on school districts by requiring them to monitor student progress toward standards and holding school districts accountable for improvement (Kerr et al, 2006; Archbold, 2011; Love, 2004; Mandinach, Honey & Light, 2006; Honig & Coburn 2008). In addition to NCLB, the American Reinvestment and Recovery Act placed additional pressures on school districts to be accountable for student learning. More recently with the reauthorization of the Elementary and Secondary Education Act, states have been awarded waivers that require them to develop an accountability model that emphasizes data use for improvement. Never in the history of the profession has there been expectations of teachers to analyze data for examining practice, evaluating outcomes, and guiding decision-making and planning as there is today (Archbald, 2011). Based on No Child left behind act requirements and or state and district goals, data teams set criteria for high performance, performance below expectations, and performance that is urgent and in need of immediate improvement (Love, 2004).

These new expectations of schools monitoring their efforts to enable all students to achieve, assume that school leaders and teachers are ready and able to use data. This expectation includes understanding where students are academically and why and establishing improvement plans that are targeted, responsive, and flexible (Mandinach,
Honey & Light, 2006). According to Coburn and Turner (2012), data use is a multilevel phenomenon in education. In order to understand how data use unfolds, it is important to study the practice of individuals at multiple levels of the system—and the relationships between them—as they interact with data in their ongoing work. Several factors influence districts’ efforts to use data for instructional improvement purposes, including the history of state accountability incentives, access and timelines of data, perceived validity of data and flexibility to alter instruction, and staff capacity and support (Kerr et al, 2006). Archbald (2011) describes this process of using data as a roadmap to reform. Most commonly, data are used for tasks such as setting annual and intermediate goals as part of the school improvement process.

Many school districts are beginning to closely analyze data as part of their efforts to promote high-quality instruction and improve student achievement (Kerr et al, 2006). Sanchez and Klein (2009) found that districts that have successfully integrated data into the instructional and management processes consistently use standards-based measures to inform instructional decisions, offer professional development opportunity to support a culture of data use, establish and leverage leadership support for data-driven culture, adopt a continuous improvement model that tracks key indicators, and design and implement a data governance strategy to ensure data quality. It will be challenging for school leaders to build what is widely advocated in the literature: a culture of inquiry, reflection, and collaboration in which data plays a key role in planning and decision-making (Archbald, 2011).

While data-based decision making is practiced in different ways at all levels of the educational system, recent studies have more commonly focused on how data are
used by the entire school community to guide decisions at the school level (Kerr et al, 2006). Researchers who investigate the practice of data use seek to understand what actually happens when people engage with data in the course of their ongoing everyday work and how that relates to instructional change and organizational learning (Coburn & Turner, 2012). It can be done through formal district-wide testing or through informal conversations in the teachers’ room during lunch. Districts need a vision and plan of how data-driven decision-making will be implemented and sustained, for what purposes, and by whom (Mandinach, Honey & Light, 2006).

In recent years, teachers have been invited or required to engage with one another, with administrators, and with a variety of others (instructional coaches, consultants, parents) to review and interpret data derived from standardized tests, interim or benchmark assessments, and administrative records charting attendance, graduation, dropout, and other metrics (Little, 2012). Pitrides (2006) found that data-driven instruction is becoming more prevalent as schools seek to gain a clear picture of where they are headed and what milestones wait for them along the way. The hallmark of statistical fluency is understanding how data should be used, the interpretations that can be made from those data, and how such interpretations can be used to guide different types of decisions (Mandinach, Honey & Light, 2006). There are top-down strategies for data use, as well as bottom-up action research plans to provide teachers with the necessary data to improve their own classroom instruction (Pitrides, 2006).

I conducted a review of the literature regarding how data is used to examine student achievement, align curriculum and instruction, and plan school improvement. Washington State emphasizes the use of data at multiple levels within the system
including Teacher and Principal Evaluation Programs (TPEP) and an accountability model with specified Annual Measureable Objectives (AMOs). This accountability is measured by analyzing student achievement data in comparison to a specified number of students progressing toward standard or who meet proficient levels in a specified content area. In examining the current research, the following themes were identified: (a) impact of data use, (b) barriers to data use, (c) developing a systematic data process, and (d) supporting the use of data to improve instruction.

**Impact of Data Use**

Numerous studies have demonstrated a positive impact of using data to make instructional decisions at the classroom, school and district level (Kerr et al, 2006; Olah, Lawrence & Riggan, 2010; Love, 2004; Blankenstein, 2004; Huffman & Kalnin, 2003). Student achievement and school improvement, instruction and empowerment, and alignment of interventions are linked to creating a culture of using a data-decision process.

**Achievement and Improvement**

The literature on school improvement and student achievement consistently includes the use of data. Olah, Lawrence and Riggan (2010) found in their meta-analysis of 21 studies that teachers who had distinct instructional processes to follow based on test outcomes, demonstrated significantly higher growth in student achievement than those teachers who used their own judgment about how to respond to the data. Using data without subjectivity provides the teacher with the accurate information to align instruction with the students’ deficient areas. Huffman and Kalnin (2003) claim that their research emphasizes that data-based decisions help focus the debate onto evidence to
support decisions about teaching, rather than just opinion. Creating a culture that focuses on data to drive instruction impacts student achievement and ultimately overall school improvement.

Huffman and Kalnin (2003) also identified in their study that 95% of the participants believe there should be a process that school districts should use to make data based decisions and to engage staff in the process of continuous improvement. Love (2004) identified that when educators use data continuously, collaboratively, and effectively to improve teaching and learning, school culture is developed. Affective assessment procedures and effective use of data is fundamental to a school continuing achievement and improvement (Blankenstein, 2004).

**Instruction and Empowerment**

Using data to drive instruction is a powerful tool for encouraging students and teachers. Pitrides (2006) stated that using data to improve instruction and creating a culture of self-reflection and inquiry within schools has clear benefits for students, parents and teachers. Together through reflective dialogue, teachers and administrators become data teams by reviewing data and digging deeply into several data sources (Love, 2004). Blankenstein (2004) outlines three steps for teachers to use data in the reflective process: (1) Determine whether students are learning more or achieving higher levels than they did in the past, (2) compare the outcomes with those of other teachers, and (3) evaluate whether existing curriculum and instruction adequately prepare students to demonstrate proficiency. Teachers in high-performing schools found data use empowering, while teachers in more diverse, poverty-ridden, and low-performing schools felt devalued and disenfranchised by data use (Kerr et al., 2006).
Data-driven dialog creates a more thoughtful decision-making process by bringing out multiple perspectives. Because of the process, teachers are more likely to embrace solutions because they own the student learning problems that emerge from their own data analysis (Love, 2004). Huffman and Kalnin (2003) found that data discussions help to break the cycle of isolation and are a catalyst for change. When teachers collaborate with their colleagues and engage in professional debate about teaching and learning, they break down a sense of isolation. This data driven dialog helps to support teachers as they critically inquire about their teaching practice and data focuses on evidence-based decisions (Huffman & Kalnin, 2003). Decker (2003) found that teachers were empowered by the use of data and were appreciative of having objective data available at parent-teacher conferences.

Alignment of Interventions

At the heart of using data to drive instruction is aligning interventions. Data is used to develop a roadmap to where teachers and students have been and where they are trying to go. Principals report that they use data to set goals to improve student learning overall. But they also use individual test results to focus on specific students, develop strategies to help them improve, and follow up on their progress (EdSource, 2011). Knowing how to ask the right questions to determine a child’s needs and what interventions will ensure the child succeeds is the most important in aligning interventions (Decker, 2003).

Barriers to Data Use

Organizational cultures in schools generally create few incentives for data analysis and often are not sustained for collaboration and collective action that is required
for data-driven decision-making (Archbald, 2011; Huffman & Kalnin, 2003; Kerr et al, 2006; Marsh, 2012; Mandinach, Honey & Light, 2006). Lack of time, capacity to understand data, and lack of structured systems for using data are all barriers identified within the literature.

**Time to Use Data**

Numerous studies have shown that teachers have very little time during the day to work with other teachers, plan lessons as a team, or even talk with their colleagues (Huffman & Kalnin, 2003; Marsh, 2012; Pitrides, 2006; Sanchez & Klein, 2009). Throughout the country, assessments and alignment of instruction with standards is emphasized. However, numerous studies have documented the lack of time allocated to educators to examine data and to engage in data related discussions. Sanchez and Klein (2009) found in their study that districts consistently remarked that time was a key factor in the cultural acceptance of data use. Teachers and central office staff must have time to review and analyze data if they are to accept and appreciate its importance. Districts that do provide time for interpreting and analyzing data found the problem to be one of commitment. Teachers have to see that there is value in the commitment from the beginning (Pitrides, 2006). Teachers also have to have the capacity to understand what data to use and how to use data in their practice of teaching and learning.

**Capacity to Use Data**

Numerous studies have found that school personnel often lack adequate capacity to formulate questions, select indicators, interpret results, and develop solutions (Feldman & Tung 2001, Mason 2002). Low human capacity to support data-driven inquiry has frequently-been noted as a barrier to effective data use in schools (Kerr et al., 2006). Part
of the challenge is capacity and part of the challenge is school culture. Capacity issues include limited expertise, data access, analytical tools, and available time (Archbald, 2011).

In lower-achieving or stagnating schools, the purpose(s) for reviewing data tended to remain vague or ambiguous, perhaps with the assumption that the meanings following from data are self-evident (Little, 2012). Marsh (2012) found that data users often lack the capacity to move from knowledge to action. A major challenge facing three districts in Kerr et al.’s (2006) study was the need to provide data that was timely, valuable, and presented in a user-friendly format that could readily benefit teachers in their daily instruction. Other challenges include the quality and interpretation of data and the relationship between data instructional practices (Mandinach, Honey & Light, 2006).

**Systems for Using Data**

School systems rarely have had the capacity or tools to collect, analyze, interpret data in a timely and manageable manner that influences change. This systemic barrier prevents continuity of instructional interventions in the classroom and at the school level. Classroom teachers decision-making strategies often lack systemanticity from student to student, class to class, and year-to-year or are unintentionally teamed with personal bias that ignore key statistical concepts like distribution, variation, and reliability (Archbald, 2011; Mandinach, Honey & Light, 2006). Technical challenges regarding the development of systems for using data include data storage, data entry, analysis, and presentation in a format that is manageable and understandable (Herman & Gibbons, 2001).
Systematic Data Process

A systematical process of collecting, analyzing, interpreting, and implementing interventions can be achieved by developing organizational routines. Research on data use has demonstrated that organizational routines provide the structure for data to be used efficiently and effectively in response to standards and accountability (Sherer & Spillane, 2010). Best practice districts have well-established, documented and consistent procedures and business rules for data validation (Sanchez & Klein, 2009). Often school leaders are responsible for facilitating the design of the organizational routines and promoting the use of data about teaching and learning (Spillane & Diamond 2007; Spillane et al., 2011; Spillane, 2012). Most commonly, data are used for tasks such as setting annual and intermediate goals as part of the school improvement process (Kerr et al., 2006; Spillane, 2012). Kerr et al. (2006) described how schools use data for instructional decisions such as identifying objectives, grouping for individualizing instruction, aligning instruction with standards, refining course offerings, identifying low-performing students, and monitoring student progress.

Literature on developing a system of data use can be summarized in a four step process: collection of data, analysis of data, interpretation of data, and planning and implementation (Spillane, 2012; Sanchez & Klein, 2009; Huffman & Kalnin, 2003; Marsh, 2012). This process leads to a continuous cycle of collection, organization, and interpretation of data in support of improvement (Marsh, 2012.) Huffman and Kalnin (2003) describe the system as a collaborative process where teams engage in inquiry to collect and analyze local data to make data-based decisions about how to improve teaching and learning. From their research, they found that teams focused on a specific
problem that was identified through data analysis and developed action plans to address the problem they had identified. The action plans require continuous monitoring, data collection, and analysis (Huffman & Kalnin, 2003). Mandinach, Honey and Light (2006) describe the process with two skills for each step within the process. At the data level, the two relevant skills are collect and organize. The skills at the information level are analysis and summary. At the knowledge level, synthesize and prioritize are the skills seen as relevant.

Collection of Data

The first step in a systematic framework for using data is data collection. Data collection is commonly associated with administering formative and summative assessments and comparing student assessment data with benchmarks. Decker (2003) found that gathering data with quarterly assessments and comparing minimum standards of achievement, known as curriculum benchmarking, for each grade level is an effective way to collect data systematically. For this to be effective and to increase student achievement, current and accurate data must be collected on an ongoing basis (Decker, 2003). Pitrides (2006) acknowledges that the key to collecting and using data to improve instruction is the ability to think about how to create an intervention or a change in practice. That means that using data is much more than figuring out how to track students; it's about using assessments for learning, as opposed to assessments of learning. As a result, the most helpful assessments for teachers are those that can help guide instruction to provide individualized learning.

Literature on collection of data emphasizes the importance of collecting quality and pertinent data. To accomplish this, Decker (2003) states that multiple assessments
that are correlated with the curriculum alignment and curriculum maps allow educators to
collect objective data throughout the school year. The difference between quality data
and subjective data is inherent solely in teacher assigned student grading systems versus a
standards-based grading system (Sanchez & Klein, 2009). Standards-based grading
systems reduce the subjectivity of classroom grades. Archbald (2011) agrees that one
strategy with potential is assessment benchmarking. Benchmarking can be as simple as a
group of teachers discussing a particular scoring rubric and relating it to their individual
assessment criteria and standards (Archbald, 2011). Ongoing embedded assessment and
detailed student performance data are key elements to collecting data (Decker, 2003).
Mandinach, Honey and Light (2006) emphasized the tighter the feedback loop provided
by the application or assessment and the more recent the data, the more informative the
data will likely be. Teachers report that they rely on test data to evaluate students and
themselves. Teachers in these schools administer a wide variety of tests to accomplish
their goals, including benchmark tests, diagnostic assessments, and classroom-based
assessments (EdSource, 2011).

To improve student achievement in the classroom and in high-stakes testing,
educators need to ask the right questions to gather the right data (Decker, 2003). Olah,
Lawrence and Riggan (2010) found that interim assessments appeared to alert teachers to
the fact that they needed to "teach differently," but the type of change required did not
necessarily relate back to anything teachers learn from the assessments. Instead, teachers
seem to draw from a set repertoire of instructional strategies. If something did not work,
they simply moved to another strategy. The wealth of data that educators accumulate
should be use to longitudinally track student growth over time, and to determine what
interventions are most successful to help each student reach their full potential (Decker, 2003). With the abundance of available assessment data, schools must develop strategies for housing data to support the next step in the process, which is analyzing data.

**Analysis of Data**

Researchers emphasized the importance of data analysis by developing a visual format for analyzing data and triangulating data during the analysis process. In one school, teachers referenced a visual format using a "green," "yellow," "red" system. The colors were representative of the student proficiency levels. Green indicated the score of mastery or proficient, yellow indicated scores between strategic and red scores were considered students at risk (Olah, Lawrence & Riggan, 2010). Response to Intervention (RTI) programs are familiar with this format of using colors to identify students needing additional supports. The colors are reflective of the students meeting standard or not.

For example, Coburn and Turner (2012) used categories such as below basic, basic, proficient, and advanced. The key subgroups promoted how teachers, school leaders, and district personnel look at, analyze, and make meaning of the data. They also have influenced how people at multiple levels of the system organize instructional responses and, at times, how they think about children, learning, and the nature of schooling itself.

White (2005) presents how triangulation can be applied to the data-driven decision-making process by examining the interaction of antecedent data, collaboration data, and accountability data. Triangulating data provides those using the data with a clear picture of where the student or students are performing. Mandinach, Honey and Light (2006) found that schools were using a triangulation strategy by using different tools to meet different information needs. Multiple tools provide the data necessary to
identify what is working and not working. This focusing on patterns of interaction is critical to both understanding data currently in practice and how efforts to transform that practice into promoting data use might turn out (Spillane, 2012). The process emphasizes triangulating data by using three different sources of student learning data before identifying the student learning problem (Love, 2004). The process of triangulation provides support for quality data.

Throughout the analysis step, teams using data develop inquiry questions. Huyggman and Kalnin (2003) emphasized the importance of exploring data by attempting to brainstorm questions that arose from the charts. This inquiry process prevented a rush to action, by allowing the teachers to carefully collect local data and thoroughly analyze the data before developing an action plan (Huffman & Kalnin, 2003; Decker, 2003; Spillane, 2012). Developing a visual format for analyzing data, triangulating data, and developing inquiry questions provide the necessary structure for the next step in the process, which is interpreting the data.

**Interpretation of Data**

The interpretation step in the process begins with school leaders and teachers negotiating about what data are worth noticing and what these data mean, if anything, for current practice at the school and classroom levels (Spillane, 2012). Olah, Lawrence and Riggan (2010) found the process for interpreting data was influenced by a variety of factors, including teachers’ knowledge about specific students background or past performance, student performance in relation to their peers, the position of a specific assessment or item within the school districts’ curriculum and pacing cycle, or teacher perceptions about content that was especially challenging for students. In a study
conducted by Kerr et al. (2006) principals were interviewed about the process of interpreting data. The principals revealed that reviewing test scores allowed them to identify classroom and school deficiencies. The information is used to change curriculum sequencing and target resources for students and teachers. Teachers in the same study articulated the value of multiple types and sources of data in the inquiry process. Supporting research demonstrated that multiple measures of student performance from a variety of sources may enhance data use by allowing for triangulation of findings, providing greater balance, and reducing the stakes of any single assessment (Kerr et al., 2006).

Decker (2003) found the integration of technology to be valuable in helping teachers interpret and differentiate instruction for students. The potential power of data driven tools becomes all the more important for supporting users to collect, analyze, and interrogate data in more effective ways (Mandinach, Honey & Light, 2006). The next step following interpreting the data is to develop and implement a plan to address the deficient areas or concerns that were derived from the data.

**Implementation of Data-based Decisions**

The final step in the process is developing and implementing a plan from the data that was analyzed and interpreted. This step encompasses the doing and reflecting step. Aligning resources or interventions is often part of the implementation process.

Alignment refers to how well the tool enables the alignment of the data to the objectives of the stakeholders, making the data useful, meaningful, and of high quality (Mandinach, Honey & Light, 2006). Huffman and Kalnin (2003) describe this process as
cyclical and that in the end teams move toward establishing a continuous improvement inquiry cycle that is continued into the future.

Throughout this process, those who are involved put the plan into action and continually observe what is happening. Often this is the step in which schools and school districts reallocate or align resources toward tutoring, pull-out, and supplemental services for students that are struggling (Coburn & Turner, 2012). Implementing the plan systematically and with fidelity will provide for quality data to be used as the cyclical process begins again.

**Support for Data Use**

Several barriers to the effective use of data by educators have been identified including time to look at data, access to data, technical expertise, and training (Mandinach, Honey & Light, 2006). Strategies that address these barriers included the development of interim assessments and technology/systems for housing, analyzing, and reporting data, the provision of professional development and/or technical assistance on how to interpret and use student test results, the revamping of school improvement planning process, and the encouragement of structured review of student work (Kerr et al, 2006). The common themes identified within the research for supporting data use are leadership, organizational tools, and professional development.

**Leadership**

Several studies showed that principals were able to act as initial catalysts for data inquiry but then work to create more distributed leadership around data use (Coplan 2003; Wayman & Stringfield 2005; Kerr et al, 2006; Archbald, 2011; Sanchez & Klein,
Mike Schmoker, who is a respected researcher and writer on the topic of educational leadership states,

The most obvious impediment to a results orientation is a failure at the beginning of the year, or as early in the year as possible, to put the data in front of the teachers, have them look at it, and then generate a manageable number of measurable goals based on the previous years scores. That should be job one for administrators (Blankstein, 2004, p. 141).

According to Sanchez and Klein (2009), a common characteristic of all best practice districts is leadership that sets the tone for and demands that all interactions and decisions be based on data. School leadership is the key to building a staff culture willing to examine practice and collaborate for improvement. Leadership ideally should come from a team of people that includes the principal and teacher leaders, and it should be driven by clear and specific purposes (Archbald, 2011). Leadership makes a difference in terms of the message administrators communicate to their staff. Mandinach, Honey and Light (2006) state that building leadership appears to be more important than facilitating the use of data and the tools.

Leaders in schools that were able to effectively use data for inquiry and decision-making were knowledgeable about and committed to data use and built a strong vision for data use in their schools. (Feldman & Tung 2001, Herman & Gribons 2001, Lachat & Smith 2005, Mason 2002, Mieles & Foley 2005). A principal who is data-driven or technically savvy can exert substantial influence on the faculty, communicating the importance and thereby stimulating use (Mandinach, Honey & Light, 2006).

Administrative leaders in schools are the catalyst for how or if data is used. In Mike Schmoker’s book Focus (2011) he contends that elementary principals lead the use of data by sitting down with each grade level team once a month to discuss common
assessment results and to ensure that the curriculum is being faithfully implemented. Routinely sitting down with staff to analyze and interpret data provides the support for developing a data use culture.

Datnow and colleagues (2007) highlight strategies they found in four school systems identified as data-driven decision-making systems. They described how system leaders encouraged data use in schools by establishing norms and expectations for data use, investing in data management systems, empowering school leaders to use data, and creating tools and processes for using data to make decisions (Cobern & Turner, 2012).

**Organizational Tools**

In the era of standards and high stakes testing, schools are not short on data. Classroom based assessments, quarterly formative assessments, and yearly summative assessments provide a number of data sources for schools to use. To support data use, schools must have an organizational tool that provides structure for interpreting and analyzing data. Mandinach, Honey and Light (2006) found the complexity of segregating, analyzing, and reporting these testing data has increasingly led administrators to embrace commercial and homegrown data-driven decision-making tools and support systems to help track and drive improvement in student performance.

Today's technology offers educators opportunities to monitor student achievement, provide good-quality corrective feedback, and adjust instruction to meet individual needs in ways only imagined by the previous generation of teachers (White, 2005, p. 7).

The role of technology-based tools is to enable, support, and facilitate decision-making by various stakeholders in different parts of the model (Mandinach, Honey & Light, 2006). Computer based programs can provide classroom teachers with immediate
feedback about how their students are progressing and indirectly how they are teaching. At the district level, Kerr et al. (2006) found that to support widespread data use, technology programs provide the necessary support to house, analyze, and interpret data and consistently provide user-friendly reports in a timely manner to school staff. The right technology helps teachers see, longitudinally, how certain groups of children are progressing (Pitrides, 2006).

In addition to technology tools, many school are using data walls. A data wall is comprised of data from multiple sources and is graphed in a way that trends can be identified and observed over time. As Love (2004) explains, as teachers and administrators work with additional data, they add more graphs and more observations and inferences to the data wall over time. While data walls have the potential to support classroom instructional decisions, they tend to be used for analysis and examination of system-wide or school-wide test trends and patterns, and do little to reveal information about individual students and the multiple factors that influence student performance (Mandinach, Honey & Light, 2006). Marsh (2012) adds that organizing systems like a data wall can be enhanced by color-coded data displays that organize results by standards and highlight weak and strong area performance, developing protocols or questions to assist teachers to make sense of these results, and training teachers or providing data coaches who help teachers use the new knowledge to adjust instruction.

**Professional Development**

School and district level leadership can support the use of data in classrooms by providing professional development on how to use and interpret data. To address this challenge, administrators might consider offering more support in analyzing and
interpreting data, as well as identifying strategies to address diagnosed problems. Such support could include focused training, as well as assigning individuals to work with teachers to filter data (Kerr et al., 2006). Most current models of training educators in data-driven inquiry include major emphasis on the cyclical nature of inquiry on learning by formulating research questions (Kerr et al., 2006).

A training session to assist with translating data to information, actionable knowledge, or both will not lead to data use (Marsh, 2012). Huffman and Kalnin (2003) recommend that professional development should move beyond basic awareness and knowledge building, and help teachers actually translate their knowledge into practice, encourage them to make innovations in their teaching, and to reflect deeply on teaching and learning. In addition to training staff, many school districts contract or assign a person to be a data coach.

Districts have identified that the most successful assistance includes data coaches who collect the information, compile it, and provide analysis reports of student data. Additionally data coaches structure collaboration time where teachers can work with data, enter information into spreadsheets, and play with it in a computer program (Pitrides, 2006). Simply put, there is so much data that educators are forced to use technological applications to deal with the wealth of data. As many educators say, they are data rich, but information poor (Mandinach, Honey & Light, 2006). Data coaches can provide some of the most meaningful professional development to staff as they have first hand experience with the data. Sanchez and Klein (2009) found that best practice districts use professional development as an opportunity to establish and promote a culture in which data are used to inform instruction and guide collaboration versus a
culture in which data are used to evaluate performance. Best practice districts offer approximately two times more data related professional development for new teachers and approximately 50% more for retaining teachers than other districts (Sanchez & Klein, 2009).

**Data Coaching**

Throughout the literature, data coaching is often a support that is used to address barriers to using data such as time, professional development, and building capacity within staff to understand data. Data coaches act as facilitators between collecting, analyzing, interpreting and developing action plans with specific measureable goals. Their job is not to analyze the data for everyone else but to foster collaboration by building data teams. Data coaches facilitate powerful conversations about data that lead to improved teaching and learning (Love, 2004). They lead the collaborative inquiry process of identifying what is working and what is not working. Love (2004) found that developing a data use culture takes at least 1 1/2 to 2 years with on-site follow-up and coaching several times a year for three years. Systems must be developed and continual analysis of data over time to identify trends within the data.

**Other Supports**

Districts seeking to promote greater data use by teachers might consider the nature of other instructional reforms, particularly those involving curriculum coverage and pacing, to ensure flexibility to alter instruction based on data analysis (Kerr et al., 2006). Marsh (2012) stated that school leaders should be reminded that it is important to start with nontaxing uses of data such as anonymous classroom level test results, to build mutual trust among teachers participating in data inquiry groups. “Making data
safe” appears to be another prerequisite for facilitating data use. Data are "a tool to raise questions rather than make judgments about the school” (Marsh, 2012, p. 5).

Building trust can be achieved by setting up regularly scheduled meetings. In Marsh’s (2012) study all four districts in the study had principals who scheduled meetings and frequently set formal expectations and rules governing meetings around student data to ensure the conversations were productive, purposeful, and personal in nature. For teachers, this time is often provided through professional learning communities or other group activities (Sanchez & Klein, 2009). In Huffman and Kalnin’s (2003) research, they found that school district teams were instructed on how to use an eight-step action research process for analyzing and interpreting data. Developing a process for using data, setting time aside for teams to meet, and providing data coaching support can build a culture of data use in schools.

There is no doubt that the role of data in teachers’ and principals’ practice has grown over the last decade along with the improvements in data quality and data access technology (Archbald, 2011). The literature on data use in schools suggests that a set of common conditions influence implementation and effects of data support interventions, including intervention characteristics (capacity, data properties), broader context (leadership, organizational structure), and individual relationships and characteristics (trust beliefs and knowledge) (Marsh, 2012). Collecting and interpreting data must be accurate and not superficial. Superficial data analysis can be worse than none at all (Love, 2004).

Spillane (2012) explains that framing data use in practice in terms of the organizational routines focuses our attention on school leader’s efforts to design and
redesign organizational routines that transform administrative and instructional practice in schools. If policymakers and reformers want more and better use of data in everyday practice in schools, organizational routines are likely to be an important mechanism in realizing their goal (Spillane, 2012). Data alone will not guarantee use, individuals at all levels need to invest in interventions to support better access to, interpretation of, and responses to data of all kinds (Marsh, 2012). A framework must be developed and followed when using data at the district level to develop policies, the building level for school improvement, or the classroom level to drive instruction. Regardless of the framework or approach to using data, it is essential that student data are reviewed frequently to evaluate the quality of the data and the process for how it is collected, analyzed, interpreted and implemented. The closer the stakeholder is to the data, the more instructional validity the decisions will have due to the proximity to the data and the ability to transform the data into information and then actionable knowledge (Mandinach, Honey & Light, 2006). As identified in the literature, leadership significantly contributes to the use of data in schools.

Current research demonstrates that effective use of data positively impacts student achievement. Barriers to using data effectively are time to analyze and interpret data, capacity to understand how to use data, and lack of an organizational tool for using data. An organizational process for collecting, analyzing, and interpreting data will provide the framework for staff to begin building capacity to use data effectively. Current research on organizational tools and methods for using data to drive instruction is limited. This proposed action research study will explore how data can be organized with the purpose of improving instruction at one elementary school in Washington State.
In summary, the literature and research to date on the use of data driven instruction in schools demonstrates positive impact on student learning. The process of organizing data for analysis and interpretation is a critical part of effectively using data. However, there is little research available on how schools address the organization of the data in a format that can be used to improve instruction. The intent of this action research study is to identify organizational strategies that foster data use in one elementary school setting.
Chapter 3

REPORT OF THE STUDY

Introduction

The purpose of this action research study was to identify and improve organizational strategies that foster data use at one elementary school in Washington State. Specifically, the study was conducted at East Omak Elementary school in Omak, Washington, where I have worked as school principal since 2011. The East Omak Elementary school leadership team served as the action research team for this study. In this narrative, I will use the term “leadership team” in describing the team’s work throughout the phases of the study.

The phases of the study generally followed the “look, think, act” framework for action research described by Stringer (2007), as discussed in chapter 1. The leadership team facilitated the “look” phase during the months of September and October 2013. The team’s objective for the “look” phase was to gather information about how grade level teams were organizing student data. Data collection for the “look” phase included leadership team members discussing data collection and organization issues with grade level teams and reporting back to the leadership team. The team transitioned into the “think” phase during the months of November and December 2013. In the “think” phase the team analyzed how grade level teams were organizing student achievement data and discussed strategies for better organizing data for grade level team use. In addition, the “think” phase included grade level teams working independently to develop data organizational tools. As tools were developed, the leadership team moved the school staff into the “act” phase by having grade level teams share their developing organizational tools during the January all staff meeting. The “act” phase primarily took
place throughout January 2014. The purpose of the “act” phase was to further develop
data organizational tools and better align the tools with the Common Core State
Standards adopted by Washington State. As with most action research studies, the
“look,” “think” and “act” phases were not totally distinct or chronological. For example, during the overall “think” phase, grade level teams and the leadership team took various “actions” to improve data organization and analysis, improve data such as establishing school-wide “data days” and refining data organization of tools. Thus, the action research process in this study reflected Stringer’s (2007) model of the “interacting spirals” (p.9) of action research. However, organizing the narrative in alignment with the “look,” “think,” and “act” phases is a useful heuristic device for narrating the study.

Throughout the action research process, my data collection as lead researcher included observation of all leadership team meetings and occasional observation of other meetings and activities. This chapter provides a chronological narrative account of phase I of the study, which involved launching the study and the “look” and “think” phases.

**Phase I of the Study**

As described in Chapter I, East Omak Elementary school is required by the Washington State Office of Superintendent of Public Instruction (OSPI) to develop and implement a school-wide improvement plan, because the school’s students are not achieving annual growth goals set by the state. Specifically, the school’s special education student population has failed to meet annual growth goals as assessed by the 2011-2012 school year state assessments. At the beginning of the 2012-2013 school year, the school’s leadership team responded by developing a school-wide improvement plan consisting of a full-inclusion special education model, Response to Intervention (RTI) framework, and leveled ninety-minute literacy instruction blocks, and this plan was
implemented during the school year. At the conclusion of the 2012-2013 school year, the school level leadership team met to discuss the effectiveness of the adopted strategies.

The team’s discussion of the special education inclusion model, Response to Intervention framework, and leveled ninety-minute literacy instruction blocks determined that data on student learning were critical to monitoring and analyzing the effectiveness and implementation of these strategies. This discussion led to the need to examine what data are available and how teachers and grade level teams use data. The team identified multiple assessments that students are administered throughout the school year that make data readily available. However the team members were concerned about the assessments taking a significant amount of student time away from teaching and learning and about the amount of funding the school district spends annually to administer the assessments. Students are administered both the Measurement of Academic Progress (MAP) and the Measurement of Student Progress (MSP) state assessments using computers. Each class is scheduled in the computer laboratory to be administered the reading and mathematics MAP assessment three times per school year and the reading, math and science MSP state assessment each spring. Looking over the previous school year assessment calendar (2012-2013), the leadership team found that students were removed from classroom instruction an average of twenty-one hours per school year because they were scheduled to be in the computer lab completing both assessments. To take advantage of the collected data and to make up for the loss of instructional time, the leadership team concluded that grade level teams and individual teachers must have the ability to better organize data so that instruction can be aligned with student needs.
The idea of organizing data to improve and align instruction with student needs is not a new concept for the East Omak Elementary staff. During the 2012-2013 school year, the staff received an opportunity to use and be trained on a computer software database program called Homeroom. The Washington State Office Superintendent of Public Instruction (OSPI) provided Homeroom to all public schools in June of 2012. Training to use the program was offered throughout the state, and the East Omak Elementary leadership team participated in a daylong training at the end of the 2012 school year. The purpose of the Homeroom program is to pull student demographic, attendance, and academic assessment data from local and state databases into one location so that administrators, instructional coaches and teachers can analyze and make meaning of the data. The information could then be used to develop school improvement plans. However, as described in chapter I, the staff and I found the program to be very cumbersome to navigate and that it often had data that was inaccurate or missing. The lack of confidence in the software program resulted in the leadership team dismissing Homeroom as an effective data organizational tool and intending to seek more ways to organize, analyze, and use student data.

**Launching the Study**

In August of 2013, I proposed this action research study to the East Omak Elementary leadership team. The school level leadership team is comprised of a teacher from each of the third, fourth and fifth grade levels, the school counselor, special education teacher, and a classified staff member who is the school librarian. I chose the leadership team as the action research team for this study because the team is responsible for facilitating and communicating school-wide improvement strategies and represents all professional learning communities within the school. My role within this research study
was one of an “insider” working with the team as lead researcher. I assured the team that my role in this study would be as a collaborator and not as an evaluator.

At the beginning of every school year, each grade level team and the classified staff select a staff member to be a part of the school’s leadership team. The selected leadership team members of the 2013-2014 school year came together for the first leadership meeting of the year at the end of August 2013. All of the selected team members had participated on the school’s leadership team the prior year. As principal, in working with these team members in the past, I was comfortable that trust and positive collaborative relationships had been established within this team. As discussed in the ethics section of chapter I, the team members agreed that their names could be used in the report of the study.

The third grade level team representative is Camille Sproule, who has over 20 years experience teaching third grade at East Omak Elementary. Camille participates in many committees within the school and throughout the district, and she is also a mentor teacher who provides support for new teachers. The fourth grade level team representative is Janet Mckee, who has 18 years of experience and has taught fourth grade at East Omak Elementary for last five years. Janet has as strong curricular background in literacy and mathematics. The fifth grade level team representative is Steve Duncan, who has 6 years of teaching experience, and has taught at East Omak Elementary in both third and fifth grade. Steve is an organized teacher who has a strong curricular and instructional background in science and mathematics.

In addition to the three grade level representatives, there are three other members of the leadership team: The school counselor, Jordan Sackman; a classified staff member,
who is our school librarian, Wendy Mahlendorf; and myself as principal. Both Jordan
and Wendy have at least six years experience at East Omak Elementary, and prior to
becoming the school counselor, Jordan taught four years at the fourth grade level. I have
had the opportunity to work with every member of the school’s leadership team for the
four years prior to this study as principal of East Omak Elementary, and, in my view, the
team has developed trusting and collaborative relationships.

During the first leadership team meeting of the year in August 2013, the team
discussed the development of the school-wide improvement plan, professional
development calendar, and academic schedules. The discussion included the need to
include in the school improvement plan the new Common Core State Standards (CCSS)
adopted by Washington State in 2012 and the Teacher Principal Evaluation Project
(TPEP) that was required by the state to be implemented in the 2013-2014 school year.
As we discussed the development of the school-wide improvement plan, it became
apparent the team would be using student achievement data to implement CCSS, TPEP,
and school improvement strategies. Student state assessment data from the previous
school year had been received by the date of this initial meeting, and the team was eager
to look over the data to analyze how well the students performed. The team recalled the
discussion on organizing data that surfaced in the meeting the previous June and agreed
that the school-wide improvement plan would include efforts to use data more
effectively, especially to measure the effectiveness of improvement strategies the team
planed to implement during the 2013-2014 school year.

The team was aware that I had been working toward a doctoral degree in
educational leadership, so I took the opportunity at this meeting to share my proposed
action research study and how I thought the team could work with me to explore how to organize data. We briefly discussed the timeline for the study, research questions, and how the information would be shared with all of the staff. The leadership team agreed to be participants in the study and to take on the role of co-researchers. I explained that my positionality on the team would be one of an insider collaborating with other insiders and taking on the role of lead researcher. I also emphasized that my collaborative work as lead researcher in this study would not include evaluating any individual or team of individuals. My role would be to support the action research leadership team by scheduling time for the team and grade level teams to meet, participating during collaborative team meetings, and collecting student achievement data for teams to use. I would also be responsible for facilitating the leadership team meetings and professional development Monday meeting agendas. We then discussed how each member of the action research team would be collecting data toward the end of the study. The team agreed that each member of the action research team would be responsible for interviewing their respective grade level team on the process of organizing data. The team agreed that not including me, the school principal, in these final interviews would allow staff the opportunity to speak more openly in responding to the interview questions without concerns about my evaluation of their perspectives. The remainder of this section provides a chronological narrative of phase I of the study, including leadership team meetings and other relevant activities during the “look” and “think” phases of the study.

The “Look” Phase

The beginning of the school year had been under way for two weeks at the time of the second school leadership team meeting on September 11, 2013. The leadership team
started this meeting with scheduling meetings for every other Wednesday afternoon throughout the fall term, unless there was no school on the designated day. During this meeting, the team discussed academic schedules, the previous year’s Measurement of Student Progress (MSP) state assessment data, scheduled grade level meetings, and the action research study. The team was interested in discussing how each team member would contribute as a co-researcher.

Discussion specifically related to the study began with looking at how data were being processed and used in the school at each grade level. Team members took turns describing how their grade level typically collected and processed data. Camille, the third grade team representative, stated the third grade team briefly looked at state assessment data and quarterly measurement of academic progress data and that some third grade teachers have collected Dynamic Indicators of Basic Early Literacy Skills (DIBELS) monitoring data. She added that the third grade team also administers and collects classroom-based assessment data that the teachers primarily use for grading and monitoring student progress. Similarly, Janet, the fourth grade representative, said the fourth grade team collects state assessment data, quarterly measurement of academic progress data, and DIBELS progressing monitoring data. Steve from the fifth grade team said the fifth grade team also collects state assessment data and measurement of academic progress data, but they do not collect DIBELS data. Steve added that the fifth grade team collects student achievement data from curricular assessments and classroom based assessments that the teachers have developed as a grade level team. All of these assessments are fully described in Chapter I.

Following the discussion of what data each grade level team collects, I asked how
they were using the data. The team paused to think and then looked around at each other before Steve said “primarily for progress reports and grading.” I then summarized what I had heard from the team, which was that grade level teams have multiple methods of collecting data, but actually using the data other than for grading was minimal at best. The team nodded in agreement. Janet added that “We do not have time to dive into the data to see what it really means.” Camille stated, “We have lots of data but no way to put it together.” Steve recalled “we tried that Homeroom program last year, but it had a lot of missing data when we tried to look up a student.”

At this point in the discussion, I presented the literature review that I had developed on the process of collecting, organizing, analyzing, and interpreting data. I explained that some of the barriers to using data that team members had described are also found in the literature. I stated that “time, capacity to understand how to process data, and a lack of a systematic process for using data are all barriers found in the literature.” The team then discussed each of the barriers identified in the literature until we ran out of time.

Two weeks later on September 25th, the team convened to discuss the upcoming schedule for administering the Measurement of Academic Progress (MAP), the timeline for the action research study, the literature review, and questions guiding the study. The following week students would be administered the fall reading and math MAP assessments, and the team confirmed the test administration schedule. The team then discussed the study and the action research process of “look, think, act,” following Stringer’s (2007) model, as described in Chapter I. The research team participants were not familiar with action research, so I provided a thirty-minute training on action research
using Stringer’s model. Emphasis was placed on the phases of “look,” “think,” and “act” as a cyclical process for the study. The team discussed the cyclical process of action research and the proposed timeline for the study. September and October would consist of looking at what data were available and how each grade level uses data. November and December would consist of “thinking” about how data can be organized. The study would move to the “act” phase followed by focus group interviews with grade level teams in January. The purpose of the focus group interviews would be to capture each grade level teams journey throughout the study in developing data organizational tools. The team developed a calendar consisting of dates that grade level meetings and leadership team meetings would be scheduled through the fall. Table 1 presents a timeline for each phase of the study and the meetings that took place during each phase.

In addition to the scheduled meetings related to the study, as listed in Table 1, the Omak School District added time for professional development for teachers each Monday by releasing students one hour earlier than the regular dismissal time. The decision to add these “early out” Mondays occurred prior to the first day of the school year in late August. The district distributed a calendar consisting of the professional development focus for each early out day; however, the first Monday of each month was left to individual school leadership teams to determine how staff could best use this time. During the earlier August 28th leadership team meeting, the team had discussed the newly added early out Monday professional development meetings and how grade level teams could use some of this time to explore how to organize data. At the conclusion of the September 25th meeting and to prepare for the next leadership team meeting in early October, team members were asked to meet with their grade level teams and discuss what
data were currently available and how the teams planned to use the data.

Table 1

*Phases of the Action Research Study: Meetings and Participants*

<table>
<thead>
<tr>
<th>Phase of Study</th>
<th>Meeting Dates</th>
<th>Participants</th>
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<tbody>
<tr>
<td><strong>August</strong></td>
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<tr>
<td>Introduction of Study</td>
<td>28th</td>
<td>Leadership Team</td>
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<tr>
<td><strong>September</strong></td>
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<tr>
<td>Launch of Study</td>
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<tr>
<td>Look Phase</td>
<td>9th</td>
<td>All Staff</td>
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<td></td>
<td>11th</td>
<td>Leadership Team</td>
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<td></td>
<td>25th</td>
<td>Leadership Team</td>
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<td><strong>October</strong></td>
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<tr>
<td>Look Phase</td>
<td>7th</td>
<td>All Staff</td>
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<td>10th</td>
<td>Leadership Team</td>
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<td>16th</td>
<td>4th Grade Level Team</td>
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<td></td>
<td>23rd</td>
<td>Leadership Team</td>
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<td>24th</td>
<td>3rd Grade Level Team</td>
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<td></td>
<td>29th</td>
<td>5th Grade Level Team</td>
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<td><strong>November</strong></td>
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<tr>
<td>Think Phase</td>
<td>4th</td>
<td>All Staff</td>
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<td></td>
<td>6th</td>
<td>Leadership Team</td>
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<td><strong>December</strong></td>
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<td>2nd</td>
<td>All Staff</td>
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<td>4th</td>
<td>Leadership Team</td>
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<td></td>
<td>17th</td>
<td>3rd Grade Level Team</td>
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<td></td>
<td>18th</td>
<td>Leadership Team</td>
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<tr>
<td><strong>January</strong></td>
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<tr>
<td>Moving to Act Phase</td>
<td>6th</td>
<td>Focus Group Interviews</td>
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<tr>
<td></td>
<td>15th</td>
<td>Leadership Team Interview</td>
</tr>
<tr>
<td></td>
<td>24th</td>
<td>Grade Level Teams</td>
</tr>
</tbody>
</table>
October 2013.

To further prepare for the team’s work in October and to expedite the data distribution process, I collected data from the previous 2012-2013 school year’s Measurement of Student Progress (MSP), the current 2013 Measurement of Academic Progress (MAP), and any available classroom based assessment data. Leadership team members took this data back to grade level teams so that teams could begin scheduling time for looking at data and how they currently organize data.

During the October 9, 2013 leadership team meeting, the team scheduled additional time for grade level teams to “look” and “think” about organizing data. The leadership team agreed that grade level teams would have sufficient amount of time during weekly grade level meetings, early out Monday meetings, and scheduled professional development days to explore data and think about the process of using data.

The leadership team decided that substitute teachers would be provided for all teachers within a grade level on designated professional development days so that each team would have a full day of uninterrupted time to work with data. The leadership team decided each grade level team would participate in a total of three of these “data days” during the months of October, November and December. Each grade level team was asked to examine how they could organize data in a manner that would help them analyze and interpret their data. Each grade level team was asked to prepare for the “data days” during weekly grade level meetings by collecting and looking for data that should be included in developing an organizational tool. The leadership team members agreed to present to their respective grade level teams and discuss the organizational strategies that were identified within the literature review, such as spreadsheets, data walls, and color-
coding data.

The “data days” for each grade level team were scheduled for the month of October, and substitute teachers were requested for all teachers within each team. The school secretary managed to secure substitutes for each team member, but found this to be very difficult as there are few substitutes available in the district. During the month of October, each grade level team participated in a “data day.” The focus of the first “data day” for each grade level team was to explore current data, begin thinking how data can be organized in a meaningful manner for the team to understand, and to explore what supports were necessary for organizing data. The results of these first “data days” were a list of available data sources for each grade level and a strategy the grade level team could use to organize the data. From my participation and observation in each of the grade level “data days,” I found that each team had their own unique idea in regard to organizing data.

At the beginning of the school year, I had asked that each grade level choose either math or reading as their grade level improvement focus. Third and fourth grade teams chose reading instruction and the fifth grade team chose math instruction. As a strategy to improve reading instruction, the third grade team implemented a literacy reading block that was focused on homogeneously grouping students by reading assessment data. During the third grade team’s “data day,” they came up with a proposed strategy consisting of putting a data-wall together with every child’s name and color-coding the students by ability level. The proposed tool would help the team regroup students every eight weeks and see progress that all students were making as a result of the literacy model being implemented. Similarly, the fourth grade team was also
implementing a literacy instructional block, however their proposed strategy for organizing student data would be an excel spreadsheet. The fourth grade leadership team member, Janet, had experience with creating and manipulating Excel spreadsheets. The team proposed inputting the data into a Excel spreadsheet and looking for ways to identify trends from the spreadsheet. The fifth grade team focused on organizing student assessment data related to mathematics. The team used state assessment data from the previous school year, fall measurement of academic progress data, curricular assessment data, and classroom based assessment data in their process of looking at ways to organize data. The team proposed organizing student data by listing student names and academic data on colored post-it notes that would be organized in folders. During the next few grade level meetings, the teams would be thinking about how they would put their strategies in motion.

Throughout the month of October, each grade level team had met multiple times and participated in a daylong “data day” work session. Each grade level team had made progress on collecting and identifying data sources and was now transitioning to developing a data organizational tool. I observed this transition during each grade level team’s “data day.” The agenda for each team was similar in that they focused on looking at data and the sources of data for half the day and transitioned to thinking about strategies to develop their organizational tool during the afternoon. A strategy that was consistent among all three grade level teams was the attempt to connect data sources with curriculum standards and Common Core State Standards (CCSS) in a format that was visually observable by the team. These initial organizational tools would be developed and refined during the action research process over the next three months. In chapter
four, I will be discussing final outcomes as well as providing some concrete examples of the data organizational tools that were developed.

The “Think” Phase

November & December 2013.

All-Staff Meeting.

On November 4, 2014, the leadership team met with all staff to begin shifting the focus from looking at data to further thinking about developing each team’s data organizational tool. During the meeting, each grade level team presented a description of their proposed organizational tool and the data sources for the content area (reading or math) they were addressing.

The third grade team, which focused on improving reading, presented classroom and grade level organizational tools they were developing. The classroom tool was a spreadsheet consisting of student achievement scores from multiple assessments. The spreadsheet listed the students in class, each student’s overall reading achievement score, and individual component scores within the overall reading score. The third grade level organizational tool consisted of a color-coded data wall that included overall reading scores for every student. The color-coding was used to group students for the leveled reading groups. The team stated that the two sets of tools complimented each other, because they present data in different views to help the team analyze data. Data sources for both tools were the Measurement of Academic progress (MAP), Dynamic Indicators of Basic Early Literacy Skills (DIBELS), and Classroom Based Assessments (CBAs). A member of the third grade team described the data-wall:

We developed the data-wall by listing all third grade student names on a large white board and then assigned a color to a specific academic level using MAPs data. Because we are doing the walk-to-read literacy block, we have seven
reading groups from five classrooms. Students are grouped based on their level. We are using other assessments to confirm each student’s level and then assigning them a color.

The team then presented their classroom reading data tool, which was a color-coded Excel spreadsheet consisting of individual student color-coded academic levels described as Basic, Below, Proficient and Advanced. The team showed everyone on the staff the spreadsheet and stated that it helps to see the colors so that the teacher can get an overall picture of where the class is performing.

Next, the fourth grade team presented. The fourth grade team was also focusing on improving reading using a literacy instructional block. The team used an Excel spreadsheet to organize student’s MAPs, DIBELS, and CBAs data into one document that was accessible to all team members. The team explained that they used the spreadsheet to place students in reading groups according to their academic level by ranking all students in the grade level. The team added columns within the spreadsheet for inputting future assessment scores, so the team could compare student growth and regroup students accordingly. The spreadsheet could also be manipulated to show how groups of students were progressing. (See Appendix A for an example).

Next, the fifth grade team presented two organizational tools they were developing using MAP and CBA math data with the focus on improving their math instruction. The first tool was described as a color-coded sticky chart. Using this tool, students are assigned one of four colors based upon their present math level. The color of the sticky depicts the student’s performance level of basic, below, proficient, or advanced level. The students’ names and respective scores on the MAP and CBA assessments are written on the sticky notes. The grade level team presented how they organize the sticky notes in a manila folder, so they could identify where students are performing within the
grade level. (See Appendix B for an example)

The fifth grade team’s second data organizational tool was a class bar graph that ranks each student’s performance from lowest to highest. The bar graph was used to identify student growth for each student. The team shared that, during their October “data day,” they had identified that both the lowest and highest students were making significant math growth. However, students scoring in the average range within the class were not making as much growth as the low and high students. The team concluded by saying they would not have been able to make this comparison or identify the students not making growth if they were not able to organize the data in a manner that allowed them to compare the results of the assessments across students. (See Appendix C for example of the bar graph)

Following each grade level’s presentation, I led a discussion comparing and contrasting elements of each tool. The staff identified that each of the tools had a visual element of color-coding student academic levels either by classroom or grade level view and that color-coding provided scaffolding for analyzing how individual students and groups of students compared to one another. I questioned the staff about what other components should be included when developing a data organizational tool. The staff suggested that data organizational tools should include:

- Multiple sources of data
- Visual coding process
- Rubric for interpreting data
- Standards for comparing data
- Scheduled timeline of assessments
• Intermittent, formative and summative assessments

The meeting concluded with each grade level team discussing their upcoming grade level meetings and next steps to developing their organizational tools. As I picked up my notes and materials from the meeting, I observed staff enthusiastically sharing their data tools and current interpretations of the data. Staff were inquiring across grade level teams about the tools each team presented during the meeting. I too shared the staff’s excitement and enthusiasm as I could see the progress teams were making in developing their tools and that staff were working together to refine their tools that would lead to aligned instruction for students. Two days later, the leadership team met to discuss the outcome of the all-staff meeting and the next steps for supporting grade level teams in thinking about developing organizational tools.

**November 6, 2013 leadership team meeting.**

The leadership team met on November 6, 2013, to discuss the results of the all-staff meeting two days prior and how the leadership team could support grade level teams during the continuing “think” phase of developing data organizational tools. I shared that I enjoyed the excitement each grade level team exhibited when describing and demonstrating their organizational tool. The leadership team agreed that grade level teams were excited, because the meeting provided the opportunity to learn about what other grade level teams were doing to organize their data. Camille said that her third grade level team really liked the bar graph tool that the fifth grade team had created. In their view, the bar graph makes it quick and easy to see how all students are performing. Janet added that having the opportunity to share ideas and to see what other data tools were being developed sparked new ideas for revising respective grade levels’ tools. The
leadership team agreed that at the next all-staff meeting, grade level teams would again share their progress and further development of their organizational tools with other grade level teams.

**December 2, 2013, all-staff meeting.**

At the next all-staff meeting on December 2, 2013, I distributed three different colored sticky notes to staff as they entered the library for the meeting. I made sure that each staff member within a grade level team had at least one of the colors and asked that staff with the same color sticky sit together. The result of this process was three randomly assigned groups of staff comprised of at least one member from each grade level team, a special education teacher, and an elective course teacher. Prior to the meeting, I had asked teachers to be prepared to share the progress they were making with their data organizational tool. During the first part of the meeting, within the mixed groups, each teacher shared their respective grade level team’s progress with their data tool and then discussed what assessments and data were available to align instruction with the Common Core State Standards (CCSS). As I moved throughout the room listening to each mixed group’s discussion, I heard staff questioning each other on how they were trying to connect and incorporate the CCSS into their data tool. I heard a staff member state “it’s difficult to incorporate the standards into the data tools, when we do not know how the data connects with the standards.” I also heard one group say “it is important that we know what the data means so that we know where students measure up with the CCSS.” From listening to the discussion of each group, it became apparent to me that grade level teams needed support in interpreting student data in relation to the CCSS.
December Leadership Team meetings.

During the next two December leadership team meetings, the team discussed progress each grade level team was making toward developing organizational tools and how the leadership team would further support the development of each grade level’s work. The leadership team members reported that grade level teams were struggling with incorporating the CCSS into their data tools. Everyone agreed the standards should be included in the tools so that staff could monitor student progress toward meeting standard. However, the leadership team identified a barrier to including the standards, which was that staff did not have a clear understanding of what standards students are required to meet at each grade level. The leadership team brainstormed ideas for supporting grade level teams in the process of learning about the newly adopted CCSS and how grade level teams could incorporate the standards into their data organizational tools so that student progress toward meeting standards could be monitored. To support grade level team’s understanding of the CCSS, the leadership team decided that grade level teams would need additional time to become acquainted with the new standards. They determined that grade level teams would use weekly grade level meetings to review and discuss the CCSS for their grade levels. As grade level team’s understanding of the standards developed, it was hoped they would be able to begin incorporating the standards into their tools.

January 2014.

During the month of January 2014, the leadership team transitioned from thinking about the process of developing data tools to further implementing use of the tools. First, it was decided to go forward with gathering more data through interviews. Leadership
team members would conduct focus group interviews with grade level teams and would then participate in a second interview consisting of just leadership team members before transitioning to the “act” phase of the action research study. The leadership team agreed to conduct the focus group interviews with their respective grade level teams on January 6, 2014. The third grade level team consists of five classroom teachers and a special education teacher. Both the fourth and fifth grade level teams consist of four classroom teachers and a special education teacher. I met with leadership team members Camille, Janet, and Steve to discuss the purpose for the focus group interviews and the protocol for conducting the interviews. The purposes of the focus-group interviews were (a) to gather information about the steps each grade level team made during the development of their data organizational tools; and (b) to re-identify the barriers that arose during the process and the supports that were needed to overcome the identified barriers during the “look” and “think” phases of the study. The results of the focus-group interviews would then be used to transition grade level teams into the “act” phase of the study and to provide the leadership team with input from staff in planning for next steps for improving the process of developing the data organizational tools. The focus group interview protocol is provided in Appendix D.

**January 6, 2014 focus group interviews.**

Camille interviewed the third grade level team, Janet the fourth grade level team, and Steve the fifth grade level team. Because I am the principal and evaluator of teaching staff, I excused myself from the interviews to ensure an interview environment in which staff could answer authentically and without concerns about evaluation. The focus-group interview protocol consisted of interviewers reading twelve questions from a
script, digitally recording the interviews with an iPad application, and emailing the recordings to me. Each member of the grade level teams, including the interviewers, were encouraged to provide responses to each of the questions.

I emailed the digital recordings to a transcriptionist who quickly returned the transcriptions via email on January 7, 2014. To assure the transcriptions were accurate, I compared them with the digital recordings. Although the interview participant’s names were redacted from the transcriptions, I was able to identify some of the participants by their voices. This process did not hinder the interview data collection process because I reviewed the digital recordings after the interviews. Listening to the digital recordings, I found the transcriptions to be very accurate and the participants to be candid when responding to the questions. As the lead researcher, I would be conducting the process of coding the qualitative interview data to identify themes at a later date. However, before coding I would present the transcriptions to the leadership team for their initial review on January 15, 2014.

**January 15, 2014 Leadership Team meeting.**

The leadership team met on January 15, 2014. During this meeting, I conducted a focus group interview of the team, distributed the grade level team focus group transcriptions, and discussed coding interviews. As with nearly all of the leadership team meetings, all members were present. The team was very interested in looking at the transcriptions, but I asked that we conduct the interview first so their opinions would not be influenced by the focus group data. The purpose of the leadership team interview was to compare themes between this interview and the focus group interviews, and to collect input on leading the process of developing data organizational tools.
Prior to beginning the interview, I reviewed the purpose for conducting the interview with the team. I explained that the interview would be digitally recorded, transcribed, and coded to identify themes in the same manner as the focus group interviews. I encouraged the team to provide detailed explanations and concrete examples related to the questions. As the lead researcher, I conducted the interview using three open-ended questions: How has the school benefited from the process of looking at data? What evidence is available that the school has benefited and that data tools are being used? What more needs to happen? The participants took turns answering questions using references to their respective grade level teams progress.

Following the leadership team interview, I presented and distributed the grade level focus group interview transcriptions that were recently received but not yet coded. Team members that conducted the interview were given a moment to look over their respective grade level transcription. The team was enthusiastic to read over the transcriptions as none of the team members had previous experience with participating in an interview followed by reading the interview transcript. The team was impressed with the quantity of data that was derived from the interviews. I then led a discussion about coding qualitative data and how I would code both the focus group transcriptions and the leadership team interview. I explained that, in coding the data, I would identify common themes, concepts, and ideas and that the team would discuss the results during the next leadership team meeting. With limited amount of time left in the meeting, I collected the transcriptions and told the team that we would analyze the transcriptions and coding process at the next meeting on January 22, 2014. The next day I received the leadership
Moving to Action

**January 22, 2014 Leadership Team Meeting.**

The following week the leadership team met on January 22, 2014 to discuss the coding process that I used and to continue to analyze the interview data in order to develop a plan of action based upon the results. I had coded the three focus-group and leadership team interview transcriptions using a three-step process: (a) Transcriptions were read closely to identify initial themes; (b) common themes were categorized as either barriers or supports; and (c) transcriptions were read again to identify and color code ideas and concepts within the common themes. The leadership team analyzed the results of the coding process by discussing the themes and ideas that had emerged.

During the discussion, the team identified barriers and supports to using data that had emerged as common themes within the transcriptions. These two themes also were identified within the literature review and could be used in moving this action research process into the “act” phase. Four concepts were identified in regard to barriers to effectively using data: Inconsistent data sources, issues with access to data, lack of time to examine data, and lack of skills for interpreting data. Additionally, the team identified four themes in regard to supports: Time to collect and analyze data, trust between staff and administrators, data coaching, and leadership facilitating vertical team meetings.

**Barriers to Effective Data Use.** Teachers reported they had difficulty using data because of inconsistency across data sources. This inconsistency related to three areas: First, teachers have had to administer new assessments with new curriculum. Second,
teachers had to align assessments with the new Common Core State Standards (CCSS). Third, administration of classroom based assessments was inconsistent between grade levels which made tracking student data from one grade level to the next difficult. As a result of these inconsistencies, student data from the new assessments could not be compared to previously collected assessment data. Teachers did report consistent data derived from the Washington state Measurement of Student Progress (MSP) and school-wide Measurement of Academic Progress (MAP). However, teachers found accessing these data sources difficult and untimely in regard to using the data to plan instruction.

Regarding access to data, the Washington state Measurement of Student Progress (MSP) assessment is administered in late spring, and results are returned to the school in the fall of the following school year. Teachers reported that this delay in access to data until months after the test was administered made it difficult for them to analyze, interpret, and plan instruction based on the data. Teachers also reported they had difficulty accessing school-based assessment data such as the Measurement of Academic Progress (MAP), because the computer program on which MAP data was displayed was cumbersome to maneuver. During the interviews, teachers recalled trying to access data using the newly introduced Homeroom database program that was intended to help teacher’s access data from multiple sources. However, the program was difficult to access and manipulate.

Teachers reported they did not have enough time to analyze, interpret, or plan instruction using assessment data. They have time only to work with their classroom based assessment data for report card purposes. In addition, they stated that grade level
meetings did not provide enough time to explore and discuss classroom-based assessments or to collaborate using data within grade level teams and across grade levels.

Interpreting data was also identified as a barrier for teachers using data. The majority of teachers said they have difficulty interpreting assessment scores on the formative and summative assessments the school administers. Teachers have difficulty interpreting and analyzing how one student score relates to another score on a different assessment. They also find it difficult to analyze the data without knowing the learning targets, because the learning targets are changing with the implementation of the new Common Core State Standards (CCSS).

**Supports for Data Use.** Grade level teams said they need time to collect, organize, interpret and analyze data. To provide time for teachers to use data, the leadership team scheduled full day professional development “data days” with substitutes hired for teachers. These full day professional development opportunities provided additional time for grade level teams to focus on data. Grade level teams said “data days” were very important, because they allowed the teams to examine data, share observations and make plans.

One teacher stated that, “scheduling time for grade level teams to discuss a specific content area and how students are performing is crucial to using data.” Another teacher added that, “when we met as a grade level team, we focused on writing. It really helped us examine how we are teaching writing and where students are struggling.” The time to look at and reflect on how students were performing was a support that all grade level teams said was critical to developing a data organizational tool.
Teachers also brought up the issue that the process of using data must be collaborative and based in trust. As one teacher stated in the interviews, “school leadership can support the collaborative process by not using data to hammer teachers.” Grade level teams that have developed trust work together to improve their instructional practices without being afraid of being judged. School leaders can facilitate collaboration by defining school-wide academic goals that all teachers work toward. A teacher stated during the interviews, “it helps when we use data to set a goal that all of us are working toward. For example, when we identified the number of students the school needed to be proficient on the state assessment to meet the states growth goal, we worked together to meet the goal and were not judged individually.”

Teachers also reported that school leaders could support the use of data by facilitating collaborative vertical team meetings between grade level teams. Teachers within a grade level team have the opportunity to share their progress toward grade level goals, but rarely do they talk with other grade levels. As one teacher stated, “I think it is important that grade level teams share their data so that we know what students have been taught before they come to your grade level, and what they are expected to know for the grade level they are going into.” School leaders can help scaffold discussions between grade level teams by providing data coaching.

Providing data coaching on the process of collecting, interpreting, analyzing, and planning with data was identified as a necessary support in the literature as well as in the interview data. Teachers reported that when school leaders made using data a priority, teachers were more likely to use data more consistently. School leaders can support teachers using data by coaching them through the process of interpreting their data. One
teacher stated, “school leaders must know what the data means, so that they can support teachers understanding by asking the right questions about data.” Another teacher added, “leadership should be communicating consistently with grade level teams about data, looking for trends over multiple school years so that teachers can see if the school-wide instructional strategies are making a difference.” Teachers reported that when they share data with each other, it helps to have a rubric or reference scale for where students are currently performing and for expected growth students should make over a period of time.

**Summary of Grade Level Team Interview Data.** When analyzing the results of the grade level team interviews, some of the barriers and supports identified complimented each other. The research team believed this was a result of the leadership teams cyclical process of implementing the “look” “think” “act” steps of action research. While “time” to organize data was identified as a barrier, the leadership team had scheduled time for teams to organize data. Where access to data was identified as a barrier, the leadership team had collected and distributed data to grade level teams for the “data days.” However, having consistent data sources and developing teachers’ data interpretation skills are still barriers the leadership team would need to address.

Following the discussion and analysis of the focus group interview transcriptions, I transitioned the team to looking at the results of the leadership team interview I had conducted January 15, 2014.

**Leadership Team Interview Data.**

When the leadership team was asked how the school benefited from the process of looking at data, the team members responded by describing the organizational tools
that each grade level team had developed and how these tools have changed the way in which grade level teams use data. The leadership team provided the following examples as benefits of developing the organizational tools:

- Grade level teams are using the organizational tools to compare fall and winter data and to align instruction with areas in which students are not showing significant growth.

- Grade level teams developed different organizational data tools at each grade level to meet their own needs. Having tools that teams developed themselves and understand how to use when analyzing data makes it more likely that they will use the tool routinely.

- Data tools are used for grouping students for literacy instruction, monitoring student growth, and regrouping students every eight weeks.

- Data tools provide structure for identifying students needing more support within the Response to Intervention model (RTI).

- The data tools allow data to be used to analyze the effectiveness of school improvement interventions.

In addition, the team listed the following areas in which teachers will need more support to effectively use the data organization tools.

- How to align curriculum and instruction with student instructional needs.

- Methods for identifying struggling students and developing interventions for students

- Organizational structures that allow time for team collaboration and communication related to student learning

- Ways to identify learning trends across class and grade levels

The team finished analyzing the results of the coding process by discussing the ideas and concepts related to barriers and supports for data use. The team’s consensus was that
having data organizational tools and the time to meet provides the opportunity for grade level teams to explore data and provide each other feedback as to what the data means. Janet stated that, “this is important so that teachers can monitor student learning and the effectiveness of their instruction.” The team agreed that there was a lot of evidence regarding the positive impact of developing the data tools, but more work is needed to improve the tools. Teachers still need support on developing their capacity to understand data and the ability to make meaning of the data by triangulating multiple data sources. Data sources also need to be consistent from one grade level to the next, so that grade level teams can vertically align curriculum and instruction. I explained to the team that we would be able to address some of the action steps during the professional development day on January 24, 2014 and during the upcoming professional development Mondays. Janet added that, “the data organizational tools should be used during the upcoming curriculum adoption the school district would be facilitating in spring of 2014.” Camille added, “from using the data organization tools, we know where the students are struggling, and this information should be used to select a curriculum with supporting intervention tools that are aligned with student instructional needs.” The meeting ended following a discussion of the school calendar and planning of the January 24th half-day professional development. The January 24th agenda would consist of teachers using their data organizational tools to create student growth goals. The student growth goals would be used for measuring student growth over time as required by the Teacher and Principal Evaluation Process (TPEP).
January 24, 2014 All Staff Meeting.

The all staff meeting on January 24, 2014 began with an introduction about writing student growth goals as defined by the Robert Marzano instructional framework that Omak school district had selected to be in compliance with the Washington State Teacher and Principal Evaluation Project (TPEP). The purpose of the meeting was to have each teacher analyze and interpret student data using their grade level team’s data organization tool. The result of analyzing and interpreting data would lead to defining student growth goals for each teacher. During the meeting, grade level teams worked together to discuss their tool and how the tool would be used to analyze and interpret student data. By the end of the meeting, each teacher had developed a student growth goal that would be measured by comparing assessment data from the fall testing period and the upcoming spring testing period.

Following the meeting, the leadership team met to discuss the results of the work that occurred during the meeting. Everyone agreed that each grade level team made significant progress with their organizational tools and that each teacher had an opportunity to put the tools to use to develop student growth goals. The team then discussed how the organization tools supported the process of using data and what steps need to be taken to further to support the development of the tools. The leadership team listed the following proposed action steps to support the development and use of the data organizational tools:

- Provide time for vertical curriculum and instruction alignment discussions during professional development Mondays
- Add additional data sources that are consistent across all grade levels to allow for vertical alignment of assessments
• Continue grade level team data days
• Include Common Core State Standards (CCSS) within data tools
• Involve 2nd and 6th grade level teams in these action steps
• Continue to track data over time to identify learning trends

It was decided that, at the next school leadership team meeting in February, the team would further discuss developing an action plan and a schedule for implementing the action steps. In February, the leadership team developed an action plan that would be implemented during the remainder of the school 2013-2014 school year.

Summary

This chapter included a narrative account of the action research process that was conducted by the East Omak Elementary leadership team. The leadership team set out to identify and improve organizational strategies that foster data use. This chapter provided a chronological narrative of the “look” and “think” phases, and concluded with moving into the “act” phase. Each grade level team was asked to examine how they could organize data in a manner that would help them analyze and interpret their data. These initial organizational tools would be developed and refined during the action research process throughout the study. I anticipate that the iterative cycles of action research will continue to evolve as the leadership team and grade level teams continue with their work on developing and using data organizational tools. In the next concluding chapter, I will summarize the outcomes of the study, the conclusions of the study, and implications for policy, practice and research.
Chapter 4
OUTCOMES AND CONCLUSIONS

Introduction

The purpose of this action research study was to identify and improve data organizational strategies that foster data use at one elementary school in Washington State where I serve as school principal. Chapter 3 presented a narrative account of the action research process, focusing primarily on the “look” and “think” phases and concluding with transitioning into the “act” phase. A number of data organizational tools and supports for the development of the tools were established through the action research process. This chapter will present the specific outcomes of the action research process, the conclusions of the study, implications for policy, practice, and research, and my reflections on the action research process.

Outcomes of the Action Research Process

Overall the action research process that we engaged in at East Omak Elementary School was highly successful in leading to significant improvement in data organizational tools, which could then be used in planning instruction. The major outcome of the study was the development of multiple data organizational tools that could be used by grade level teams to track each student’s current performance and growth over a period of time, to group students for instruction, to better align curriculum and instruction with student needs, and to better evaluate effectiveness of adopted interventions. Each grade level team developed a tool or set of tools by digging deeply into data sources that were available and discussing how the data could be effectively used. These data organizational tools are described in more detail in subsequent sections of this chapter.
and illustrated in appendices.

An additional outcome was the establishment of specific “data days” for grade-level teams to work collaboratively on data organization and analyses. These data days have been positively received by teacher and administrators and have provided critical time for grade-level teams to collaboratively work with data and plan instruction. The data days will continue into future school years.

A third outcome resulted from the development of better data organizational tools and allowing time to work with them within the scheduled data days. This outcome was the ability of grade-level teams to identify more accurately the weaknesses and gaps within the assessment system, for example, the inconsistency of data across grade levels, which interfered with the ability to track student growth longitudinally. All of these outcomes worked together to lead to the final anticipated outcome, which is greater awareness within the district regarding assessment issues as well as district-wide efforts to align assessments and track student growth across all grade levels. For example, as a result of the study, a recommendation was made by the leadership team to begin to include other grade levels (2nd and 6th) in the assessment alignment process. In achieving these outcomes, the action process was successful and highly beneficial to the school, the district, the school leadership team, and myself.

**Data Organizational Tools**

This section describes in more detail the data organizational tools developed through the action research process.
Bar graph organizational tool.

The fifth grade level team developed a bar graph data tool that organizes one source of student achievement data from at least two assessment periods in a visual format that teachers can use to compare student growth over a period of time. Data from the first assessment period is used as a baseline score. Students are ranked based on the baseline score from lowest to highest. The second assessment period score is used to compare each student’s growth between the two data points. The bar graph is used to depict student growth by graphing the number of points each student increased, and by organizing data in this manner, teachers were able to visually identify which students were making growth. As the bar graph tool developed, a teacher on the fifth grade level team stated, “this data organizational tool helped identify the lowest and highest students making significant growth between assessments. However, students in the middle range did not make significant growth.” Organizing data using this tool provided structure for teachers to begin analyzing how students were performing in their classes. (See example in Appendix C.)

Color-coded sticky note organizational tool.

The fifth grade level team also created color-coded sticky note charts that organized multiple sources of data from at least two assessment periods. Four colors of sticky notes were selected and given proficiency codes respectively of Below Basic, Basic, Proficient or Advanced. The results of multiple assessments were used to triangulate the proficiency level at which each student was performing during an assessment period. Students were then assigned a color based upon their proficiency level. Following the first assessment period, the sticky notes were organized in manila
folders within four proficiency quadrants. The organization of the color-coded sticky notes within the four proficiency quadrants provided teachers with a visual structure of where students were performing. Following each assessment period, students were reassigned a color based on their current proficiency level and placed in the appropriate quadrant. The color-coded data organizational tool provided teachers the visual structure to set achievement goals and compare student growth over a period of time. (See example in Appendix B.)

**Data wall organizational tool.**

The third grade level team created a data wall organizational tool that organizes multiple sources of student achievement from multiple assessment periods. The grade level team used a large classroom size dry erase board to develop a data wall. The data consisted of including all students within a grade level, assigning a proficiency level based on triangulation of data from multiple assessments, color-coding student names according to proficiency levels, and grouping students by color-codes. As Marsh (2012) found in her study, organizing systems like a data wall can be enhanced by color-coded data displays that organize results by standards and highlight weak and strong areas of performance. The color-coding provided visual structure for teams of teachers to group students for instruction and to monitor student achievement growth over time. The color-coding easily identified students that had limited progress, and interventions could be designed for those students needing more support.

**Spreadsheet organizational tool.**

The fourth grade level team created a spreadsheet organizational tool consisted of multiple data points from multiple assessment periods. Student names and data were
entered into a spreadsheet and then color-coded based upon three levels of proficiency. The three proficiency levels were categorized as (a) at grade level or above, (b) not meeting grade level, and (c) way below grade level. The spreadsheets and coding process provided teachers with the ability to visually analyze and interpret the data according to the students’ present achievement levels. The spreadsheets also provided structure for organizing students and their data so that teachers could monitor student growth over time.

Conclusions and Implications

The process of using data in schools is often described in the literature as a four-step rational process: Collection, analysis, interpretation, and implementation (Huffman & Kalnin, 2003; Marsh, 2012; Sanchez & Klien, 2009; Spillane, 2012). However, there is little previous research available on how schools effectively organize data so that educators can begin to analyze, interpret and make meaning of the data. The conclusions of this action research study contribute to this research base by exploring these processes in one school. These conclusions are: (a) Organization of data starts with the “end in mind,” that is first determining how data will be used; (b) teachers often lack the capacity to interpret data and need support in developing this capacity; (c) proactive leadership practices and the action research process itself are effective mechanisms for supporting teacher data use.

Beginning With the End in Mind

It would seem appropriate that, after collecting data, organizing data would be the next step in the process prior to analysis, interpretation or implementation (Huffman & Kalnin, 2003; Marsh, 2012; Sanchez & Klien, 2009; Spillane, 2012). However, in
developing data organizational tools, grade level teams in this study found it useful to work backwards in the process by identifying first how the data would be used, the purpose for interpreting data and how the data would be analyzed. For example, the fourth grade team wanted to use data to group students for reading instruction within their grade level. Before the team could develop their organizational tool, they had to identify what data were going to be used, how often the data would be collected, and the size of the reading groups. The grade level team developed a spreadsheet that organized student reading proficiency levels from lowest to highest. This spreadsheet provided the organizational structure for the grade level team to group students into reading groups for reading instruction.

Building Capacity to Understand Data

One issue in regard to effective data use in schools relates to teachers’ lack of capacity to interpret data (Archbald, 2011; Feldman & Tung, 2001; Kerr et al., 2006; Marsh, 2012; Mason, 2002). For example, teachers often misunderstand the difference between interim, formative, and summative assessments and how the data derived from these assessments are interconnected. The teachers in this study reflected this issue. To respond to this issue, the leadership team took a proactive approach to building in supports such as the “data days.” In addition, leading teachers though the process of developing organizational tools helped teachers better understand the data and how various sources of data were related. Finally, allowing time for grade level teams to share their work with the other grade level teams further enhanced teachers’ knowledge and skills in regard to organizing and analyzing data. This study illustrated the
importance of providing such supports to teachers as well as providing concrete examples of how to do so.

**Proactive Leadership and the Action Research Process**

During the process of this study, as school principal I took a proactive leadership approach to support teachers’ development in regard to data interpretation and use. While the literature suggests that schools typically use data for developing goals at the beginning of the school year, and often the data is not revisited until the end of the school year (Kerr et al., 2006; Spillane, 2012), I found that it was important to encourage teachers to more frequently monitor student achievement data throughout the school year. To do this, I consistently and frequently posed questions about the data to grade level teams, such as what current data is available to track student growth, how is data being used by teachers, and which students need additional supports according to the data? These questions encouraged teachers to reflect on the data and to take ownership of data interpretation.

Another leadership approach was to address the issue of inaccessibility of data (Mandinach, Honey & Light, 2006). I collected and provided teachers with data reports from the Northwest Evaluation Association’s Measurement of Academic Progress (MAP) assessment for both fall and winter. As I found in this study and several studies within the literature demonstrated, principals appeared to ease teachers’ discomfort with large data sets and their sense that the data is not easily accessible when data was made available in a format that teachers could use. Finally, I attempted to create a sense that delving into data and analyzing for instructional purpose and was a “safe” practice for teachers, rather than a process that would result in negative evaluations in regard to
student growth. All of these leadership actions appeared to have a positive impact and illustrate the importance of proactive leadership in creating an effective process for data use in schools.

In addition, the action research process itself, cycling through look, think, and act phases, was a very beneficial process for engaging the school staff and creating a sense of ownership in regard to school-wide improvement in data organization, interpretation, and use for planning instruction. Several studies within the literature reflect this approach in showing that principals were able to act as initial catalysts for data inquiry but then worked to create more distributed leadership around data use (Coplan 2003; Wayman & Stringfield 2005; Kerr et al, 2006; Archbald, 2011; Sanchez & Klein, 2009).

**Implications**

The conclusions of this study have implications for practice, policy and research as described in the following paragraphs.

**Practice Implications**

School leaders need to take the lead in establishing structures and processes within their schools for data organization. These structures and processes should include scheduling time for teachers and grade level teams to collect, organize, analyze and interpret data; assuring that teachers review data frequently to evaluate the quality of the data and the process for how it is used; and developing data organizational tools using a “ground up” approach through an inquiring process like action research. Data organizational tools should be clear and easily understood. For example, color-coding was an essential feature of the tools developed in this study.
Policy Implications

The state of Washington has mandated that both teacher and principal evaluations include criteria that specifically outline student growth data to be used in the evaluation process. The state has determined that failure to follow this mandate will lead to district sanctions and ultimately termination of teachers and principals. However, the state has not allocated additional resources to support professional development in regard to using student growth data. This unfunded mandate consequently places the burden directly on school districts to train and support staff in using data. State funding must be allocated to support and train teachers and principals by providing professional development opportunities and release time for organizing and using student achievement data. Without funding to support using student growth data within the newly adopted Teacher and Principal Evaluation Project (TPEP), the evaluation process and ultimately improved instruction and improved student learning will be a failure.

Research Implications

This study illustrated a proactive process of developing and using data organizational tools at one elementary school in Washington State. However, more research is needed on how schools develop effective data tools at the classroom and school-wide levels. In addition, in this study grade level teams worked on organizing data during contracted time, while substitute teachers were assigned to cover classrooms. There is a need for more research on the drawbacks and benefits of teachers doing data work within the contracted school day. Further, given the policy mandates in regard to student growth data and the enormous investment of resources on the part of schools,
there is a great need for research that explores the impact of these policies and practices on student learning.

**Reflections**

Implementing the action research process throughout this study provided a meaningful, collaborative and outcome-based experience for both the action research team and myself. The cyclical process of “look, think, act” empowered grade level teams to embrace the development of data organizational tools because the data used in the organization was directly related to their students. The action research process was meaningful and provided grade level teams with immediate feedback as the data was organized for interpretation and analysis. As the development of the tools moved to the “act” phase of the research process, I was excited to see grade level teams collaborating by sharing ideas of how they developed their respective tool or tools and how they were going to use them to monitor student learning and to set student growth goals.

During this study, I learned that proactive leadership was critical to empowering teachers in the process of developing data organizational tools. Collecting data reports from school-wide assessments for teachers, establishing expectations for using data, scheduling time for grade level teams to meet and providing support for interpreting data were important steps in proactively engaging all of the grade level teams. The “data days” provided the critical time that was necessary for grade level teams to work with data. Our school allocates hours of time for administering assessments, and this study demonstrated that to make use of the data teachers need time to use the data. At the beginning of the study, I learned that teachers primarily used data for progress reports and report cards and they were not accustomed to organizing data in manner that they
could interpret and analyze how their class was progressing. I believe this was primarily due to teachers not understanding the meaning of the data in relation to standards. I learned that with support, teachers and grade level teams were able to make meaning of the data so that they could organize data for purposes of monitoring student growth and improving instruction.

This study significantly impacted the use of student data at East Omak Elementary. As building principal and school leader, this study has encouraged me to be proactive in supporting teachers in the use and organization of data. I believe that leaders are the catalyst that empowers teachers to use data through effective questioning techniques. Throughout this study, I found myself consistently asking teachers questions about their data and what they had interpreted. This process of leading with questions helped me identify that many teachers did not have experience organizing or interpreting data and that teachers needed support. As grade level teams worked through the action research process and data organizational tools were developed, I found it motivating to see data organized in a manner that allowed both myself and the teachers to reflect upon the results, celebrate student growth, and align interventions with students needing academic support. This could not have been achieved without data organizational tools.
References


Appendix A

Example of Spreadsheet Organizational Tool
Appendix B

Example of Color-Coded Sticky Note Organizational Tool

Fall 2013

Winter 2014
Appendix C

Example of Bar Graph Organizational Tool

Reading Growth Report for Darley’s Class Fall 2013-Winter 2014

Reading Growth from Highest Attained Level/One Year Growth Target

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Appendix D

Focus Group Interview Protocol

Interviewer: ___________________________  Grade Level: __________________________  Date: _________________________

*Thank you for taking the time to answer the following questions. Please make sure the iPad is recording the questions and responses during the interview. For confidentiality, the interview will be recorded, transcribed and names will be removed from the transcription. The transcriptions will be coded to identify themes from the collected data.

Research Questions:
What data are available to teachers?

Interview Questions:
1. What data do you use to monitor student achievement?
2. What data do you use to drive instructional decisions?
3. How do you use data to align curriculum?

Research Question: For what purposes do classroom teachers need data organized?

Interview Questions:
1. In what capacity do grade level teams communicate about student data with other grade level teams?
2. How is data used this school year than years past?
3. What organizational structures, practices and policies encourage staff to incorporate data use into their daily activities?

Research Question: How can data that is available to teachers be organized to be useful in planning instruction?

Interview Questions:
1. What barriers exist to using data?
2. What tools do you use to organize, analyze, and interpret data?
3. What organizational structures provide support for data to be usable and safe for staff?

Research Question: What supports do teachers need to analyze and use data?

Interview Questions:
1. What supports are available to help staff use data?
2. What role does school leadership play in supporting a culture of data use?
3. How do you actively modify instruction and/or intervention based upon student assessment data?

Research Question: What school-wide system structures support the organization of data for classroom use?