A CASE STUDY OF CURRICULUM MAPPING IMPLEMENTATION IN ONE HIGH SCHOOL: IMPLICATIONS FOR PRACTICE AND RESEARCH

By

TAMARA SHILLING

Bachelor of Arts in English
Kyiv National Linguistic University
Kyiv, Ukraine
1986

Master of Education
Rutgers, The State University of New Jersey
New Brunswick, NJ
2005

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
December 2011

A CASE STUDY OF CURRICULUM MAPPING

IMPLEMENTATION IN ONE HIGH SCHOOL:

IMPLICATIONS FOR PRACTICE AND RESEARCH

Dissertation Approved:

Dr. Pamela U. Brown

Dissertation Adviser

Dr. Kathryn Castle

Dr. Guoping Zhao

Dr. Kathleen Kelsey

Outside Committee Member

Dr. Sheryl A. Tucker

Dean of the Graduate College

TABLE OF CONTENTS

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER I

INTRODUCTION

Curriculum development, a complex process of planning, designing, and producing sets of materials to be implemented in the classroom for instructional purposes, has always been an essential responsibility of outside experts who design, package, and disseminate curriculum materials to schools (Carl, 2009; Craig & Ross, 2008). Carl (2009) argued that such an approach to curriculum development is "directed by academic rationality and theoretical logic" and is "elevated above the unique nature and character of particular school situations" (p. 40).

Under this approach, curriculum and instruction are viewed as two separate entities, curriculum being an end and instruction a means to the end (Clandinin & Connelly, 1992). Moreover, teachers are excluded from active participation in the curriculum mapping processes, assuming the roles of curriculum implementers or consumers in which they interpret and adapt the externally developed curriculum and instructional materials for their classrooms. The shortcomings of this expert-dominated approach to curriculum development have been well-documented in the literature and included lack of teacher ownership of the curriculum, prescriptive nature of the curriculum, neglect of unique classroom contexts, and irrelevance of externally developed curriculum to students' immediate needs (Kelly, 2004; Marsh, 2009). In spite of criticism, this type of curriculum development is still prevalent in many educational systems of the world.

Since the 1970s, there has been growing advocacy for teacher active participation in the curriculum development processes at the school level and some alternative models of curriculum development emerged. One such model, which gained considerable credence and support in England, Wales, Australia, Canada, and the United States in the 1970s and 1980s, is school-based curriculum development (SBCD). This model acknowledges the centrality of individual teachers to the process of curriculum development, arguing that teachers have a better understanding of the students' educational needs and interests; therefore, they have better chances of "taking curriculum out of the realm of theory or judgment and translate it into the practice and utilization" (Lunenberg & Ornstein, 2011, p. 402).

Under this approach, curriculum development is viewed as a dynamic process that provides more opportunities for continuous adaptation of curriculum to individual student needs than conventional models of curriculum development (Kelly, 2004). As the literature shows, not all SBCD initiatives were successful and SBCD faded from the educational landscape of some countries in the early 1990s; however, this approach has marked the shift of the role of the teachers from curriculum implementers to curriculum developers, allowing teachers to assume control of their own working environment (Bolstad, 2004; Kelly, 2004; Marsh, 2009).

Understanding by design (UbD) or backward design, a model of curriculum development proposed by Wiggins and McTighe in 1998 and expanded in 2005, also emphasizes teacher's essential role as a designer of curriculum and student learning. This model works well within the standards-driven curriculum, allowing teachers to clarify learning goals, develop meaningful assessments of student performance, and create engaging and effective classroom activities.

According to Wiggins and McTighe (2005), backward design helps avoid "the "twin sins" of typical instructional design in schools -- activity-focused teaching and coverage-focused teaching" and focus more on "developing and understanding of important ideas" (p. 3). The three- stage process of curriculum design should start with identifying the desired goals and results and then work backwards to create instructional units and lessons "logically inferred from the results sought, not derived from the methods, books, and activities with which we are most comfortable" (Wiggins & McTighe, 2005, p. 14). Wiggins and McTighe (2005) argued, "The value of the Understanding by Design framework escalates when it is adopted and applied in a coordinated manner by teams, schools, or entire school districts" (p. 323). In other words, curriculum design efforts can be enhanced through collaboration.

Another curriculum development model that also places much emphasis on teacher collaboration is curriculum mapping. Udelhofen (2005) defined curriculum mapping as "a process by which all teachers document their own curriculum, then share and examine each other's curriculums for gaps, overlaps, redundancies and new learning, creating a coherent, consistent curriculum within and across schools that is ultimately aligned to standards " (p. xviii). The concept of curriculum mapping was introduced by Fenwick W. English in 1980 as a means of conducting a curriculum audit in school systems. Over the last two decades, the concept of curriculum mapping has been broadened by curriculum theorists and the areas of curriculum mapping application have extended.

Jacobs (1997) developed seven phases in the curriculum mapping process and advocated the use of curriculum mapping to facilitate an interdisciplinary approach toward curriculum and to increase collaboration among teachers. In the current era of standards-based reform and accountability, many schools and school districts across the United States

have turned to curriculum mapping as a planning tool that allows them to align their curricula with the required state standards and assessment practices.

Udelhofen (2005) contented that curriculum mapping can replace the outdated model of curriculum development that involved establishing district curriculum development committees comprised of a representative group of teachers and administrators to design curriculum based on what they believed should be taught in different subject areas. These committees developed structured and inflexible documents, called curriculum guides, put them in binders, and distributed to the school staff and administration. Some scholars argue that curriculum guides have little relevance to the actual classroom practices and "do not address the ever-changing curricular needs of school districts" (Udelhofen, 2005, p. 1).

Unlike curriculum guides, curriculum maps are flexible, living documents that can be modified, revised, and updated on a regular basis "to address the changing curriculum needs of school districts" (Udelhofen, 2005, p. 3). Curriculum mapping relies on the expertise and active participation of all teachers, providing "a powerful way to sharpen teachers' curriculum-design and teaching skills while promoting collaboration across subject and grade levels" (Mills, 2003, p. 1). Curriculum mapping offers numerous other benefits that will be fully discussed in the literature review. But first I want to substantiate the importance of examining the curriculum mapping phenomenon and formulate the research problem.

Problem Statement

The common approach to curriculum as a set of pre-packaged instructional materials, academic or professional standards, policies and guidelines is incompatible with the practices of the contemporary world which is marked by the ever-changing body of knowledge, views of learners, and the learning process. In the current age of escalating accountability

requirements and higher expectations of schools "to bring about improved academic performance, both the curriculum and instructional practices have become the source of close scrutiny" (Lucas, 2005, p. 9). Research has shown that, in spite of an abundance of written curriculum guides for all subject areas and grade levels, there is significant variation in what is actually taught in the classrooms (Glatthorn, 1999). The process of curriculum mapping that is currently used by many schools and school districts around the country enables educators to gain insight into what is actually taught in classrooms and constantly revise and modify curriculum in order to align it with state standards and assessment requirements.

In spite of an ever-growing use of curriculum mapping, the research on curriculum mapping is limited. While reviewing the literature on curriculum mapping, I encountered many publications that used anecdotal evidence without providing detailed information on the participants, settings, research questions, methods of data collection and analysis or some publications that were primarily discussions of theoretical stances related to curriculum mapping. I could not find many peer-reviewed articles examining curriculum mapping. The majority of the empirical research on curriculum mapping is in the form of published dissertations.

The existing literature on curriculum mapping has documented teachers' positive views of curriculum mapping as an efficient tool for instructional planning and curriculum alignment (Huffman, 2002; Lucas, 2005). Curriculum mapping is also presented in the literature as a school improvement effort because the focus of the constant curriculum revision is on improved student learning. Several studies have confirmed that there is a positive correlation of curriculum mapping with student achievement with statistically significant results (Fairris, 2008; Shanks, 2002). The improvements in school culture and

teacher collaboration are also ascribed to curriculum mapping initiatives in one study (Wilansky, 2006).

As it can be concluded from the above cited sources, research primarily documents successful accounts of curriculum mapping implementation in school settings. There is little discussion in the literature about the curriculum mapping initiatives that do not succeed, the challenges and problems that educators encounter, the barriers to curriculum mapping implementation, and how these barriers are overcome. There are a relatively limited number of sources on teachers' experiences with curriculum mapping and the meaning of this curriculum initiative to them. Therefore, there is a need for the study that examines individual experiences with curriculum mapping to develop a more complete picture of the opportunities and challenges that curriculum mapping might hold and contribute to a better understanding of the phenomenon of curriculum mapping.

Purpose of the Study

The purpose of this study is to explore curriculum mapping implementation in one particular school setting to document all possible opportunities and challenges that arise in the process of curriculum mapping, to understand what meaning this educational initiative has for individual teachers and administrators, and to determine whether change occurred at the organizational and personal levels as a result of curriculum mapping implementation and whether there is a possibility to sustain curriculum mapping in this particular setting, and what factors might contribute to it. The extent to which curriculum mapping has been implemented will be determined and factors that have impeded or facilitated curriculum mapping implementation will be discussed.

I chose to study the curriculum mapping process in the school environment with teachers as primary informants for the research. Although I recognize teachers' essential role in the success of any educational initiative, I believe that inclusion of school administrators in the research process would enable me to create a more complete picture of curriculum mapping implementation in one particular school setting. Through teachers' and administrators' perceptions and experiences, I hope to get inside the complexities of curriculum mapping and identify what conditions, processes, and types of support are necessary for the successful initiative implementation and sustainability.

Research Questions

The research questions that guided this study are as follows:

1. How and why did one high school become involved in the curriculum mapping initiative?
2. What are the teachers' perceptions of curriculum mapping?
3. What are the opportunities and challenges of curriculum mapping implementation in this particular school setting?
    a) What is the extent of curriculum mapping implementation?
    b) Are there any barriers to curriculum mapping implementation?
    c) What changes (if any) occurred in the school setting as a result of curriculum mapping implementation?
4. What strategies might contribute to sustainability of the curriculum mapping initiative?

Theoretical Framework

The underlying goal of any educational initiative is to improve teaching and learning. To achieve this goal, schools must be willing to change their existing conditions and practices (Hall & Hord, 2010). *Change* is an umbrella term that is used in the literature for a

broad spectrum of concepts such as 'initiative', 'innovation', 'adoption', 'reform', and 'development.' Change can either be planned or unplanned; however, the educational literature focuses mostly on a planned change that can be viewed as a multi-dimensional process that entangles all facets of an organization including school structure, culture, politics, and most importantly its people (Evans, 2001; Fullan, 2007; Marsh, 2009). Hargreaves, Earl, Moore, and Manning (2001) concluded that "change can be initiated and imposed, but only the deeper human capacity of individuals and schools can sustain reform efforts over time" (p. 159).

The educational literature presents multiple models and theories of change that can provide a framework for exploration and discussion of change efforts. The current research study is primarily guided by Fullan's (2007) theory of educational change that places much emphasis on change as a process, not as a product or event. Another distinctive feature of Fullan's change theory is the focus on "the phenomenology of change –how people experience change as distinct from how it might have been intended" (Fullan, 2007, p. 9). Thus, Fullan's theory is process-oriented with a strong emphasis on the realities and possibilities of the individuals directly involved in the change process.

Fullan's (2007) theory suggested three phases in the change process: initiation, implementation, and institutionalization or continuation. The entire time frame from initiation to institutionalization might be lengthy—in moderately complex initiatives it might take from three to five years, in larger scale initiatives it might take five to ten years (Fullan, 2007). The initiation phase that is also labeled as mobilization or adoption deals with the processes that lead to a decision to adopt a new program, policy, or practice. Fullan (2007) argued that initiation of any change can come from different sources and is dependent on

several factors. These factors include availability of the initiative(s), access to information, advocacy and support from central and school administration, teacher advocacy, external change agents, new policy or funding, and school district orientation.

The proponents of change face some dilemmas at the initiation stage. One of them is whether to seek the majority agreement before proceeding with the initiative or to be assertive in the beginning (Fullan, 2007). There is no clear answer to this question; both choices may lead to a successful outcome. A lot depends on the ability of the leaders of change to convince the intended audience in the necessity of change and to mobilize people and resources for the execution of change.

The next critical phase in the change process is the implementation phase which concerns itself with the actual realization of an intended change into practice. Fullan (2007) identified nine key factors that influence the implementation process and organized them into three main categories: factors related to characteristics of change (need, clarity, complexity, and quality/practicality); local factors (characteristics of school district and community and the role of principal and teachers), and external factors (the context of the broader society and government agencies). These factors influence the initiation phase as well, but their complexity and intensity are higher at the implementation stage.

The institutionalization or continuation phase is "an extension of the implementation phase in that the new program is sustained beyond the year or two (or whatever the time frame is chosen)" (Fullan, 2007, p. 66). The institutionalization or continuation phase refers to whether the change will sustain and result in needed outcomes at the organizational and personal levels or it will be discontinued within the time. The needed outcomes may include improved student learning, new skills, practices and beliefs on the part of teachers, or overall

school improvement. School change research suggests that very few programs are sustained beyond the implementation phase.

Huberman and Miles (1984) stated that institutionalization of initiatives depends on whether or not the change has become an integral part of the organizational structure and culture; or teachers and administrators participating in the change process have become committed to the change; or the procedures for continuing assistance and support have been developed. Although continuation is considered the third phase in a planned change process, the process is not simple and linear; in reality, phases of change will merge imperceptibly into each other (Marsh, 2009). Fullan (2007) cautioned that "all phases must be thought about from the beginning and continually thereafter" (p. 103).

Details regarding the appropriateness of Fullan's (2007) theory of educational change to the purpose of the study and the choice of the given theory over other theories of educational change are discussed in Chapter II within the review of the educational change literature. The concepts and principles from other sources of the educational change literature relevant to the current study are also addressed. These concepts and principles will be used to support the theory guiding the study and assist in the interpretation of the research findings.

Assumptions of the Study

Each of the participants in the study has been taking part in the curriculum mapping process over the last four years; an assumption is that each participant was able to reconstruct their experiences with curriculum mapping accurately. It is also assumed that the participants of the study responded to the interview questions candidly and truthfully.

Delimitations of the Study

This study was subject to the following delimitations:

1. Although change as a concept and a process has been extensively studied in such areas as business, sociology, psychology and education, for the purpose of this study, the review of literature focused on the topic of educational change.
2. Within the topic of educational change, the researcher chose Fullan's (2007) theory, one of the many theories of educational change, as a lens for exploring the phenomenon under study. The intent was not to validate Fullan's change theory, but to use it for the examination of the processes and activities involved in the curriculum mapping initiative.
3. The research site used Heidi Hayes Jacobs' (1997) model of curriculum mapping. The purpose of research was not to determine the fidelity of the curriculum mapping model implementation; rather, the model was used as a point of reference during the examination of different activities and processes related to curriculum mapping.
4. The sample in this study was limited to teachers and administrators that participated in the curriculum mapping process.

Limitations of the Study

The study was limited to the context of one high school, therefore only naturalistic generalizations can be drawn to other situations and they can be applied to other contexts to the extent that does not go beyond resemblance to the context of the given study (Simons, 2009; Stake, 1995). Fullan (2007) argued, "The uniqueness of the individual setting is a critical factor –what works in one situation may or may not work in another" (p. 64). Some

of the information provided by the study participants is retrospective and is subject to the problems inherent to memory. Although the efforts have been made to include participants with varied perspectives on the phenomenon under study, the majority of the study participants have a favorable opinion of curriculum mapping and they may have the propensity to focus more on the positive aspects of the curriculum mapping process.

Definition of Terms

The terms provided below are used in this study. Their definition is relative to the purpose of this study:

Academic Performance Index (API) is used to measure the performance and progress of a school or district based on such factors as state test scores, school completion rates (attendance, drop out and graduation rates), and academic excellence (ACT scores, AP credit and college remedial rates in reading and mathematics). The possible scores in the state range from 0 to 1,500.

Assessment is the various tools and techniques that are used to determine the level of student mastery of learned curriculum material (Wilansky, 2006).

Consensus map "reflects the policy agreed on by a professional staff and targets those specific areas in each discipline and across disciplines that are to be addressed with consistency and flexibility in a school or a district" (Jacobs & Johnson, 2009, p. 65).

Content is identified as the instructional material directly connected to standards and benchmarks that students are expected to know by the end of a given unit of instruction.

Curriculum alignment is the degree to which different components of education--standards, curricula, instruction and assessments--work together to achieve desired outcomes (Ananda, 2003; Anderson, 2002).

Curriculum mapping is a process-oriented model of curriculum planning that relies on the active participation and expertise of teachers to document, modify, revise, and update curriculum on a regular basis in order to address changing curriculum needs of school districts and ensure curriculum alignment with state standards and assessment practices (Jacobs, 1997; Udelhofen, 2005).

Diary maps are teachers' personal maps that recount what happened in the classroom each day (Udelhofen, 2005).

Essential questions are overarching questions that focus on either major ideas and concepts or the most important themes in regards to curriculum content.

Horizontal alignment is the arrangement of courses, topics, and standards across grade levels (Jacobs, 1997).

Implementation is "the process of putting into practice an idea, program, or set of activities and structures new to the people attempting or expected to change" (Fullan, 2007, p. 84).

Institutionalization or continuation "refers to whether the change gets built in as an ongoing part of the system or disappears by way of a decision to discard or through attrition" (Fullan, 2007, p. 65).

Priority Academic Student Skills (PASS) are a set of academic skills that students are expected to master at each grade level for each course.

Standards are statements that define knowledge and skills by subject areas and grade levels that students should possess to achieve expected academic outcomes.

Standards-based curriculum is "the district's written plan incorporating aspects of time use, content, and process aligned to standards and assessments that establishes a focus for

instruction, assessment, staff development, and management so student achievement improves" (Squires, 2009, p. 143).

Vertical alignment ensures alignment of content and skills in successive grade levels (Jacobs, 1997; Mathiesen, 2008).

Overview of the Dissertation

The dissertation is comprised of five chapters. Chapter I provided the introduction to the study, the problem statement, research questions, and the theoretical framework that informs the study. Chapter I also contains the terminology section and the delimitations and limitations of the study sections. Chapter II is a review of the literature pertinent to the topic of the dissertation. Chapter III describes in detail the methodology of the study- researcher's epistemological and ontological stances, research design, and procedures for data collection and analysis. Chapter IV presents the findings of the study and interpretation of the findings. Chapter V concludes the study by providing the summary of the findings, conclusions, and recommendations for educational theory, practice, and future research.

CHAPTER II

LITERATURE REVIEW

Introduction

The purpose of the literature review is to show how the concept of curriculum mapping and the curriculum mapping process have evolved over the years, why it is used by school and school districts, and what benefits the process and outcomes of curriculum mapping have for the participating teachers and student achievement. The literature on the curriculum mapping process, case studies of best practices, and the existing theoretical conceptualization of curriculum mapping aims to provide me with the wealth of material for understanding the meaning and rationale of the curriculum mapping process. The software programs that are currently employed for curriculum mapping will be also reviewed.

The review of literature and research on educational change is also provided as this study draws on Fullan's (2007) theory of educational change and some selected constructs and assumptions from the change literature that can apply to this research. To provide a background for understanding of the curriculum mapping process, I will start with a discussion of different types of curricula as perceived by curriculum scholars.

Types of Curriculum

"Curriculum is at the center of standards-based reform because it is through curriculum that students are provided with the opportunity to learn the intended content and achieve the standards" (Nolet & McLaughlin, 2005, p. 16). Curriculum is a multifaceted concept and there is little agreement among curriculum theorists about its

definition. Curriculum theorists view the term broadly to identify "the full range of experiences that students undertake under the guidance of school" (Nolet & McLaughlin, 2005, p. 16). Practitioners may view curriculum as instructional materials intended to teach their students. Thus, curriculum can have different meanings depending on whose views this concept represents.

I find Cuban's (1993) identification of the four types of curriculum – the intended curriculum, the taught curriculum, the learned curriculum, and the tested curriculum--most pertinent to the discussion of curriculum and curriculum mapping in this paper. In Cuban's understanding, the intended curriculum or the official curriculum is a body of knowledge that is specified in state and district policy documents and is expected to be mastered by students through their school experiences. The intended curriculum is aligned with the state approved textbooks and state-mandated tests and is a reflection of "the educational theory and societal values that prevail at a given time" (Nolet & McLaughlin, 2005, p. 17).

However, teachers, working autonomously in their classrooms, make choices concerning instructional practices not only on the basis of the official curriculum documents, but also on the basis of their knowledge of the subject matter they teach, their teaching experiences, their beliefs and attitudes, their preferences for specific topics, and their interaction with students in their classrooms. Thus, the official curriculum is refracted through the prism of the teacher and is operationalized in the form of the taught curriculum. The official and the taught curricula overlap in many aspects, but the actual classroom events and the methods that teachers use differ significantly from what is contained in the formal written documents.

As a result of being exposed to the intended and taught curriculum, students acquire skills and knowledge, attitudes and beliefs, certain patterns of behavior that constitute the learned curriculum. Alongside the formal learning that happens through intended and taught curricular, much of informal learning occurs in the classroom. Dewey (1938) coined the term "collateral learning" to describe learning that takes place when students pick up ideas from their peers, imitate their teachers' habits and behavioral traits, humor or sarcasm. Thus, the content of the learned curriculum differs from both the intended and the taught curricula.

Furthermore, what students actually learned cannot be measured by the tested curriculum that captures some of the intended and taught curricula and is offered in the form of classroom, district, state, and national tests. "Portions of the official, taught, and tested curricula merge. But what is tested is but a limited part of what is intended by policy makers, taught by teachers, and learned by students" (Cuban, 1993, p. 184). To sum up, there are at least four types of curriculum and all these types should be taken into consideration when policy makers strive to improve students' learning experiences through curriculum changes.

Evolution of Curriculum Mapping

English, who introduced the concept f curriculum mapping in 1980, focused on two types of curricula: the one that is developed by school districts in the form of curriculum guides and handed down to teachers to implement in the classroom and the other that is actually taught in the classroom and reflects the practice of teaching and learning. While acknowledging that school districts become involved in the precise prescriptions of the desired outcomes of the curriculum and create curriculum guides to

improve learning in schools, English (1980) recognized that "the actual curriculum is the one that the teacher employs in the classroom" (p. 558).

To break away from traditional practices of curriculum development and to focus on what is actually taught in the classroom, English (1980) offered a procedure that records "what is being taught, how long it is being taught, and the match between what is being taught and the district's testing program" (English, 1980, p. 559). The emphasis in this procedure is on the content being taught, the time allotted to teach the content, and on the congruence between the real curriculum and the written curriculum that is developed by school districts.

In English's words, unlike curriculum guides that are prescriptive in nature, a curriculum map is a descriptive document. In its original format, a curriculum map consisted of the concepts, skills and attitudes that teachers intended to teach, the sequence of topics, and the time needed to spend on each topic within each subject area. When teachers in the school completed curriculum maps in their subject areas and grade levels, the principal could piece together a picture of what was actually taught in each subject and grade level.

In the system developed by English, there existed a third party, coordinators or evaluators, who used maps to compare instructional practices to district curriculum guides to ensure alignment with district goals and assessment requirements. As a result, there was always delay in compiling and analyzing the information, in determining inconsistencies or gaps in the curriculum, giving recommendations to teachers to make adjustments or revisions to the content of the subject matter, the sequence of that content, and the amount of time spent on that content (Jacobs, 1997).

Curriculum mapping as a term and procedure was deepened and broadened by Heidi Hayes Jacobs (1997) who embraced the major ideas introduced by English and built on them her seven-stage model of curriculum mapping. With the issuance of *Mapping the Big Picture: Integrating Curriculum and Assessment K-12*, Jacobs (1997), numerous schools and school districts introduced curriculum mapping to their settings. Like English, Jacobs found that curriculum guides do not reflect the realistic picture of teaching and learning in the classroom. Jacobs argued that using the school calendar and technology, teachers can collect in real time the information about the taught curriculum to make more informed decisions about curriculum and instructional practices. These maps are not static documents; they can be changed when there is a need to revise or modify the curriculum. Jacobs' model suggests that

> curriculum is mapped according to the calendar year and reflects the operational and taught curriculum. This ensures that curriculum is revised based on authentic data. The mapping process requires that teachers address the continuity of curriculum from grade to grade, building to building, year to year. Each teacher maps his or her own classroom and then engages in the process of comparing those maps to the maps of other teachers. (Kallick & Colosimo, 2009, p. 4)

The seven phases that Jacobs specified for the curriculum mapping procedure are as follows:

1. Collecting Data. At this stage individual teachers collect data and complete their own maps that include three major components: the processes and skills, essential topics and concepts, and assessment procedures.

2. The First Read-Through. During this stage teachers edit their own maps and become familiar with their colleagues' maps. It is critical to look at "repetitions, gaps, meaningful assessment, matches with standards, potential areas for integration, and timelines" (Jacobs, 1997, p. 11).
3. Mixed Groups Review Sessions. For such sessions teachers should be placed in groups outside their grade level teams, interdisciplinary teams, or departments. Reviewing maps in mixed groups, teachers will avoid homogenizing the material, and will be able to get impartial feedback on the work being done. The facilitators in the sessions should collect and report findings of each member.
4. Large Group Review. The large group review should be attended by all members of the faculty. The chart is created based on the information reported from small group sessions. The leader of the large group review asks participants about the emerging patterns. At this point, the decision should be made whether to break into instructional units or stay as a large group. The most important factor is the size of the school. If the school is small, it is advisable to stay in the large group. If the school is large, it is acceptable to further work in grade-level teams or departments. The most important thing is that the faculty will move from "a review mode to an editing, revising, and developing mode" (Jacobs, 1997, p. 15).
5. Determining the Points for Immediate Revision. The faculty can screen the data and determine areas where changes can be made immediately without further study.
6. Determining the Points that Will Require Long Term Research and Development. During map revision, groups will find areas that need significant research. A task

force should be formed to do in-depth investigation and make recommendations to the whole faculty.

7. The Review Cycle Continues. The review of the maps should be an ongoing process. The computer-based mapping tools will make constant refinement of curriculum a real possibility. While reviewing maps on a constant basis, faculty will gain information about instructional practices throughout the building, find curricula gaps and repetitions, determine potential areas for integration, and match assessment with standards.

If implemented correctly, the mapping process will accomplish three essential goals. It will allow

> the standards and benchmarks to be taken off the shelf and put into teacher's hands. Second, upon completion, mapping guarantees that all standards and benchmarks are taught. Third, teachers can discuss and share units and lessons. This sharing occurs through grade levels, building and disciplines, and can be extremely powerful. (DeClark, 2002, p. 31)

Curriculum Mapping Software

To assist teachers with curriculum mapping, a number of web-based tools have been developed. Among such tools are Rubicon Atlas, TechPaths, Curriculum Creator, and Curriculum Mapper. The software makes the process of mapping more efficient by allowing educators to store and manage huge school-based curriculum data. The users can reach curriculum mapping database anytime and anywhere at their convenience. The software makes the curriculum database searchable to all educators who are interested in curriculum mapping. Teachers in all the states of the United States have an opportunity

to view other teachers' maps to make informed decisions about their own curriculum development. The companies that produce curriculum mapping software claim that curriculum mapping enhances student academic performance. However, there is not enough empirical evidence to support this claim (Mathiesen, 2008).

The study undertaken by Mathiesen (2008) reports that teachers view curriculum mapping software as a valuable tool that helps them develop, use, and review maps more effectively. The use of curriculum mapping software helps teachers grow as technology users. Schools should choose the software program that is easily understood by teachers and reinforces their comfort level in the use of technology (Jacobs, 1997). With the use of technology or without the use of technology, curriculum mapping can offer a number of benefits that will be addressed in the next section.

Benefits of Curriculum Mapping

Alignment with State Standards

One of the major benefits of curriculum mapping is aligning curriculum with state standards and assessment practices. In the educational literature, curriculum alignment is described as a process that guides teaching and learning by ensuring agreement between curriculum, state standards, classroom practices, and assessment (English, 2000). Drake and Burns (2004) distinguished between two types of alignment: internal and external. When the intent and language of standards are reflected in the classroom practices and classroom assessments, it is internal alignment. For this to happen, teachers need to understand the standards clearly and then design classroom activities and assessments that will help their students achieve desired learning objectives. By external alignment, Drake and Burns (2004) mean congruence between testing objectives, standards, and

curriculum. The standards that teachers use to assure internal alignment should be congruent with state-mandated assessment too. Evidence of this alignment should be present in both the written and taught curriculum (Jacobs, 2004).

Internal alignment can be further divided into more categories such as instructional alignment, vertical alignment, and horizontal alignment. Instructional alignment happens when teachers plan the content, skills, and assessment in a particular unit of instruction in accordance with the goals specified by a content standard. Internal alignment can provide horizontal fidelity across a grade level. For example, all teachers working in the second grade make sure that the essential content and skills are taught with consistency at their grade level. "Vertical alignment ensures fidelity of the delivery of content and skills in successive grade levels" (Mathiesen, 2008, p. 31). This type of alignment helps teachers make sure there are no gaps, repetitions, or redundancies at different grade levels and there is a smooth and sensible spiraling of curriculum (Jacobs, 2003, 2004; Udelhofen, 2005).

There are two methods of aligning curriculum, frontloading and back loading. When teachers use a frontloading method to align curriculum, they design their curriculum first and then create a test that matches the design (English, 2000). According to English (2000), frontloading is a preferred method of curriculum alignment. When using a back loading method, teachers start with assessment and design curriculum to match the assessment. Curriculum that is aligned with standards and is taught with fidelity to standards will help students achieve their learning objectives (English, 2000). Research indicates alignment is a powerful indicator of academic achievement. "When curriculum is organized around specific learning objectives and when data is collected

and acted upon in relation to those specific learning objectives, or standards, student performance improves" (Mathiesen, 2008, p. 34).

Gross (2001) also pointed out that apart from being an effective means toward achieving alignment among curriculum, instruction, and assessment, curriculum mapping facilitates professional dialogue that empowers both teachers and administrators and helps them create a cohesive educational program for students. A research study conducted in six schools with improved academic performance in Ohio identified curriculum alignment as the most important factor that accounted for substantial improvement in the researched schools (Kercheval & Newbill, 2000).

In 2002, the RAND Corporation launched a project to understand how educators in three selected states--California, Georgia and Pennsylvania--are responding to the new accountability requirements inspired by NCLB legislation. Most school administrators in these states pointed to three most important improvement outcomes such as aligning curriculum with state standards, utilizing data for decision making, and focusing on underachieving students. Teachers in this study were challenged by insufficient alignment between state standards, curriculum, and tests. One of the recommendations of this study was to improve alignment among standards, curriculum, and tests (Hamilton et al., 2007).

Some dissertations have been completed to determine teachers' perceptions of curriculum mapping as a means of aligning their curricula to the established state standards. The study undertaken by Lucas in 2005 demonstrated that teachers perceived curriculum mapping as a valuable tool for curriculum alignment and long-term and short-term instructional planning. However, middle school teachers attributed more value to

curriculum mapping than elementary and high school teachers (Lucas, 2005). Similarly, Huffman's (2002) study at a middle school level indicated that teachers viewed curriculum mapping as an effective alignment tool. Additionally, the study reflected teachers' perceptions of curriculum mapping as a valuable means of increasing school improvement and student performance.

Wilansky (2006) explored teacher attitudes to curriculum mapping in terms of three dimensions of instructional practices: standards alignment, assessment, and professional collaboration. The results of the survey showed that the majority of teachers agreed that curriculum mapping was positively influencing their instructional practices in the specified areas. Moreover, curriculum mapping was seen as a useful tool for identifying gaps and redundancies in curriculum and eliminating them in order to make curriculum more coherent and rigorous.

The collective results of the reviewed empirical research on curriculum mapping provide the evidence that teachers view the process of curriculum mapping as beneficial for the instructional practices, school improvement, and ensuring alignment between state standards and school curriculum.

Transforming Schools into Data-Informed Cultures

In the current age of the growing emphasis on accountability, high educational standards, and improvement of the educational outcomes of the students who represent an unprecedented level of diversity, schools are required to develop new capacities and orientations for making the right decisions that influence students' future lives and prepare them to succeed in the 21st century. Current research on school improvement

underscores the importance of using data to base curricular and instructional decisions on. Killion and Bellamy (2000) argued:

> Understanding and using data about school and student performance are fundamental to improving schools. Without analyzing and discussing data, schools are unlikely to identify and solve problems that need attention, identify appropriate interventions to solve those problems, or know how they are progressing toward achievement of their goals. Data are the fuel of school reform. (p. 27)

Designing curriculum maps and then constantly reviewing and revising them and engaging in the process of creating building and district maps, gives teachers an opportunity to exchange information about instructional practices based on real classroom data. These data together with the assessment data can serve as "the basis for informed decisions to improve student learning" (Kallick & Colosimo, 2009, p. 5). Kallick and Colosimo (2009) presented three case studies that can serve as best practices of curriculum mapping implementation at the school district level. For all the three school districts featured in the work, the journey into curriculum mapping became the vehicle through which they constructed their professional dialogue on curriculum, instruction, and assessment.

Professional Learning Communities

Kallick and Colosimo (2009) noted, "One of the goals of mapping is the development of a professional learning community" (p. 50). Professional learning communities are seen as one of the most viable means of school improvement. Harris (2005) argued that professional learning communities "embrace the notion of teacher

leadership as it is assumed that teachers will be the catalysts for change and development within a PLC" (p. 207). Schools that fall under the category of professional learning communities are characterized by the shared beliefs of all the members of the school organization, high level of interaction, reciprocity, and meaningfulness of relationships among the organizational members.

In Hord's (1997) classification, professional learning communities share five common characteristics: supportive and shared leadership, shared vision and values, supportive working conditions, collective creativity, and shared personal practice. As one can see, leadership is an integral part of professional learning communities. Members of such communities should be inspired to act towards common goals and ideals in order to transform schools into places where students can develop to the best of their potential and teachers can grow professionally.

In the elementary school building described in one of the case studies in Kallick and Colosimo's (2009) book, "the feeling of trust and sharing has taken hold through curriculum mapping" (p. 52). Mapping became the vehicle through which teachers communicated curriculum and instruction. Teachers became involved in the conversations that were "rich and focused on student achievement, assessment, gaps, alignment, resources, and strategies" (p. 56). It is very important to create collaborative teams when the curriculum mapping process unfolds within a school or district. DuFour and Eaker (1998) pointed out that collaborative teams are central to creating professional learning communities.

The most important ingredient in professional learning communities is collective inquiry, a term coined by DuFour and Eaker (1998). They wrote:

> The engine of improvement, growth, and renewal in a Professional Learning Community (PLC) is collective inquiry. People in such a community are relentless in questioning the status quo, seeking new methods, testing those methods, and then reflecting on the results. Not only do they have an acute sense of curiosity and openness to new possibilities, they also recognize that the process of searching for answers is more important than having an answer. (p. 16)

Collective inquiry can give teachers an opportunity to create quality data-based maps and then use these maps for engaging in an informed curriculum dialogue the main purpose of which is to improve student learning.

Improvement in Student Academic Achievement

According to Jacobs (2004), success in mapping can be determined by two outcomes: (a) a measurable improvement in student academic achievement, and (b) sustainability of the curriculum mapping process in terms of ongoing curriculum and assessment revision and modification. There are some research findings that attribute increase in student performance to schools' engagement in the curriculum mapping process.

Gorin and Blanchard (2004) used two-way repeated measure analyses of variance (ANOVA) to study the changes in students' test scores from the third to the fifth grades in math and reading in two California school districts that became engaged in curriculum mapping. The researchers found out that test scores in both subject areas increased significantly for students enrolled in classes that were implementing curriculum alignment from 2000 to 2002. The findings of this study also indicated that students who

were not exposed to the aligned curriculum and instruction did not demonstrate significant improvement in test scores.

Shanks (2002) compared academic achievement of elementary school students during a two-year period before and after curriculum mapping implementation. The standardized test scores in reading, language, mathematics, social studies, and science of students in grades two through six were compared. Shanks reported that curriculum mapping had a positive impact on student academic performance. The scores improved after mapping; the students scored higher in each subject area.

Fairris (2008) completed a study to assess the effect that the degree of implementation of curriculum mapping had on mathematics and literacy standardized test scores of sixth and eighth grade students during the second year of curriculum mapping implementation in forty Arkansas school districts chosen by stratified sampling. As the results show, curriculum mapping led to higher student achievement in both subject areas. The students in the schools with a high degree of implementation of curriculum mapping scored higher on math and literacy tests. Thus, curriculum mapping can enhance student academic achievement.

Although all the three studies showed improvement in student academic performance after curriculum mapping implementation, all of them share the same limitations. These studies did not control or measure all variables that may have influenced increase in students' test scores. There might be other contributing factors that account for improved academic performance of students. More research is needed to determine the correlation between curriculum mapping implementation and student academic achievement. However, it is not within the scope of this study to determine

such a correlation. The focus of this study is primarily on the factors and activities inherent in the curriculum mapping process and the role they play in curriculum mapping success or failure.

The review of educational change literature that follows next was conducted to build up a set of constructs and principles that can help me get into the matter of the change process and identify what research findings can better suit the purpose of this study and provide me with additional insights for understanding the curriculum mapping process. I start with the brief review of the history of the study of change to understand the historical conditions and processes that led to the conceptualization of the field of educational change and determine what part of the change knowledge base can be applied to this study. The section on the conceptualization of educational change can provide a better understanding of the development and evolution of Fullan's (2007) theory of educational change that informs the current study.

Conceptualization of Educational Change

Educators have always had to deal with change of one kind or another. However, other than in the last thirty years, change has always been occasional and sporadic. Since the 1960s, following the launch of Sputnik and the civil right movements, change has become a permanent feature of education (Hargreaves, Liberman, Fullan, & Hopkins, 2005). The educational change in the 60s was driven by the concern that the USA was falling behind the Soviet Union in scientific achievements and the large-scale curriculum reform was supposed to correct the situation. Fullan (2005) called this stage 'an adoption era of reform' because the goal was to create and disseminate exemplary curriculum materials and send them to schools for adoption and enactment. Although the curriculum

materials developed by experts were of high quality, they had minimal impact on teaching and learning because teachers were not involved in the development of large-scale curriculum projects and packages.

While educators were continuously confronted with an influx of innovations and reforms, the scholars got engaged in examining the change processes in school settings and a plethora of research studies emerged. The decade of 1972-1982 became to be known as 'the implementation phase' because of the major focus of research on "what was happening or not in practice" (Fullan, 2005, p. 205). The starting point of this period was the criticism of the previous 15 years where, in spite of numerous innovations transmitted to schools from external institutions, not much had changed at the school level because the consumers of those innovations (teachers and students) had a limited role in the process and were seen as passive adopters of curriculum innovations. The research in that decade was criticized for focusing exclusively on the properties of innovations and assessing innovation outcomes, but ignoring the processes and activities involved in the actual use of innovations in practice. Implementation as an important phenomenon of the change process remained 'a black box' in the studies of educational innovations.

Fullan and Pomfret (1977) argued for focusing more on the implementation as an important phenomenon in its own right to better understand some of the reasons why so many educational initiatives failed to bring about change. Based on the empirical analysis of the implementation studies that appeared at that time, Fullan and Pomfret (1977) established five dimensions of the change process that included "changes in (a) subject matter or materials, (b) organizational structure, (c) role/behavior, (d) knowledge

and understanding, and (e) value internalization" (p. 361). The scholars attempted to determine the major factors that could plausibly influence implementation. Due to the complexity of change processes, numerous factors influencing implementation were identified and grouped into four broad categories that could be used for investigating implementation: "1) characteristics of the innovation; 2) strategies employed; 3) characteristics of the adopting units; and 4) characteristics of macro sociopolitical units" (Fullan, 2005, p. 207).

The following strategies were derived from numerous studies as important for implementation: in-service training, resource support (time, facilities, materials, etc.), feedback mechanisms that foster interaction and problem identification, and implementer's participation in decision-making (Fullan & Pomfret, 1977). One of the major research findings at that period was that implementation rarely occurred without some alteration or adaptation of the change model. Berman and McLaughlin (1978) coined the term "mutual adaptation" to describe the process where teachers modify the reform to fit their students' needs and the local context, while adjusting their own practices to meet the requirements of the reform.

Similarly, Cuban (1998) noted that it was up to the teachers to decide which of the elements of a particular reform to incorporate into their classroom practices and which of them to discard or ignore. A solid body of knowledge on the dynamics and complexities of implementation was created during that phase. It became evident that "implementation is an extremely complex and lengthy process that required a sensitive combination of strategic planning and individual learning and commitment to succeed" (Reynolds, D., Teddlie, C., Hopkins, D., & Stringfield, S., 2000, p. 209).

The next phase that occurred between 1982 and 1992 was named by Fullan (2005) 'the meaning decade.' In other sources this phase is labeled as a period of success (Reynolds et al., 2000). The publication of *A Nation at Risk* in 1983 inspired a number of educational reforms that emphasized high standards of learning, more rigorous assessment, and consequential accountability (Hargreaves et al., 2001). School effectiveness and school improvement were established as new lines of inquiry at that time. The studies that contributed to establishing those lines of inquiry were conducted by Huberman and Miles (1984), Hargreaves (1984), Hopkins (1987), Louis and Miles, (1990), to name a few prominent examples. The scholars came to consensus as to what the characteristics of effective schools were. More knowledge was gained to enhance understanding of the change process and the factors contributing to school effectiveness and school improvement.

Fullan's major contribution to this phase was the publication of his seminal work, *The Meaning of Educational Change,* in 1982 in which he presented his theory of the educational change. The theory has been applied to a variety of settings by researchers and has been developed and updated by Fullan throughout years. The current version of the theory of educational change is contained in the fourth edition of Fullan's book, *The New Meaning of Educational Change,* published in 2007.

The fourth phase that is said to have started in 1992 and still continues was labeled by Fullan (2005) as 'the change capacity phase.' By capacity Fullan meant the accumulation of knowledge related to the change theory and the process of change. "The studies of what works and what does not across all the different change strategies have created a truly powerful knowledge base about the processes, practices and consequences

of educational change" (Hargreaves et al., 2005, p. ix). The knowledge base of educational change became so extensive that it has grown into a field of study in its own right. The field has established its own terminology, research agenda, and a scholarly journal. Drawing on the disciplines of sociology, philosophy, psychology, history, curriculum studies and educational administration, the field of educational change has helped inform the studies focusing on educational initiatives and reform efforts.

Long-term engagement with the study of the change processes has enabled researchers to observe some patterns and regularities repeatedly in different settings and develop "a set of change principles that represent some of the most predictable patterns of change in organizational settings" (Hall & Hord, 2010, p. 18). The list of the research-based change principles summarized by Hall and Hord (2010) is as follows: (1) change is learning and learning makes change possible; (2) change is a process, not an event; (3) the school is the primary unit of change; (4) organizations adopt change--people implement change; (5) interventions are essential to the success of the change process; (6) adequate interventions reduce resistance to change; (7) administrative leadership is a key to a long-term success of change; (8) facilitating change is a team endeavor; (9) mandates can work well; and (10) the context impacts the process of learning and change.

A number of other research findings have been accorded the status of universal principles, lessons, or rules of change that show little or no sensitivity to time and context (Hargreaves & Goodson, 2006). These lessons or rules include the claims that practice change first and then beliefs (Huberman & Miles, 1984); that the combination of pressure and support can lead to successful change (Fullan, 1992); that evolutionary planning works better than linear planning (Louis & Miles, 1990) etc. The knowledge of these

principles will help both practitioners and researchers to deal effectively with challenges of educational change initiatives and innovations.

Theories and Models of Change

Another important result of the extensive research and theorizing of educational change is the emergence of numerous change theories and models of change that can guide change research and predict some aspects of the change processes that those involved in the change should expect. The most prominent of these are Fullan's (2007) theory of educational change, Rogers' (2003) diffusion of innovations theory, and Hall and Hord's (2010) concerns-based adoption model (CBAM). These theories are cited ritually in many publications that are concerned with educational change. All three share some similarities and differences. All these theories view change as a process, not as an event. In all of them the change process undergoes several stages or phases.

Fullan's (2007) theory of educational change that was presented in Chapter I indicates that change goes through three phases -- initiation, implementation, and continuation. The four primary elements of diffusion of innovations theory are innovation, communication channels, time, and social system. The main difference of Fullan's theory from Rogers' diffusion of innovations theory the discussion of which follows next is that Fullan's theory focuses on the roles and strategies of different types of change agents, while Rogers' theory focuses more on the characteristics of the innovations and adopters.

Diffusion of Innovations Theory

Rogers' (2003) diffusion of innovations theory has been utilized in many fields of study to better understand the change process. Rogers (2003) stated that "an innovation

is an idea, practice, or project that is perceived as new by an individual or other unit of adoption" (p. 12). Diffusion is defined as "the process in which an innovation is communicated thorough certain channels over time among the members of a social system" (Rogers, 2003, p. 5). Uncertainty is viewed as one of the major obstacles to adopting innovations. To diminish or eliminate uncertainty, sufficient information should be provided to adopters about innovation's advantages or disadvantages to make them aware of the possible implications and outcomes of the innovation.

Rogers (2003) described the innovation-decision process as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation" (p. 172). For Rogers (2003), the innovation-decision process consists of five stages: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation. These stages typically follow each other sequentially. Rogers proposed five characteristics of innovations that can predict the rate of their adoption: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. Individuals' perceptions of these characteristics of innovations determine the probability of their adoption.

Another distinguishing feature of Rogers' theory is categorization of adopters based on their innovativeness, "the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system" (Rogers, 2003, p. 22). The five categories of adopters include innovators, early adopters, early majority, late majority, and laggards. The differences between these types of adopters were identified in terms of socio-economic status, personality traits, and

communication behaviors. One of the Rogers' assumptions is that "the individuals or other units in a system who most need the benefits of a new idea (the less educated, less wealthy, and the like) are generally the last to adopt an innovation" (Rogers, 2003, p. 295).

Concerns-Based Adoption Model

Another well-established change perspective that offers some tools and techniques for understanding change at the individual level is the concerns-based adoption model, first proposed by Hall, Wallace, and Dossett in 1973 and then validated and modified by Hall and Hord over the last two decades (Hall & Hord, 2010). This model is based on "developing understanding of the efforts of individuals to learn about and become skilled and confident in using innovations" (Hall & Hord, 2010, p. xxiv). The concerns-based adoption model consists of three dimensions for examining the change process: 1) stages of concern (SoC) that focuses on "the affective side of change--people's reactions, feelings, perceptions, and attitudes" (Hall & Hord, 2010, p. 93); 2) innovation configurations (IC) that addresses "both the idealized images of a change created by a developer as well as the various operational forms of the change that can be observed in classrooms" (Hall & Hord, 2010, p. 44); and 3) level of use (LoU) that describes "behaviors and portrays how people are acting with respect to a specified change" (Hall & Hord, 2010, p. 93).

Research suggests that change is not a straightforward endeavor; it is a slow, uneven process, filled with plateau, regression, and moments of real distress. Depending on the stage of the initiative and specific circumstances, the participants of the change

process might experience excitement, uncertainties, and frustrations. Thus, feelings and perceptions of individuals evolve as the change progresses.

Through research, Hall and Hord (2010) have identified and confirmed a set of seven specific categories of concerns about the change process that they called stages of concern (SoC): unconcerned, informational, personal, management, consequence, collaboration, and refocusing. The concerns of the individuals involved in the change process can be measured by means of the Stages of Concern Questionnaire (SoCQ) that was originally developed by Hall and his colleagues in 1979 and then revised in 2006. SoCQ as well as CBAM have been extensively used for studying different educational innovations. CBAM has recognized that change leaders must understand how different change agents deal with the innovation and adjust their interventions accordingly. Interventions should not be enacted on the basis of change leaders' own needs and timelines; the needs of the change implementers should be given priority.

Fullan's Theory of Educational Change

Having reviewed three of the major change theories, I gave preference to Fullan's theory of educational changes to provide the framework for this study because this theory is a good fit when researchers seek to gain "a more intricate understanding of the dynamics at work when new programs or practices or new organizational arrangements are brought into schools or designed there" (Huberman, 1992, p. 2).

Although Fullan's (2007) theory is process-oriented and can serve as a guide of what researchers should expect in the field studying change, it emphasizes "the importance of meaning of change to those involved in its adoption and implementation" (Huberman, 1992, p. 8). The meanings are different along the whole range of change

agents who may assume different roles in the change process. Fullan (2007) looked at the change process from the perspectives of all the actors involved in the change process: the teacher, the principal, the district administrator, the student, the consultant, and the parents/community. The scholar addressed the characteristics of all six types of stakeholders and how these characteristics will help these individuals best relate to educational change (Ellsworth, 2000).

Fullan's change theory and research based on this theory can predict what to expect at each stage of the change process and how the factors inherent in each phase of the change process interact with each other during initiation, implementation, and sustainability of change. It is worth noting that concepts and ideas from other sources of the change literature will be applied to a better understanding of the case under study. The next three sections discuss three of the most important themes in the change literature: the relationship between school culture and change, the role of leadership in the change processes, and sustainability of educational initiatives and reforms.

Change and School Culture

This section addresses the role and importance of school culture in the change process. Schein (2004) defined culture as follows:

> A pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems. (p. 17)

Trice and Beyer (1993) maintained that change leaders should be well aware of their organization's culture to guide organizational development and progress. Hall and Hord (2010) argued, "Understanding the importance of organization culture is the beginning step for achieving long-term change success" (p. 18).

Research and experience show that some schools develop an organizational culture that is more supportive of the change efforts than others. Schools with collaborative cultures have been identified as most conducive to implementing change successfully. For change to occur and sustain, there should be joint efforts, shared responsibility, and collective commitment of the teaching staff and administrators. Schools operating as collaborative cultures do not isolate their teachers, but promote professional dialogue and collegial learning (Rozenholtz, 1989). Collegial learning, in turn, "provides a means for enabling the culture of educational change…By supporting individual members, organizational learning can offer a very promising avenue to more successful change processes" (Hall & Hord, 2010, p. 32).

In collaborative cultures, there is a strong emphasis on improving teaching and learning and increasing student academic performance. Spillane and Seashore Louis (2002) argued, "Teachers who have found a network of colleagues with whom they can discuss their professional practice …are more likely to be engaged in improving their practice in ways that have the potential to affect student learning" (p. 93.). Fullan (1998) reported:

> Student achievement increases substantially in schools with collaborative[democratic] work cultures that foster a professional learning community among teachers and others, focus continuously on improving

instructional practice in light of student performance data, and link to standards and staff development support. (p. 8)

To establish and maintain collaborative cultures is a daunting task for school leaders. Knapp, Copland and Talbert (2003) proposed a set of strategies and techniques to launch and develop a culture of collaboration:

- Establish structures for regular staff interaction about instructional practices.
- Create cycles of school-wide inquiry into learning and teaching performance.
- Become aware of the staff assumptions about norms, values, and beliefs about learning.
- Recruit teachers whose value base is consistent with the school culture.
- Include staff in the decision-making processes.
- Celebrate teacher and student achievements.

All these strategies and techniques are targeted at the teacher, a central figure in all school processes, because teacher support is critical to the success of any change effort. Much of the implementation literature pointed to the teacher as the ultimate determining factor in the change success (Fullan, 2007; Spillane & Seashore Louis, 2002). If teachers do not support any initiative, they will resist or halfheartedly implement it, which will not lead to the initiative success (Datnow, Hubbard, & Mehan, 2002). Chances for success are higher if teacher buy-in is high. However, there are other conditions that are needed for successful implementation. As Datnow (2005) put it, "In the schools that sustained reforms, there was more likely to be continuity of leadership

(but not always), commitment to the reform among key stakeholders, and the reform was an obvious feature of the structure and culture of the school" (p. 135). Effective leadership was identified as one of the major components of successful implementation.

Leadership for Change

Hall and Hord (2010) argued, "In collaborative learning school cultures, principals remain key to shaping the norms, values, and beliefs of the staff" (p. 35). Fullan (2007) noted that the principal should be viewed as central to promoting or hindering change because "the principal is in the middle of the relationship between teachers and external ideas and people" (p. 155). In their review of professional learning communities, McLaughlin and Talbert (2006) also endorsed the principal as essential to school success. Researchers at RAND, studying the NAS initiative, have found that there is a positive relationship between the quality of principal's leadership and the extent of the whole-school initiative implementation. A broader level of implementation was observed in the schools in which teachers perceived their principals as strong leaders (Berends, Bodilly, & Kirby, 2002). Research suggests that without strong principal leadership the change efforts are often doomed to failure (Desimone, 2002; Fullan, 2002, 2007; Muncey & McQuillan, 1996).

It is worth noting that none of the scholars that studied the role of leadership in the change process have assumed that the principal alone can provide the leadership to create conditions that promote teaching and learning and ensure change success. For a long- term effort, principals should develop leaders across school, thereby "creating a critical mass of distributive leadership as a resource for the present and the future" (Fullan, 2007, p. 163). There are numerous research studies and scholarly discussions in

the literature on the subject of distributed leadership. Some scholars identified distributed leadership as a contributing factor to positive change in school systems (Elmore, 2004; Fullan, 2007; Spillane, 2006). Hargreaves and Fink (2006) noted, "Sustainable and distributed leadership inspires staff members, students, and parents to seek, create, and exploit leadership opportunities that contribute to deep and broad learning for all students" (p. 95).

The concept of teacher-leaders is one popular form of distributed leadership. Individually or collectively teachers can take numerous leadership responsibilities such as mentoring or providing professional development on a voluntary basis or at the request of formal leaders. Barth (2001) argued:

> All teachers have leadership potential and can benefit from exercising that potential. Teachers become more active learners in an environment where they are leaders. When teachers lead, principals extend their own capacity, students enjoy a democratic community of learners, and schools benefit from better decisions. This is why the promise of widespread teacher leadership in our schools is so compelling. (p. 445)

Steel and Craig (2006) gave six recommendations for supporting and facilitating the development of teacher leaders: show interest in teachers' professional judgment; listen to teachers' input; recognize contributions from all levels of a school; always provide teacher leaders with positive feedback; support teachers' professional development; and try reducing teacher isolation.

Literature on curriculum mapping demonstrates that teacher leadership is important for curriculum mapping implementation and sustainability. Kallick and

Colosimo (2009) stated that as the school becomes engaged in curriculum mapping and data analysis, teachers start assuming leadership roles to further the work. Some of these roles are formalized: subject area coaches, data miners, data-informed facilitators, and mapping coaches. Formalizing these leadership roles serves as "leverage in transforming the culture where distributed leadership becomes real" (p. 13). As the principal in one of the schools featured in Kallick and Colosimo's (2009) book put it, "The success of this endeavor can be measured by the number of time the teacher leadership positions in the building had an active part in the curriculum mapping process" (p. 98). The leadership potential of teachers engaged in the curriculum mapping process is geared towards the major goal of expanding and improving educational opportunities for all students.

Some educational researchers perceive teacher leadership as an unfinished agenda. Because of the ways in which schools operate, teachers often focus on their own practice and stay in their own classrooms. If the collaborative culture is not established in the schools, teacher leadership potential is lost. Teachers remain in isolation and do not share with their colleagues their experiences, practices, and concerns. Teacher participation in curriculum mapping can empower them and help them realize their leadership potential to a greater extent. Ackerman and Mackenzie (2006) argued, "Teacher leadership offers a variety of unseen opportunities for forcing schools out of established frames of reference and toward genuine school reform" (p. 69).

Apart from improving instruction, teacher leadership can help attract and retain high quality teachers. It is impossible to improve the performance of school without a highly qualified and competent teaching force. Teachers whose voices are heard, who are encouraged and stimulated to participate in major school endeavors and assume

leadership roles are more satisfied with their job and develop a stronger sense of commitment to the organization (Elmore, 2000). Fostering teacher leadership and stimulating collaborative inquiry is considered the cornerstone of a curriculum mapping initiative that can result in sustainable change.

Challenges of Sustainability

An increasingly important theme in the educational change literature is institutionalization or sustainability of educational initiatives and innovations. Although the dictionary definitions of sustainability and institutionalization differ (the former refers to longevity and the latter refers to something becoming an established, taken-for granted practice); their definitions in the research literature are intricately related. Datnow (2005) pointed out, "For a reform to be sustained, it must become institutionalized. So too, when a reform is institutionalized, it has been sustained over time" (p. 123).

There are not many studies examining sustainability of educational initiatives because only few new programs or practices actually reach the institutionalization phase and turn into a routine part of school practices or impact most teachers, not just a small number of them (Fullan, 2007; Hargreaves & Goodson, 2006). Hargreaves et al. (2001) argued, "Adopting an innovation or reform is straightforward enough. Developing, supporting and sustaining it is a far more difficult matter" (p. 115).

Educational change scholars have attempted to find the reasons for the lack of reform sustainability and to determine what conditions, strategies, and structures can promote change beyond the implementation phase. One of the major assumptions of the change literature concerning educational reform success or failure is that the attempted reform might fail due to some inconsistencies related to the local contexts and

circumstances, but not because of the poor design of the reform (Datnow et al., 2002). According to some research findings, schools that strive to implement reforms find difficulty in sustaining them because of competing priorities, changing requirements, and administrator and teacher turnover (Hargreaves & Fink, 2000; Tyack & Cuban, 1995).

Research also suggests that sustainability problems have their roots in the previous stages of the change process and might be a result of a short-term provision of resources, inadequate professional training, and insufficient support and assistance (Datnow et al., 2002). Thus, institutionalization should not be viewed as a separate stage of the change process, but as a stage that is closely tied to the decisions and processes during the initiation and implementation stages and should not be understood in isolation from other stages (Fullan, 2007; Hopkins & Reynolds, 2001). Therefore, most of the factors that account for the success of initiation and implementation can be applied to institutionalization, taking into account some unique requirements and approaches needed to foster the initiative longevity and gaining the status of a legitimate and ongoing practice in the school setting.

Cuban (2001) proposed three general strategies to promote sustainability, which included maintaining stability in leadership, maintaining funding, and creating structural support of the initiative. There is a strong consensus in the literature that the leadership of the principal for successful initiative implementation and sustainability is indisputable; however, some scholars argue that leadership is needed at many levels and should not be "limited to a single individual but is distributed, and its responsibility becomes a capacity of the whole" (Hall & Hord, 2010, p. 34). Leadership must be ongoing for the initiative to succeed and sustain. The leadership structures should make sure they provide enough

assistance and support, maintain constant communication, and monitor the progress of the initiative. Teacher commitment and motivation for the initiative increase if there is follow-up and monitoring from the leaders and administrative staff (Huberman & Miles, 1984). Turn-over of the staff members may undermine the process of change, therefore, the change leaders should have orientation programs in place for the newly hired staff to help them in the enactment and use of the innovation or change and ensure the initiative continuation (Hargreaves & Fink, 2006; Huberman & Miles, 1984).

Some researchers connect sustainability to the ongoing professional development regarding the initiative. Hargreaves and Fink (2003) argued, "Sustainable improvement requires investment in building long-term capacity for improvement, such as the development of teachers' skills, which will stay with them forever, long after the project money is gone" (p. 694). Harvey and Hurthworth (2006) stressed the importance of forward planning for continuation from the onset of the initiative. Good planning is emphasized in the literature as one of the most important components of the change process if the change efforts are to sustain.

In summary, the presence of certain factors such as administrative support and leadership, a critical mass of individuals engaged in the initiative, sustained professional development, and availability of the necessary resources and rigorous plans for implementing and monitoring change efforts are important to successful implementation and sustainability of the school wide or district wide initiatives.

Chapter II Summary

This review has discussed the relevant literature on the major components related to the focus of the study. From the reviewed literature on curriculum mapping, I can

conclude that curriculum mapping is viewed as a dynamic shift in curriculum decision-making. It is a process-oriented model of planning curriculum and instruction that enables educators to constantly revise and modify curriculum and instruction to better meet students' needs. Curriculum mapping is often presented as a school improvement effort because the focus of the constant curriculum revision is on student learning, quality and depth of understanding of the learning processes that will eventually lead to constant improvement. It is a process that inspires teachers to assume leadership roles, helps build professional learning communities, and helps transfer schools into data-informed cultures.

The review of literature revealed a paucity of studies that examine the perspectives and experiences of the participants of the curriculum mapping process. The current study was undertaken to create a comprehensive picture of the curriculum mapping implementation through examining individual experiences and perspectives of teachers and administrators participating in the curriculum mapping process and identifying factors contributing to successful curriculum mapping implementation and sustainability.

From the literature on educational change, I can conclude that it is difficult to find a prescription for the education initiative success. However, a number of effective strategies for initiating, implementing, and sustaining successful initiatives can be learned from theory and research. Three major theories of educational change were reviewed to identify the theory that best fits the purpose of the study. Fullan's (2007) theory of educational change was chosen to guide the current study. Having been expressly focused on the human participants, this theory "discusses the causes and nature of

changes in an educational context in a manner unequalled by any other framework" (Ellsworth, 2000, pp. 82-83). The constructs, principles, and ideas from different sources focusing on educational change were discussed to determine their appropriateness to support the theory of the study and further inform data analysis and interpretation. The links between the reviewed bodies of literature have been explored where applicable.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to explore the implementation of the curriculum mapping initiative in a single school setting from the perspectives of teachers and administrators involved in the curriculum mapping process. A single lower Midwestern high school was used to answer the following research questions:

1. How and why did one high school become involved in the curriculum mapping initiative?
2. What are the teachers' perceptions of curriculum mapping?
3. What are the opportunities and challenges of curriculum mapping implementation in this particular school setting?

a) What is the extent of curriculum mapping implementation?

b) Are there any barriers to curriculum mapping implementation?

c) What changes (if any) occurred in the school setting as a result of curriculum mapping implementation?

4. What strategies might contribute to the curriculum mapping sustainability?

This chapter provides an overview of the research approach and methods and techniques I used to conduct this study. I start with the description of the philosophical underpinnings guiding this research and proceed to explain the choice of the research design and methods of data collection and analysis. The methods and techniques of site and participant selection as well as the procedures for data collection and analysis are

addressed in detail. Special attention is given to the ethical issues and considerations involved in the research process. The strategies for achieving trustworthiness in this study are discussed at length. The section that follows is devoted to the explanation of the researcher's epistemological and methodological beliefs and how such beliefs informed and guided the given study.

Theoretical Perspective

All social inquiry is guided by beliefs about ontology (the nature of reality), epistemology (how knowledge is generated and accepted as valid), and methodology (how we gain the knowledge of the world). Hitchcock and Hughes (as cited in Cohen, Manion & Morrison, 2007) suggested that "ontological assumptions give rise to epistemological assumptions, these, in turn, give rise to methodological considerations, and these, in turn, give rise to issues of instrumentation and data collection" (p. 5). The term that describes the researcher's epistemological, ontological, and methodological orientations is called a paradigm, or "a basic set of beliefs that guides action" (Guba, 1990, p. 17). Connole, Smith and Wiseman (1993) identified four major paradigms: positivism, interpretivism, critical theory, and postmodernism. This study research design lends itself well to the interpretive paradigm. Stevenson (2004) argued, "Case studies most commonly are conducted within an interpretive (naturalistic or constructivist) paradigm of inquiry… interpretive research is concerned with illuminating the sense that participants make of their experiences, including the meanings they attribute to their interactions and actions" (p. 43).

The interpretive paradigm presupposes a relativist ontology (there exist multiple realities), a constructivist epistemology (knowledge is "temporary, developmental,

nonobjective, internally constructed, and socially and culturally mediated" (Fosnot, 1996, p. ix)), and a set of naturalistic methodological procedures (studies must be set in their natural settings, involve human subjects with the researcher as the main instrument). As far as constructivists' views are concerned, "knowledge is constructed in the process of reflection, inquiry, and action" (Fosnot, 1989, p. 21). With respect to the current study, such a view translated into examining the phenomenon of curriculum mapping from the viewpoints of the individuals consciously experiencing that phenomenon. Viewing curriculum mapping through the eyes of participants, catching their understanding of the complex issues related to the phenomenon under study, enabled me to provide as far as possible 'insider accounts' of events and processes.

One of the basic assumptions of the interpretive paradigm regarding the individual is that all human action has a meaning and therefore "has to be interpreted and understood within the context of social practices" (Usher, 1996, p. 18). It follows from this assumption that our understanding of the meaning created through the interaction of human beings enables us to better understand the social world and numerous phenomena that constitute it. During their interactions in daily life, individuals not only give meaning to their own actions, but they also give meaning to the actions of others. Blackledge and Hunt (1985) argued, "People mutually interpret the behavior of other people with whom [they] interact…and subsequent action depends on [their] interpretation" (p. 236).

Another assumption highlighted by Blackledge and Hunt is that people's daily interactions not only involve mutual interpretation of meanings, but they also involve 'negotiation' of meanings through which people modify their views and understandings.

Thus, meanings and interpretations do not remain static and unchanging because the situations in which people find themselves are always fluid and changing; "events and behaviors evolve over time and are richly affected by context--they are situated activities" (Cohen et al., 2007, p. 22).

As a researcher working within an interpretive paradigm, I focused on the situated activities of my participants to tap into the subjective world of their personal and shared experiences. I share the view expressed by Cohen et al. (2007) that "the social world should be studied in its natural state, without the intervention of, or manipulation by, the researcher," the situations and experiences should be examined "through the eyes of participants rather than the researcher" (p. 21). However, in qualitative inquiry the researcher is the main instrument of data collection and analysis and "the human instrument has shortcomings and biases that might have an impact on the study" (Merriam, 2009, p. 15). In other words, the researcher's own emotions, beliefs, attitudes, values, and previous experiences may be brought to the research situation. Reflexivity usually helps researchers "acknowledge and disclose their own selves in the research, seeking to understand their part in, or influence on, the research" (Cohen et al., 2007, p. 171). The next section addresses researcher reflexivity.

Researcher Reflexivity Statement

While undertaking a qualitative research study, I was cognizant of the unique issues associated with the researcher being the instrument of data collection and analysis (Patton, 2002). As a former secondary school teacher, I realized that I could bring numerous biases, values, and experiences to the research study that focuses on a district-wide educational initiative. Having spent 17 years in the classroom, I experienced first-

hand a variety of externally imposed, top-down reforms in my home country of Ukraine. None of the efforts I witnessed ever brought desired results because the reformers never included teachers' voices in the decision-making processes. From the literature on American education reform, I know that educational initiatives and reforms in this country often share the same fate as the reforms all over the world—many change efforts end up being "gradual and piecemeal" or completely fail instead of bringing substantive change because of the flawed implementation (Hargreaves, 2002; Sarason, 1993; Tyack & Cuban, 1995).

When I first heard about curriculum mapping from one of my friends, I was a little skeptical of the initiative as another top-down reform that would not be embraced by the teachers fully. Then my friend introduced me to a local middle school teacher who was very passionate about curriculum mapping. As it turned out, curriculum mapping started as a grassroots initiative within the Social Studies department in the middle school and was initiated by the above mentioned teacher who learned about curriculum mapping from the local high school teachers. I interviewed that middle school teacher for my Qualitative Methods Research class project.

I needed one more participant to fulfill the course requirements and I was referred to two other teachers from a local high school who both agreed to contribute to my class project. The focus of that project was mainly on how teachers view the change process. It was a rewarding experience that helped me strengthen my skills in interviewing, observations, and qualitative data analysis. Furthermore, this project sparked my interest in curriculum mapping and I decided to do a dissertation on this topic. The more I

learned about curriculum mapping, the more value I saw in this tool and in the process of curriculum mapping.

I approached the current study with a firm belief that curriculum mapping represented worth and value as a school improvement initiative, but I also realized that not everybody might have a positive view of curriculum mapping. Teachers can have their unique perceptions of this initiative based on their values, beliefs, and previous educational experiences. It is important to understand and interpret their perceptions and experiences in order to draw conclusions and provide recommendations for educational research, policy, and practice. For this purpose, I needed to enter the research setting with an open mind and take an objective stance to data collection and interpretation. I knew that I needed to be constantly aware that I did not fall into the trap of simply corroborating what I already knew about the issue under study. Sanger (1996) noted, "We look where we expect to find rather than opening ourselves to any possibility that might turn up" (p. 5).

I intended to observe and describe what was going on in the research setting by maintaining what Patton (2002) called "empathic neutrality" (p. 145). During interviews, I tried "to understand what the interviewee is saying rather than what the researcher expects that person to say" (Cohen et al., 2007, p. 471). I also did my best to be non-judgmental, showing openness, respect, and responsiveness. While conducting classroom observations, I was mindful and unobtrusive, trying to focus on the objects of observations without interfering in the normal course of activities and procedures. I kept a field journal throughout the study to record personal reflections, issues, ideas, and problems and concerns that arose during data collection and interpretation. I tried to

separate impressions and feelings from descriptions during data analysis, as recommended by Hatch (2002). I understood there is no way to completely eliminate biases, but at least I tried to do everything possible to minimize their impact on the data collection and interpretation of data.

Research Design

A qualitative case study approach was utilized to explore the challenges and opportunities of curriculum mapping implementation in one school setting and to understand what meaning the curriculum mapping process holds for participating teachers and administrators as this type of inquiry enables the researcher to look at "a process, or the perspectives and worldviews of the people involved" (Merriam, 1998, p. 11). Creswell (2007) defined case study as follow:

> Case study research is a qualitative approach in which the investigator explores a bounded system (a ***case***) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving ***multiple sources of information***(e.g., observations, interviews, audiovisual material, and documents and reports), and reports a case ***description*** and case-based themes. (p. 73, emphasis in original)

One of the first procedures in the case study research is to identify the case or cases. The cases may include an individual, a group of individuals, an innovative program, or an activity (Stake, 1995). Baxter and Jack (2008) argued, "One of the common pitfalls associated with case study is that there is a tendency for researchers to attempt to answer a question that is too broad or a topic that has too many objectives for one study" (p. 546). As the literature suggests, placing boundaries on a case will help

ensure that the study remains focused and "reasonable in scope" (Baxter & Jack, 2008, p. 547). The case can be bounded: (a) by time and space (Creswell, 2003), (b) by time and activity (Stake, 1995), and (c) by context and definition (Miles & Huberman, 1994). The case under question was bounded spatially by one school setting. In terms of time, the research was bounded by five months during which I was involved with the human subjects. I would say that the temporal boundary of the case was longer than the time period spent by the researcher in the field as the research participants were asked to recollect their history with curriculum mapping that had lasted for several years.

Having determined the research methodology and set the boundaries of the case, I selected a specific type of case study design. Stake (1995) identified three major types of case study: intrinsic case studies (studies that are conducted in order to better understand a particular case under study), instrumental case studies (studies exploring some particular case in order to gain insight into an issue or to redraw a generalization), and collective case studies (groups of individual case studies that are undertaken to gain a fuller picture).

As this study sought deeper insight into the concept and process of curriculum mapping in a single school setting and focused on the exploration of the phenomenon within its real-life context through the perspectives of the participants with the purpose of a better understanding of the phenomenon, it can be classified as instrumental. This instrumental case study aimed to explore and describe in-depth the nature of curriculum mapping implementation by means of highly contextualized and particularized analysis of "an instance in action" (MacDonald & Walker, 1977, p. 182). The instance in action is how teachers understand and interpret their experiences with curriculum mapping. Case

study theoreticians emphasized that interpretation is a major part of qualitative case study research (Merriam, 2009; Stake, 1995). Stake (1995) argued:

> Ultimately, the interpretations of the researcher are likely to be emphasized more than the interpretations of those people studied, but the qualitative case study researcher tries to preserve the multiple realities, the different and even contradicting views of what is happening. (p. 12)

Different and contradicting views can be presented by participants with a wide variation of meanings regarding the phenomenon of the study. To identify and recruit participants for this research, I used specific sampling procedures described in the next section.

Sampling Procedures

In qualitative research, sampling procedures are usually driven by a purposeful sampling strategy that can be applied to both sites and individuals (Merriam, 2009). Patton (2002) explained:

> The logic and power of purposeful sampling lie in selecting *information-rich cases* for study in depth. Information rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term *purposeful* sampling. (p. 230, emphasis in original)

In conducting case studies two levels of purposeful sampling occur. First, the researcher must select the case according to a set of pre-established criteria and then he or she must select a sample of people, activities, and/or documents to be studied within the case to answer the research questions and present a rich and holistic description of the

phenomenon under study (Merriam, 2009). The following criteria were used to select the site for this study:

- The research site should be involved in the curriculum mapping process.
- The site should be easily accessible.
- The site should demonstrate the potential for contributing to the research project.

After some investigation and inquiry from colleagues and university professors, a single school setting in a nearby school district was purposefully selected for this study because of its four-year history with curriculum mapping. Other selection criteria included accessibility of the site and likelihood that goodwill and cooperation of the potential subjects of the study would be achieved. The school building is located in a university town and it is customary for the school faculty to get solicitations to participate in different research studies. The school teachers and administrators have a reputation of being open for sharing their ideas and experiences and contributing to different research projects.

The following criteria were utilized for participant selection:

- Potential research participants should have at least three years of teaching experience in the researched school setting.
- Potential teacher participants should be teaching in the subject areas that are involved in the curriculum mapping process.
- Potential informants should be willing to contribute to the research study by sharing their perspectives and experiences with the researcher.

To develop a comprehensive and in-depth understanding of the phenomenon of curriculum mapping, I selected participants with a variety of experiences with and

perceptions of curriculum mapping, variety of subject areas, grade levels, and teaching experience, and different levels of proficiency with curriculum mapping. I was sure that a holistic picture should involve the experiences and perceptions of people who have both favorable and unfavorable opinions of the phenomenon of interest. Furthermore, including multiple perspectives strengthens the relevance and accuracy of qualitative research.

Merriam (2009) suggested using a maximum variation technique to ensure that different types of participants will be selected and a range of perspectives will be obtained to strengthen research findings and their applicability. Miles and Huberman (1994) described maximal variation as "a deliberate hunt for negative instances or variations" (p. 29). To identify participants with diverse perspectives and experiences, I developed a web-based questionnaire (see Appendix E). The questionnaire consisted of two parts. The first part contained 19 items that measured teachers' general attitudes towards curriculum mapping with a 5-point Likert scale, ranging from 1 strongly agree to 5 strongly disagree. The second part asked the teachers for demographic information: age, gender, years of teaching experience, grade and subject area of instruction, and level of proficiency with curriculum mapping. The questionnaire was uploaded to the SurveyMonkey® website and was made available for potential respondents.

Upon receipt of the school district and IRB approval to do research in the local high school, I made an appointment with a school principal to discuss a proposed study. The principal agreed to have their site participate in the research study and notified teachers that they would be receiving an email from an approved researcher. Having obtained teachers' email addresses from the school website, I sent each teacher a

solicitation email (see Appendix C). The email explained the purpose of the study, asked for teachers' voluntary input into the research, and discussed the confidentiality issues. The link to the survey was provided at the end of the email.

Twenty-seven completed surveys were returned for a response rate of 51%. With the IRB permission, the survey responses were linked to email addresses through a SurveyMonkey's Email Invitation collector tool to track participants and purposefully select them for the study based on their survey responses. I informed the survey respondents about the usage of Email Invitation collector in the solicitation email. The survey responses remained identifiable during the recruitment process (from early September until mid-October). After I analyzed the survey data through the SurveyMonkey® data analysis tool and exported them to a flash drive, I closed the collector and the SurveyMonkey® system treated the survey as closed. I chose not to report the results of the questionnaire and used them solely for the participant selection purposes.

A list of 26 potential participants of the study was created based on the survey responses. A solicitation email requesting further participation in the study was sent to all the teachers from the list and school administrators (see Appendices B & D). Initially, I got five responses from teachers and one response from the school administrators. After a follow-up email, six more teachers agreed to participate in the research study. A follow-up email to school administrators did not yield any more responses. All in all, I recruited 12 participants for the study -- 11 teachers and one school administrator.

Data Collection Methods

Baxter and Jack (2008) pointed out, "A hallmark of case study research is the use of multiple data sources, a strategy which also enhances data credibility" (p. 554). The practice of using multiple sources of information helps develop converging lines of inquiry that can add strength to the findings, facilitate triangulation, and promote a deep and holistic understanding of the phenomenon under study. In research, rarely are all data collection methods used equally. As Merriam (1998) suggested, "One or two methods of data collection predominate; the other(s) play a support role in gaining an in-depth understanding of the case" (p. 137). The primary method of data collection for this study was interviews. I used classroom observations and documents as supplementary data collection methods. The data collection process lasted from mid-October until late February. During that time, I conducted interviews, did classroom observations, and collected documents for analysis.

Interviews

Interviews as a major method of data collection have enabled me to access my respondents' perceptions, opinions, and recollections of their experiences with the phenomenon of interest. Interviews can range from highly structured to less structured and unstructured informal conversational formats (Merriam, 2009). I chose a semi-structured, open-ended format of interviewing to be able to ask all respondents a set of specific questions and to have some freedom and adaptability in eliciting additional information from interviewees as "each interviewee is expected to have had unique experiences, special stories to tell" (Stake, 1995, p. 65). Such a format allowed me "to respond to the situation at hand, to the emerging view of the respondent, and to new ideas on the topic" (Merriam, 2009, p. 90). I developed separate interview protocols for school

administrators and for teachers. Interview protocols were developed for both an initial interview and a follow-up interview with teachers (see Appendices F & G).

Although the interview questions were mostly constructed around Fullan's (2007) change theory and the literature relevant to the research topic, I was open to exploring any new insights and ideas that might appear during the interview process to avoid imposition of preconceived assumptions on data collection and analysis and let understanding of the case emerge from data. The first two questions of the initial interview gathered demographic information on the participants of the study. All the other questions were formulated toward obtaining the information that would address the research questions and provide enough material for the description of the case. Collectively, the responses from the interviews were supposed to tell the story of the evolution and progression of the educational initiative in this particular school setting.

I scheduled interviews with all participants by emails. I included a brief description of the purpose of the research, procedures, and participant's involvement in the email message. Because of the teachers' busy schedules, it took repeated emails to establish and confirm the date and time of the initial interview with some of the research participants. The majority of interviewees chose to be interviewed in their classrooms during their planning time or after school. One of the teachers preferred to be interviewed outside school for confidentiality reasons. Of all the suggested places, she preferred my home as a place with a minimal noise level compared to public places.

At the beginning of each interview, I asked the participants to sign and date a consent form in which I told the interviewees that they could choose not to answer any questions they were uncomfortable with or withdraw from the interview or the study any

time without any repercussions. I assured the subjects that the information they were going to share with me would be held in strict confidentiality and their real names would never appear in transcripts or any written records. Each participant agreed for their interview(s) to be audio-taped. I used a digital recorder as a main recording device and a conventional cassette recorder as a backup at each interview. All the participants consented to both devices. I also informed each subject that the audio files and tapes would be kept in a secure place and used for transcription purposes only.

In conducting the interviews, I listened closely to my interviewees, allowed them to speak at length and minimized my contributions to the interaction striving for an 80/20 or 90/10 ratio in my interviews (i.e., 80/90 interviewee/20/10 interviewer talk), as recommended by Roulston, deMarrais, and Lewis (2003). To establish rapport with my participants, I asked some questions concerning their general education experience, but most of the time I tried not to lose the focus on the research topic to elicit substantive information to answer the research questions posed for this study.

The initial interviews lasted 45-65 minutes depending on the amount of information each participant wanted to share with me and the participants' individual communicative characteristics of being verbose or taciturn. The follow- up interviews lasted 25-35 minutes and they were based on the results of the initial interviews. Immediately after each interview, I wrote notes on the interview process including some observations made prior, during, and after the interview, and my reflections on the interview process. I transferred each interview file from the digital recorder onto a laptop computer and after that erased it from the recorder. I kept audio files on a password

secured laptop computer; cassettes with the interview data were kept in a locked cabinet at my home.

All the interviews were transcribed verbatim resulting in over 300 pages of transcribed interview data. When I finished transcribing all the interviews, I listened to each recording once again to identify possible mistakes in the transcribed text. After that I deleted audio files with the interview data from my computer and destroyed audio cassettes as well. I emailed all participants thank you letters and transcripts to member check for accuracy and some additional insights that they find to be useful for the study. Only seven participants returned my email with attached interview transcriptions stating that I accurately transcribed the information they had shared with me during the interviews. No errors or misunderstandings were identified by the respondents.

IRB Protocol Modification

Originally, I planned to have two interviews with each participating teacher and one interview with school administrators. During the second round of interviews with the teachers, I realized that additional interviews did not provide any new information pertinent to the research questions, thus 'data saturation' was reached. Lincoln and Guba (1985) recommended collecting data to the point when saturation or redundancy is achieved. I decided to request the modification of the IRB protocol to change the number of interviews. Instead of two interviews with each teacher participant, as it was stated in the originally approved research protocol, I asked for one interview with each participant and a follow-up interview if needed.

Apart from changing the number of interviews, I needed to make some other changes to the IRB research protocol at that point. I requested a change in the title of the

project from " A Case Study of Curriculum Mapping Implementation" to "A Case Study of Curriculum Mapping Implementation in One High School: Implications for Practice and Research" to make the title more specific and to reflect the content and emphasis of the study. I also requested the IRB committee to extend the length of time for gathering the data using the human subjects for one month as one of my participants wanted me to observe her classroom in mid- February. Modification was approved by the IRB administration. After that I finished follow-up interviews with my participants. All in all, I had 12 initial interviews and 8 follow-up interviews.

Observations

Observations were used as a supplementary means of data collection and combined with interview data and document analysis they allowed "for a holistic interpretation of the phenomenon being investigated" (Merriam, 2009, p. 136). As observations are usually conducted in participants' work settings, the researcher has an opportunity to gain insights from the participants' work spaces, their interactions with other people within such spaces, participants' mannerisms, silences, and different modes of behavior. As interviews privilege more articulate participants, observations might be another way of capturing the experiences of those who are less verbose (Simons, 2009).

I requested two classroom observations during two block periods from each participating teacher. Nine out of eleven teachers agreed for their classrooms to be observed. Scheduling for the observations was arranged by teachers not to disrupt any classroom routines. The purpose of the classroom observations was to identify to what extent the teachers followed consensus maps in their teaching, if they modified the maps to meet the needs of their students, and how much individuality and creativity the

teachers added to the curriculum maps developed collectively by the department. Apart from observing activities and interactions in the classroom, I also observed the classroom physical environment including furniture arrangement, the content of the bulletin boards, and instructional materials and supplies.

I entered my observational notes into the field journal that was also used for recording my feelings, impressions, concerns, and also ideas that were worth pursuing further in the research process. I usually took continuous descriptive notes during each classroom observation. Once the observation was completed, I wrote a summary of the observation and my analytical reflections on what had been observed in the classroom. During my school visits to conduct interviews and classroom observations, I also did informal observations of the school hallways that allowed me to obtain a sense of the school's culture, customs, values, and rituals and to gain a more comprehensive picture of the research site. These observations were also entered into the field journal and helped me understand better the context of the research setting.

Document Analysis

Lincoln and Guba (1985) described documents and records as almost always available, inexpensive or free, and a stable and rich source of information. Documents are a valuable data source "not only because of what can be learned directly from them, but also as a stimulus for paths of inquiry that can be pursued only through direct observation and interviewing" (Patton, 2002, p. 294). Documents are used less than interviews and observations in case study research, but when used in case studies documents enable the researcher "to portray and enrich the context and contribute to

analysis of issues" (Simons, 2009, p. 63). The documents commonly used for research purposes include public records and/or personal documents.

For this study, I used public documents obtained from both external and internal sources. The external records included the documents from the State Department of Education such as the Academic Performance Index (API) and Adequate Yearly Progress (AYP) reports for the school district from 2006-2007 to 2009-2010 school years. The internal documents were obtained from the school website, research participants, and the school testing director. Internal records included such documents as the school mission statement, grade and standardized test reports, and curriculum maps created by teachers for different grades and disciplines.

The documents I collected were useful in providing the context of the study, describing school characteristics in terms of student achievement, teacher credentials, and shared beliefs and goals of the entire school community. The major limitation of the documents as a data source is that documents are not produced for research purposes; they already exist before the study begins, therefore the data from them might not be in the form useful to the researcher or incongruent with the emerging research findings (Merriam, 2009). The fit of the documents with other data sources was less of a concern in this study as the only purpose of using the documents was to verify and corroborate findings based on other data sources.

Data Analysis Procedures

Data analysis in qualitative research is the process of making sense out of the copious data corpus by interpreting what people have said and what the researcher has observed and read about the phenomenon under study (Cohen et al., 2007, Merriam,

2009). The meanings and understandings gained through data analysis constitute the findings of the study. Because of rapid accumulation of huge amounts of information as the study proceeds, data collection and data analysis in qualitative research should take place concurrently to avoid information overload and help the researcher plan analytical leads for further exploration of the phenomenon under study (Cohen et al., 2006). Merriam (2009) cautioned, "Without ongoing analysis, the data can be unfocused, repetitious, and overwhelming in the sheer volume of material that needs to be processed" (p. 171).

The overall process of data analysis was comprised of coding, categorization, and theme generation from the collected data, using a constant comparative method offered by Glaser and Strauss (1967). This method involved constantly comparing newly acquired data with existing data and categories that were devised earlier with the emerging ones in order to confirm or disconfirm them until the most plausible interpretation of data was reached (Cohen et al., 2007). I started a line-by-line open coding process as soon as the first interviews had been transcribed and the first sets of field notes and documents had been collected. While reading and rereading the transcripts and field notes, I identified segments in the data that were potentially relevant for answering research questions and made notations in the margins that were either exact word(s) of the participants, or my own words, or concepts from the relevant literature. I tried to use emic codes -- the exact words of the participants -- whenever possible.

The open coding continued until the last interview was transcribed and analyzed. The list of codes that was created during the open coding process was tentative and provisional. Once all the data had been collected, a period of intensive data analysis took

place “when tentative findings were substantiated, revised, and reconfigured” (Merriam, 2009, p. 178). I re-read the transcriptions once again “to have a sense of the scope and holistic nature of the data” (Wiersma & Jurs, 2005, p. 259). At that time a more focused coding took place to explore the relationships between codes. I compared codes derived from all transcripts “to discover commonalities, differences, and similarities” across participants (Cohen et al., 2007, p. 461). Categories were developed that were further reduced and refined and then linked together to generate themes that were used to write a narrative account of the findings. Early in the data analysis, I worked with 32 categories, then combined and reduced them to four themes that were used in the end for data interpretation.

The coding process was accompanied by memoing. Glaser (1978) defined memos as “the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding” (p. 83). Memos helped tie different pieces of data and move from an empirical level to a conceptual one, refining and expending codes, showing their relationships, and “building towards a more integrated understanding of events, processes, and interactions in the case” (Miles & Huberman, 1994, pp. 158-159). After developing categories and themes, I began the process of evaluating the plausibility of my understanding of the major events and processes happening in the research setting “to draw and verify descriptive conclusions about the phenomena in a bounded context that make up a single case” (Miles & Huberman, 1994, p. 90). This entailed search for negative instances and alternative explanations, critical challenge of patterns that seem evident and search for plausible explanations for data and linkages that existed among

them to lay the foundations for the reporting of research findings (Marshall & Rossman, 2011).

Strategies for Achieving Trustworthiness

Ensuring rigor is essential in any type of research. Lincoln and Guba (1985) coined the term trustworthiness to be the standard by which to judge qualitative research. The same scholars argued that qualitative researchers can establish the trustworthiness of their findings by proving that they are (a) credible, (b) transferable, (c) dependable, and (d) confirmable.

The goal of credibility is to demonstrate that "the findings are accurate from the standpoint of the researcher, the participants, or the accounts of the reader" (Creswell, 2003, pp. 195-196). As a researcher, I had to make sure that the processes and interactions within the boundaries of the case were reported with sufficient depth and were based on the understanding of those under study who should agree with my interpretations of their reality. As Toma (2006) put it, "The key notions here are carefully bounding the case and explaining it as richly as possible" (p. 413). The comprehensive and context-rich accounts should be sensible, convincing, and plausible to the readers creating a 'vicarious presence' for them (Miles & Huberman, 1994). The strategies that I used to ensure the credibility of my work were as follows: (a) triangulation of data sources, (b) member checking (c) rich thick description of research findings, (d) clarifying the researcher bias, and (e) presenting negative or discrepant information that did not fit into generated themes (Creswell, 2003; Merriam, 2009; Miles & Huberman, 1994)

The second criterion for establishing rigor of the qualitative research is transferability, which means conducting and presenting the study in such a way that it can illuminate other contexts and become useful to people in similar situations. In other words, it should be transferable to other settings or groups. The lessons of one case should be used to make recommendations for other cases. One of the ways of establishing transferability, as Lincoln and Guba (1985) suggested, is to create "thick descriptions of the sending context so that someone in a potential receiving context may assess the similarity between them and …the study" (p. 126). Marshall and Rossman (2011) underscored the importance of setting up the theoretical parameters of research, connecting it with a body of theory, and relating the current study to previous studies to allow policy makers and research designers to determine whether the case study findings are applicable and transferable. Triangulation of data sources could also contribute to transferability. "Designing a study in which multiple cases, multiple informants, or more than one data-gathering method is used can greatly strengthen the study's usefulness to other settings" (Marshall & Rossman, 2011, p. 253). To assist in transferability of my findings, I followed the above-mentioned recommendations.

The third criterion for establishing rigor of qualitative research is dependability (Lincoln & Guba, 1985). Even though qualitative designs are emergent, Miles and Huberman (1994) defined dependability as "whether the process of the study is consistent, reasonably stable over time and across researchers and methods" (p. 278). Based on their recommendations, I tried to make sure that the following elements were in place in my study: (a) the design of the study was congruent with research questions, (b) basic paradigms and analytical constructs were clearly articulated, (c) the status and the

role of the researcher were explicitly explained; (d) findings showed parallelism across data sources; and (e) peer review was assured.

I tried to make sure that the findings from this research also met a criterion of confirmability. Miles and Huberman (1994) identified confirmability as "relative neutrality and reasonable freedom from unacknowledged research biases--at the minimum, explicitness about the inevitable biases that exist" (p. 278). According to Marshall and Rossman (2011), findings should represent the participants and inquiry, but not a "fabrication" from the "biases and prejudices" of the researcher. However, as the researcher is the main instrument of data collection and analysis, his or her emotions, attitudes, values, and beliefs may enter the research. "The more this happens, the less will be the likelihood of gaining the participants' perspectives and meanings" (Cohen et al., 2007, p. 171). To minimize 'researcher effect,' I acknowledged and disclosed my own biases and prejudices and tried to monitor them throughout the research process.

Ethical Issues of Research

The awareness of ethical issues and concerns is a prerequisite of conducting research in such a way as to preserve the dignity and rights of the research participants. The following steps were undertaken to protect participants' rights: 1) permission to conduct research was obtained from IRB and the school district; 2) the research objectives were clearly explained to the participants; 3) consent forms to proceed with the study were obtained from the participants; 4) the participants got full information about all data collection and analysis methods; 5) transcribed interviews were given to the participants for member-checking; 6) the participants' rights, interests, and desires were considered first while making choices regarding reporting data; 7) participants'

anonymity and confidentiality were assured during the whole process of the study; and 8) participants had the right to withdraw at any stage of the research process. Respect for the privacy, dignity, and integrity of the researchers were the major principle I tried to follow during the whole period of the research study.

Chapter III Summary

Chapter III delineated in detail the ways in which research was planned and conducted. This chapter described the theoretical underpinnings guiding the current research study and methods which were used for data collection and analysis. Specific procedures for participant selection were described and strategies for achieving trustworthiness and ethical considerations for doing research were addressed.

CHAPTER IV

FINDINGS AND DISCUSSION

Introduction

This chapter presents the findings of the study and the discussion of the research results. The reporting format of any case study depends on the researcher's decision on what information is needed to better understand the phenomenon of the study and develop a vivid and detailed description of the case "to afford the reader a vicarious experience of having been there" (Merriam, 2009, p. 258). Stake (1995) argued that the case study report may combine the features of storytelling and a traditional research report. Merriam (2009) suggested presenting "a descriptive narrative first, followed by analysis and interpretation" (p. 262). Similarly, Cohen et al. (2007) asserted, "A case study may be most suitably written as descriptive narrative, often chronologically, with issues raised throughout" (p. 461).

Having taken these recommendations into account, I have developed a narrative description that tells the story of the development and progression of the case under study and prepares the reader for analysis and interpretation of the research findings. The story is data- led and told from participants' perspectives using numerous excerpts from the interviews to illuminate what was discovered in the case and to provide insights into participants' perceptions and real experiences. The direct quotes would also help the reader determine how the results were derived from the data and see the basis upon which

the conclusions were made.

For easy reading, the researcher-generated text is broken down into subsections with categories and themes serving as headings and providing the unifying threads that ensure coherence of the case description and interpretation of the research findings. The analysis and interpretation that follow the case description are contextualized in the theory that guides the study and the existing body of related literature. Before presenting the results of the study, I describe the research site and participants to provide the context for the study. The demographic information on the research participants is provided in aggregate to fulfill the promise of confidentiality given to the participants by the researcher.

Site Description

Westlake High School (a pseudonym) is located in an exurban school district that serves the community of 48,000 people. The school district has a reputation of high standards and excellence and a history of strong community support. At the time of research, the school had 988 students enrolled in grades 10 through 12 taking courses on a four-by-four block schedule and earning eight credits per year. Classes last 90 minutes and the academic year is divided into four nine-week terms. As for the student ethnic composition, 76% are White/ Caucasian, 8% are Black/African American, 4% are Hispanic, 4% are Asians and 8% are American Indians. The students of Westlake High school represent different cultures and speak 25 different languages.

Among the school's 68 certified teachers, 52.8% have a bachelor's degree, 39.6% have a master's degree, and 7.5% have doctorate degrees. Teachers are organized by curriculum areas with department heads leading each department. Due to the complexity

of high school scheduling and the multiplicity of courses within each subject area, teachers do not have common planning periods. Teachers' formal professional interactions take place at the whole-school staff meetings, departmental meetings, and on professional development days which are held regularly each semester. In the 2010-2011 school year, early release days were introduced to allow the teachers more time for professional activities and collaboration.

The school teaching staff and administration appear to aspire to provide the best possible educational opportunities for students and this aspiration is reflected in the school mission statement:

> The mission of Westlake High School is to offer students a diverse education comprised of a challenging and varied curriculum in a respectful, safe, and supportive environment. We join parents and the community to assist students in developing skills to become independent and self-sufficient adults who will succeed and contribute in a global community.

Thus, the school focuses on the rigor in their curriculum to ensure academic success for students and establishing good relationships with students and parents. The school's high academic expectations have translated into students' successful performance on the EOI (End of Instruction) tests and high ACT scores every year, high graduation rates from year to year, and a high number of graduates going to college.

Westlake High School has consistently met Adequate Yearly Progress (AYP) requirements over the last few years, as reported by the State Department of Education. According to the Academic Performance Index data that measures the school

achievements on several factors including state test scores, school completion rates (attendance, drop out, and graduation rates), and academic excellence (ACT scores, AP credit, and college remedial rates in reading and mathematics), Westlake High School usually scores higher than the state average score. In 2009, Westlake High School's score of 1, 415 was almost 10 percent higher than the state average score of 1, 289. Figure 1 demonstrates constantly increasing API scores over an eight-year period, from 2002 to 2009.

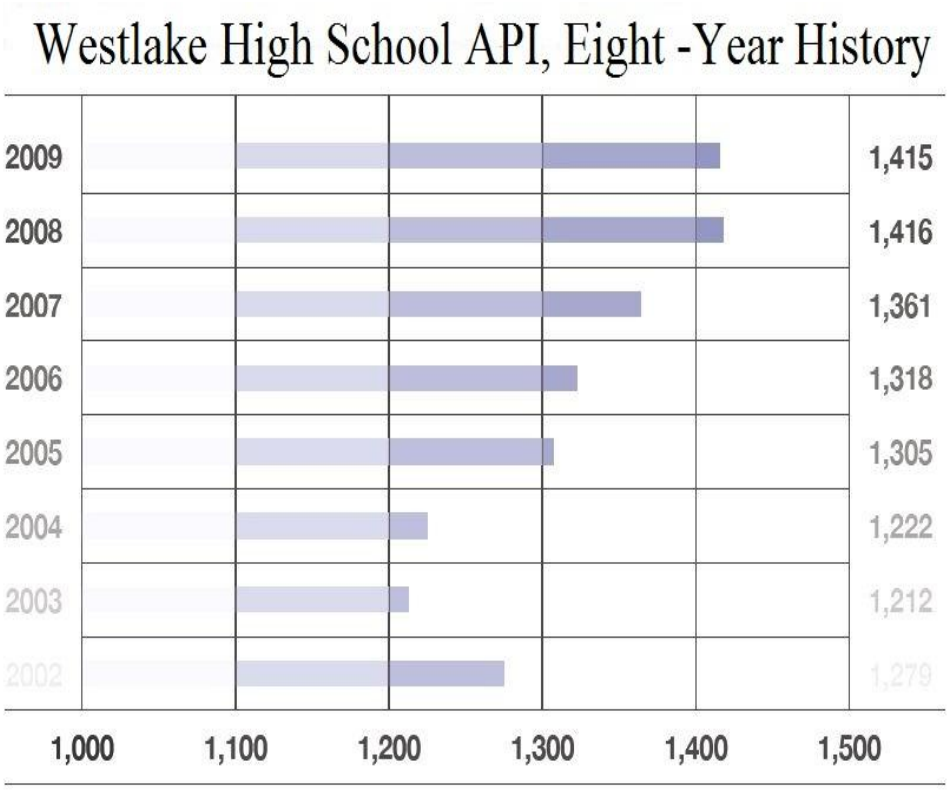

Figure 2. Westlake High School's API Scores from 2002-2009.

The West Lake High School students have an opportunity for rigorous curriculum in the AP classes that prepare them for the national AP tests. In May of 2010, 123 students took 190 AP exams and gained an average score of 3.4.

The teachers interviewed for this study spoke with a sense of pride about their school's high academic rankings. They attributed the school success to students' hard work, teacher professionalism, parental involvement, and good administrative leadership. Below are the quotes from the interviews that illustrate teachers' pride in their school, student success, and respect of their colleagues:

> Our students are excellent students because they come from excellent families that focus on education. So we have an obligation to challenge them at a rigorous level and to a degree our students are part of the curriculum mapping process. They might not be in the room, but their results, their scores and things like that play a large part of why we move things around (Upton, Interview).
>
> I think our staff is very good. Most of our teachers I would say the large majority of them really enjoy teaching and we have wonderful administrative staff (Jill, Interview).
>
> I am happy to say in this building departments get along very well. Everybody seems to carry their weight (Julie, Interview).

As the above quotes evince, this school has a culture that highlights the importance of collegiality and collaboration, teacher and student growth, and collective and individual success of all the members of the organization.

Participants of the Study

The participants of this study included 12 individuals who were selected to represent a wide spectrum of demographic characteristics and a variety of perspectives of and experiences with curriculum mapping. There were five males and seven females

among the study participants. All the study participants go under the pseudonyms in this report for the confidentiality reasons. I assigned the male participants the following pseudonyms: Don, Jack, Justin, Lucas, and Upton. The female participants will go by the following pseudonyms: Amy, Christine, Darcy, Elizabeth, Jill, Julie, and Teresa.

Nine of the participating teachers teach the core subject areas--English, Math, Science, and Social Studies. Two of the participants are teachers from the Foreign Language department. Only two of the participants had less than ten years of teaching experience. All of the other participants are experienced classroom teachers with teaching experience ranging from ten to thirty-five years. Two of the participants are department heads. The participating school administrator has had 12 years of administrative experience. That was his fifth year in this school.

As for the level of proficiency with curriculum mapping, one of the participants claimed to have an expert level of proficiency with curriculum mapping. Nine participants have indicated that they are reasonably proficient with curriculum mapping. Two participants have a somewhat proficient level with curriculum mapping. Five of the participants had formal training for curriculum mapping provided by the national experts in the curriculum mapping field. All the remaining participants were trained and coached on the site.

One of the study participants, Christine, had a unique experience with curriculum mapping. She was hired when the school just started curriculum mapping, but she had a four-year experience of successfully using maps in her previous school in a different state. As she teaches several electives courses in the core subject area now, her curriculum maps for these courses are still 'works in progress.' She agreed to share her

unique experience with the curriculum mapping with me and contribute to the research study.

The table below summarizes demographic characteristics of the participants including total number of years in education, years taught in the school under study, type of training received in curriculum mapping, and a self-reported level of expertise with curriculum mapping.

Table 1

Participant Demographics

Pseudonym	Total Number of Years Taught	Number of Years in Westlake HS	Type of Training in Curriculum Mapping	Self-reported Level of Expertise with Curriculum Mapping
Amy	6-10	0-5	On-site	Reasonably proficient
Christine	11-15	0-5	On-site	Reasonably proficient
Darcy	Over 25	11-15	Formal training	Reasonably proficient
Don	21-25	16-20	On-site	Somewhat proficient
Elizabeth	Over 25	Over 25	Formal training	Reasonably proficient
Jack	Over 25	11-15	On-site	Somewhat proficient
Jill	6-10	6-10	On-site	Somewhat proficient
Julie	11-15	6-10	Formal training	Expert
Justin	11-15	11-15	On-site	Reasonably proficient
Lucas	21-25	16-20	Formal training	Reasonably proficient
Teresa	6-10	0-5	On-site	Reasonably proficient
Upton	21-25	0-5	Formal training	Reasonably proficient

Case Descriptive Narrative

The case descriptive narrative is presented in the form of a chronological recounting of events related to the curriculum mapping initiative and reporting participants' perspectives on those events. This type of data presentation can help the reader gain an understanding of the case independent of the investigator (Merriam, 2009). The narrative starts with the description of events that happened prior to the curriculum mapping initiation and laid the foundation for the initiative.

Setting the Stage for the Initiative

Westlake High School embarked on the curriculum mapping initiative four years ago during the 2007- 2008 school year. The initiation of curriculum mapping in the school setting was preceded by a number of events in the school district. The school district Math teachers had been working on aligning their curriculum along the grade levels for a couple of years before curriculum mapping was initiated. The Math teachers wanted to ensure consistency and continuity of their curriculum and provide sequential learning for their students. It was a process of constant communication and sharing ideas between the school buildings and the participants of the alignment process did not call it curriculum mapping at that time. Lucas mentioned:

> Really, we didn't know exactly what it was called at that time. We knew exactly that we needed something that would help us align from the middle to the junior high to the high school. We were just kind of doing it on our own.

In 2005-2006, the concept of curriculum mapping emerged in the district curriculum discussions. The participants of the study couldn't name the person who first

introduced the concept of mapping to the district for sure, but ten out of twelve respondents mentioned in their interviews that it was the district curriculum coordinator no longer employed with the district that helped send people to curriculum mapping conferences around the USA to learn about the curriculum mapping process and initiated the fact that the district would work with curriculum mapping. Almost all interviewed teachers were sure that curriculum mapping was initiated by the school district except for Don who commented:

> As far as I know, it was initiated within our school. I don't think it was district mandated. I know that we try to stay ahead if we see that coming down the path that we are going to have to do that we try to get ahead and already have it in place by the time this happens. We are always being given all these new ideas to try to stay ahead of the curve. We want be on the cutting edge of everything.

However, as most of the interviewees indicated, curriculum mapping started as a district- wide initiative and was inspired by the person from the board building who wanted the district to be involved in curriculum mapping because "the State Department has had an initiative to get the process of curriculum mapping out to more schools," as Upton stated in his interview.

The curriculum mapping initiative got an immediate support from the recently hired principal of Westlake High School who had a positive experience with curriculum mapping in his previous school district and saw the value in curriculum mapping. Some of the Westlake High School teachers were eventually approached by the principal and offered to attend curriculum mapping conferences.

Training a Core Group of Teachers

The interviewed high school administrator recalled that 10 to 12 teachers (at least two teachers from each core area) attended three-day curriculum mapping conferences during the initial phase of curriculum mapping. Among them were department heads and some enthusiastic classroom teachers. These people became the curriculum mapping cadre later and were called upon to provide leadership throughout the curriculum mapping process.

Five of the study participants got their formal training for curriculum mapping at the national conferences – Darcy, Julie, Lucas, Elizabeth, and Upton. The school principal and the district curriculum coordinator attended one of the conferences as well. The trainings were provided by Heidi Hayes Jacobs and other national leaders in the curriculum mapping field. The conference attendees learned about the purpose of mapping, the content and structure of the maps, and specific strategies to use for the alignment of curriculum to state standards and state assessment practices. The focus of the training was on bringing the initiative to the school district and implementing it with other teachers. The ultimate goal was to train a group of teachers so that they could share the knowledge and skills with their colleagues by training and coaching them and providing constant help and advice on curriculum mapping. This is how Darcy described her experiences of attending one of the conferences in January of 2007:

> They really taught us the theory and philosophy behind it to make you understand what it was, and how it worked, and why it worked, and how it might work for your district. They really laid a good foundation. After that, the following day, there were small breakout sessions, or small

> workshops that you could go to with smaller groups of people to get to the specifics of how you might implement this in your school, your district, within your department, and how to get this working.

The interviewees have suggested that training is really important for any initiative that is introduced to the school district. Some participants indicated that it could be expensive to send a lot of teachers to the formal trainings, but at least a core group of teachers should be thoroughly versed in the process to lead their colleagues and coach them along the way. Lucas noted:

> I like the way we did it where we sent a couple of people from each department to get formalized training and then they came back and just told the others what they needed to know and it was kind of a cadre of leaders. I don't think that every teacher needs the real formal training, just a well-trained leader per group.

There were comments from the teachers who had never been to the formal training that those people who had initially gone through the training became fans of curriculum mapping. Teresa stated that "the ones that were chosen to go to the initial training, and they really… you could tell that they enjoyed it. They thought that it was very worthwhile." Some of the teachers who attended curriculum mapping conferences became members of the district curriculum mapping committee, which played an important role in setting the stage for curriculum mapping in the district and mobilizing people and resources. Later on, they helped provide on-site training and coaching for their colleagues during the curriculum mapping implementation phase in the school setting.

District Curriculum Mapping Committee

To plan and coordinate the curriculum mapping process in the school district, a curriculum mapping committee was formed in January of 2007. The members of the committee were the representatives of different school buildings and the school district personnel. The documents obtained from the school district website revealed that there were a few elementary school teachers, some middle school teachers, some junior high and high school teachers, some building principals, and two school district administrative staff members on the committee. At the onset of the curriculum mapping initiative, the curriculum mapping committee met every month to discuss different issues related to planning for the mapping initiative in the district. Several meetings were devoted to selecting the curriculum mapping software that would best fit the needs of the district. The curriculum mapping committee got engaged in a long process of interaction with different companies that develop curriculum mapping software. Darcy commented:

> We had webinars with the major software companies… basically the sales pitch by web, so we could tell which software may best meet our needs. We went through that process. We didn't just jump right into it. We wanted to know what would work for our district. So we went through that process.

Upton mentioned that they had probably gone through four or five interviews with different companies before Curriculum Mapper was selected. Like any other mapping software, Curriculum Mapper is used for entering and storing curriculum mapping data. The program enables teachers to develop and document curriculum and align it with the state standards, identify and eliminate redundancies and repetitions, and access other

teachers' curricula from all over the United States. This is user-friendly software that was highly recommended by Heidi Hayes Jacobs, as some participants mentioned.

The other things that the curriculum mapping committee discussed were determining curricular areas to map, selecting teachers to send to the conferences to learn about curriculum mapping, and planning different components and activities of the curriculum mapping process. The curriculum mapping committee lasted for two or two and a half years and then dissolved and the curriculum mapping process became a building-directed initiative. Julie pointed out:

> Then we realized we were at the point where we needed to…this thing needed legs in the buildings and that's when the administrators were given the directive…It is still a district mandate. It's just overseen by the building administration now… It is building directed now, just sort of monitored by the district.

Julie's statement was confirmed by Upton who said that "it's actually being driven more now by the teachers than it is by the central office at least in our building." The next section will describe how the school staff was introduced to curriculum mapping and became involved in the curriculum mapping process.

Introduction of Curriculum Mapping to Teachers

When asked when they were first introduced to the concept and the process of curriculum mapping as a school building, the majority of participants responded that it was in August of 2007 at the whole-school staff meeting, just at the beginning of a new school year. Only two of the participants do not remember having a school-wide meeting about curriculum mapping. They were sure that the introduction and the initial training

for mapping happened at the departmental level. The reason for this might be that the school meetings are usually filled with so many things that it is difficult for the faculty to remember everything that happened at those meetings.

Jill mentioned that the building principal made a presentation about curriculum mapping in the presentation room. He was assisted by two teachers from the English department who had previously attended a curriculum mapping conference. Justin recalled, "The principal showed us the website where we needed to go. We all were assigned our user names and passwords. And he explained the different columns; he explained when we needed each column done." As some participants recalled, hand-outs were distributed that outlined the main columns that needed to be included in the maps and a variety of sample maps was provided.

Most of interviewed teachers reported that the purpose and the process of curriculum mapping were explained well to them, while some of the respondents reported that they got confused by the initial introduction of mapping. According to Lucas, the purpose of mapping was made clear to everyone:

> Our teachers have had the purpose explained to them. Those of them that are going to buy into it and those who have bought into it and those who have been forced to do it have been explained the purpose of it. It has been explained very well what the benefits are and what the end products, you know, what the process look should like and that it should never end. That has been explained very well to everybody.

Jill had an opposite opinion:

> I think there was just a lot of confusion about it from the very beginning. I sat next to people who were not from my department at the very first meeting and they were just going, "I don't understand what this is…" And, you know, teachers have a very hard time when they don't know what to do. It's very frustrating for us because we get used to be in control of the situation in the classroom. Someone said, "I don't even know where to start." And I thought, "That is a true statement. I don't even know where to start." I kind of felt like we were flying blind.

Teresa was frustrated with the overall process of initiation. She commented:

> The initiation was we were just told we were going to do it. We weren't given the choice. There wasn't any discussion of whether or not it's applicable. We were not given any discussion about whether or not to participate in the curriculum mapping process. We were just instructed to do it. In some projects that I've done around the school, there has been some flexibility. You know, that if you are interested in doing this, we are going to do a study, you can participate, but this one was not.

Thus, the participants of the study expressed mixed feelings about the initiation of curriculum mapping and explanation of the purpose and the process of curriculum mapping.

On-site Training for Mapping

After the introduction of mapping, some on-site training was provided to the faculty. The initial training occurred during the whole-school meeting when the school teaching staff was broken into small groups and the teachers who had gone through the

formal training were walking around and answering questions. Amy described the training as follows, "The training we received as a faculty was more of here's how you fill out the chart. Not necessarily, here's what the purpose of it is, here's how it functions." In a similar light, Teresa described the training as a minimal crash course that focused on:

> what were the different parts of the map, what were the questions, what we were attempting to do, and what tools we would use? I mean they explained what the map was, but I don't know how well we were guided in the process of coming to the consensus and then editing it from there.

The interviewed teachers from the Foreign Language department stated that they did not get enough training for mapping. According to Jill, "the people who had received the training weren't necessarily trained to do foreign language maps." The Foreign Language teachers were given some examples of maps in their subject area. It helped a little bit, but more guidance through the process of mapping was needed. Jill pointed out that mapping is different for different subject areas and training for mapping should be subject-specific: "It is so different for every subject; you almost need someone in your subject area that has done it well to work with you." Individual departments also offered some training or coaching sessions for their teachers. At the departmental level, the teachers were given a lot of models to work with and examples of maps from other schools to learn from. Those participants who got training at the departmental level found it to be helpful.

Teachers' Initial Response to Mapping

The participants talked about their initial response to curriculum mapping. Some of them stated that they were positive about the initiative when they had been first introduced to it. For some other participants, it took some time to accept the proposed initiative. Only very few of the participants have never fully embraced mapping at least in the way it has been implemented. Darcy made the following statement, "Not everyone comes in and embraces the map." Similarly, Lucas commented, "I wouldn't say that it was really well-received, it took a little prodding."

Darcy and Lucas were those who immediately saw the value in mapping. Darcy said that she had always wanted to see the English curriculum – the subject area she teaches -- more aligned and coordinated. She recalled that when their current principal was hired, on his first year, he asked the teachers to fill out some goal sheets stating two professional goals and two personal goals. She remembers that one of the things she wrote down was more alignment and coordination in the English curriculum because teachers were teaching different things at different times – some teachers would spend two weeks on poetry and others would only spend a couple of days. Darcy thought, "It would just help the entire students coming in here that they would receive a more equitable, fair curriculum and that we need to be organized." The principal remembered that and when the opportunity arrived, he offered Darcy to go to a three-day curriculum mapping conference. When she went to the conference and started hearing about curriculum mapping, she thought, "This is what I wanted; this fits my needs…I wanted the curriculum to be organized and aligned both vertically and horizontally to get the teachers moving in the right direction together." So she came back very excited and tried to get her department, her school, and the district more involved.

Julie was a little skeptical when she was approached and invited to go to the conference, but while she was there and got to hear the experts she realized that "it was just almost like an Epiphany happened." One of her thoughts was, "It seems so logical and I am amazed that this hasn't been a trend earlier." Julie also recalled, "Darcy and I went and bought just every book we could find on the subject and started trying to inform ourselves. We did a little stumbling along the way, but then we had a rhythm, started having good conversations."

The interview data suggest not every teacher became immediately enthused by curriculum mapping; some teachers needed some time to process it and embrace it. This is how Justin described his first thoughts about curriculum mapping and his further experience with mapping:

> I always have a positive attitude, but at first I didn't know exactly how it would help me. I looked at it as a lot of work. I wasn't sure how beneficial it is going to be for teachers. And over the last couple of years, as I've learned more about it and as I've used it in my classroom, I've softened a little bit.

Teresa thought that there was no need for curriculum mapping for the school and she formulated her opinion as follows:

> Why reinvent the wheel? They have pacing guides with all of our textbooks, they have scope and sequence. The textbook authors are paid to write that material and they are experts in their subject matter and so they have a pretty good idea of how students assimilate that information. They've studied that, they have done the research. And when they are

writing it, they have a pretty good idea of how things need to flow. So, why reinvent their research?

Having related to her previous experience in education, Elizabeth, a teacher with more than 30 years in education, felt, "I thought I had already done it thousands times. I have already done it with another name. It's the same thing with another name." No other participant recalled having been involved in the process similar to curriculum mapping with a different name. However, some participants mentioned that their colleagues recalled having done the same thing with a different name some time in their teaching career. The participants also made other comments about their colleagues' response to mapping. This is what Teresa shared:

> We are sort of split. Some really like it. There were others like me that did it because we were told to do it. And there were some that didn't mind. I don't know if they are using it right now. They just tolerated it and they don't really form a very strong opinion.

Justin recalled, "I remember expletives being said. I remember some choice words being said, but I am trying to think the reasoning behind it… It was a big time constraint and waste of time that were the two things I heard."

As the interviews revealed further, teachers of some subject areas were more responsive to the curriculum mapping initiative than the teachers form the other areas. Curriculum mapping was very well accepted by the Sophomore English teachers who started meeting every Friday to discuss their curriculum a few months before the whole school became involved in mapping. Darcy said that they saw the benefit of it and their Friday lunch time meetings were filled with productive curriculum conversations of what

is working in their classes and what is not and how to improve their curriculum and teaching. She commented:

> I think what curriculum mapping does--it opens the doors and just puts the ideas out there, just start the curriculum discussions that you really need to have, you know, to discuss the curriculum. Is this working? If it is, why is this working? And let's continue this. If this isn't working, why is it not working? What adjustments do we need to make?

However, the enthusiasm of the teachers from the Sophomore level was not shared by their colleagues from other grade levels in their department who were not very excited about curriculum mapping and did not accept it initially. The same situation could be observed in other departments as different teachers responded to the initiative in a different way.

From participants' responses regarding the initiation of the curriculum mapping initiative, it is evident that curriculum mapping started as a district-wide initiative and involved a number of processes and activities that helped set the stage for the initiative. To initiate and implement curriculum mapping, a district curriculum mapping committee was established, curriculum mapping software was selected and purchased, a core group of teachers was sent to the national level training, and on-site training sessions in the mapping process were provided to the teaching staff. At this stage, planning and leadership were consistent. However, the interviews revealed considerable variation in the levels of initial response to the curriculum mapping initiative.

Teachers' Views of Mapping

In spite of the differences in the initial response to the curriculum mapping initiative and subsequent acceptance of it, nearly all of the interviewed teachers recognized that curriculum mapping can be a worthwhile process for the school. They specified numerous benefits of curriculum mapping as well as some weaknesses of the curriculum mapping process. The potential benefits and perceived weaknesses of curriculum mapping, as viewed by the interviewed teachers, are addressed in the subsections that follow.

A Planning and Alignment Tool

First of all, curriculum mapping was viewed by the interviewed teachers as an effective curriculum planning tool. The importance of planning curriculum was emphasized in many interviews. Julie said, "It has to start with a good plan. You can have an amazing teacher, but if that amazing teacher does not have a plan and doesn't know where they should be headed… Lousy planning creates lousy teaching." Darcy pointed out, "every school has to deal with curriculum and how you want to organize your curriculum and plan your curriculum. So, curriculum mapping is an organizational tool… a really good way to organize curriculum."

Curriculum mapping seems to appeal to those educators who like setting goals and planning things out to meet their goals. Amy said, "I like having goals set. I need to be at this point by this date. Here's what I want my kids to be at this point and it's hard to have that without the map." Similarly, Darcy noted, "I am a very organized person, and I thrive on that. It just makes me feel more comfortable to have everything organized with my lessons and my curriculum. I like that organization." Julie shared, "If you look

around my room, it's jumbled mess, but planning has to be precise to me. I like a roadmap so that I know when I can wander, and when I can take two extra days on this."

Some participating teachers have indicated that curriculum mapping as a planning tool helps them to be focused and keeps them on track. Justin noted, "I definitely think curriculum mapping helps us stay on track, like a road map-this is where we need to be." Don expressed similar ideas:

> It keeps me from getting off track, not spending too much time on some things… I look at my map, "Oh I have to get that covered before we come close to the end of semester and I still have X number of chapters to still cover. I'd better get back to work.

Julie explained:

> I love to get sidetracked. There are so many interesting and exciting conversations that seem to be valuable. Just talking about what is going on in the world can lead to the most wonderful conversations, but if you have that map there, it keeps your plans. So it really grounds you, keeps you focused and on target.

Some interviewees mentioned that in their teaching experiences they had colleagues who had favorite topics in the curriculum and devoted too much time to those topics at the expense of other material. Upton referred to the teacher who favored Jacksonian era in the American History over other topics and her students did not score well on the state tests because there were very few questions on Jacksonian era, but there were much more questions about the Constitution and the Revolution and other significant periods in American history.

According to Upton, a curriculum map could help the administrators to communicate with the teacher about the importance of prioritizing things in the curriculum and providing students with sufficient amount of material they need to master to meet the state standards. Other examples provided by the respondents included the colleague who focused too much on insects instead of introducing the students to a more balanced Biology curriculum that involves numerous topics and the Foreign Language teacher who skipped a lot of grammar material that she did not like. Thus, curriculum maps can be instrumental in helping schools ensure that curriculum is not built on teachers' personal preferences and is well-balanced and addresses the state standards and objectives. Upton stated:

> Over the last ten years, we've had to look at taking some of those favorite things away because it really didn't fit into what the PASS objectives and the guidelines say we should be teaching and focusing more on what we are going to be tested and what our students should know to get to the next level.

As a planning tool, curriculum mapping can help eliminate gaps and repetitions in the curriculum. Jill discussed:

> I see it as being valuable with not wasting time with repetitions. If you know that a teacher has already covered the story, they've already read it, done a unit over it, had a test over it; there is not really a purpose of repeating that story again.

Julie pointed out that some repetitions are necessary: "I think overlaps can be very useful, but it depends on what you are overlapping. I could tell you in English we have to revisit

common rules every single year. So there's an appropriate overlap." She also added that teachers need to make sure that they do not create overlaps that are unproductive.

Without curriculum alignment and coordination, students can be introduced to the same topics several times or may not be introduced to some topics at all. If curriculum maps are in place in all subject areas and grade levels, teachers can trace the previous knowledge and experiences of their students and build on them. As Lucas put it:

> You know what they've seen, what they were supposed to have seen, what they have supposedly mastered, and at what level they saw that. If you've got something that they should have mastered really well, then you just kind of talk about it briefly and remind them. And if they only have been introduced to it, you are going on a deeper level.

In most teachers' interviewers, curriculum mapping was identified as a useful tool that can help align curriculum with state standards and objectives and better prepare students for state tests. Upton shared:

> We look at the structure and the sequence in which we teach things and why we teach things and it's not to say that we should be solely focused on PASS objectives... So we need to look at what we can do better, and how we can do it better. I think curriculum mapping really allows us to do that.

Although most teachers didn't have a favorable opinion of standardized testing, everyone agreed that there should be some form of accountability and for the lack of a more comprehensive form of assessment they have to ensure that students score well on the standardized tests. Don observed, "There's so much focus on the testing in our

society. And we as educators fail if we don't get the majority of our kids to pass those standardized tests. I wish it wasn't like that, but that's what it's come to."

Teachers in their interviews explained how curriculum maps can help them prepare students for tests. Julie commented:

> Curriculum maps help us identify where the skills need to be introduced, mastered, and reinforced before the test… Curriculum maps make teachers more fluent in the state and national objectives. The more fluent you are, the more you are able to talk with one another and use those common terms, those common concepts and really start focus on analyzing how the students perform.

Upton shared the following:

> With curriculum mapping, it's a way to understand your score and it's a clear-cut way to make your score better because you can tweak things and you can move stuff because there's a physichalness [sic] to your curriculum that really wasn't there before.

Most of the interviewed teachers stated that state test results can provide them with the data for examining the curriculum and making the necessary changes or adjustments. Upon receiving the state tests results, teachers can see the areas where students performed well and the areas in which their performance was not good enough and work both individually and collaboratively on making changes to the curriculum and instructional practices.

The Same Foundations for Students

All of the participants spoke about the importance of providing students with the same curriculum and the same experiences and that curriculum mapping can help attain that goal. Teresa said, "I definitely understand that aspect of mapping to try to ensure that everybody is getting the same education and the same foundations." Lucas liked the idea of "making sure that everybody is taught the same thing all the way through and we all agree that these are the most important things that everybody should be able to teach. It's a more consistent education for every kid."

When the school curriculum is mapped across the subject areas and grade levels and the maps are followed by the teachers, all students in the same subject area and the same grade level are taught the same curriculum and have similar experiences no matter whose class they are in. If there is a schedule change for some students and they are moved from one teacher's classroom to another's and both teachers work off the same map, then the students do not miss out any material or are not exposed to the same material twice. Or if a student moves from one school to another, curriculum maps can ensure there is no gap in his or her education. Don explained:

> I am always within one chapter with the teacher across the hall. I can hear him teaching and he is teaching the same thing as I am. And, of course, we are teaching in different ways, but we are teaching the same material in the same order and it helps kids to be able to work with each other, parents to understand what's going on in this class and what's going on in that class.

Thus, preserving their individual teaching styles and using different pedagogical approaches, teachers still can make sure that their students are taught the same curriculum and have similar experiences no matter whose class they are in.

A Good Communication Tool

Elizabeth, like some other teachers, suggested that curriculum maps could be a wonderful communication tool with parents, administrators, and other stakeholders: "It's basically about having a document that will tell anyone -- it could be a parent, it could be another teacher, and administrator or anyone -- what that we are teaching." Julie and Christine think that by providing a clear picture of what is going on in different classes, curriculum maps can help administrators hold teachers accountable. Both teachers shared the opinion that curriculum mapping should become a part of teacher evaluation. Julie said, "The principal should be able to look at a map and go into the classroom and see some aspect of that map occurring." In Justin's opinion, curriculum maps can contribute to a better image of school in the community:

> I think it lets others around the community know that there is a chain of command as far as getting things accomplished, that the principal is competent, that the teachers are competent, and that the students are competent, and all this is working together and we will do well.

The very format of maps makes it easier for teachers to demonstrate what they are going to teach, what type of activities they are going to use, and what type of assessment they are planning to conduct. Lucas stated that "once you do your lesson plans you have an idea of what you've done, but you don't really have a right way to show anybody else what you've done because nobody is going to flip through your lessons plans." Julie said

that curriculum maps are more user-friendly and they are not as voluminous as curriculum guides that teachers used as a planning tool before curriculum mapping. She added, "I can talk to anyone based on that piece of paper. And a curriculum guide is generic, and general, and unapproachable. This is personal and real and I can converse with that."

From what participants described above, curriculum mapping can serve as a good communication tool that allows teachers to convey their curricula and instructional goals and demonstrate what type of activities and assessment they use to meet these goals.

An Ideal Tool for New Teachers

All the interviewed teachers and the participating administrator indicated that curriculum mapping can be particularly beneficial to new teachers— teachers who are straight out of college, or those who are new to the school district, or the ones who have never taught some subject area. According to Teresa, "It gives them an idea of what to expect and where they need to be so that they are not spending too much time or too little time on any concept." Curriculum maps not only help new teachers determine the sequence and pace in which to cover the material, but they will also help them meet school and department expectations. Amy explained it in the following way:

> Every school teaches so differently and they have different expectations and they teach different works and they assess in different manners… When you come to a new school, the last thing you want to do is not meet the department standards. You want to come in and you want to have the same expectations that you have teaching the same things because you want to be part of it.

Amy spoke to her first-hand experience as to why curriculum maps are beneficial for new teachers. When she was hired in 2007, she was assigned to teach two grade levels -- Sophomore and Senior. The teachers at the Sophomore level were in the process of developing their consensus map. Amy joined them and helped them develop a map and really benefitted from it. She came from a different school and the map gave her a clear guidance of what to teach and when. The Junior level teachers were not working on their maps yet and when she asked what she was supposed to teach at the Junior level, the teachers gave her a list of topics to be covered and the textbook. Amy thought that it was very overwhelming. She described her feelings at that moment as follows:

> I felt like there was no guidance. I didn't know how long to spend on anything. I made so many mistakes that first semester when I was teaching that one Junior class. I just now wish now I could go back and re-teach that one semester because I've learned so much since then.

After her first semester, Amy sat down and developed a Senior level map by herself using the Sophomore map as an example. She said that it was more like a diary map because she had no one to collaborate with as the teachers at the Senior level did not see the value in mapping. She has been teaching with that map for more than three years now constantly revisiting and refining it.

When two new teachers were hired to teach at the Junior level recently, Amy gave them the map and they were so appreciative of that. All three started working on the improvement of the map together and Amy is sure that they will soon come up with a very strong consensus map for the Junior curriculum. According to Amy, it is so important to have other teachers on board with you when you are working on such an

important project as curriculum mapping. Darcy noted, "Mapping is not an individual activity. You really need to get together with your department… For the curriculum mapping to work best, it's a collaborative effort." The issues of curriculum mapping and collaboration are addressed in the next subsection.

Collaboration and Cross-Curricular Integration

Curriculum mapping is perceived as a collaboration tool by all participants of the study. The idea of overcoming isolationism that is inherent in teaching especially at a high school level that is more compartmentalized and departmentalized than other levels of schooling was present in many interviews. The attitude of independence and autonomy has always characterized education, as Upton fairly stated. He commented:

> I think in the years that I taught there was this competition among teachers to who was the best and who had the best activities and materials and stuff. I don't think people shared very much. And it was about what they created was their own.

The teachers in this sample argued that education should be about reciprocity and equal sharing. Julie mentioned, "No one learns in isolation." If teachers have something that works in their classroom, why would they keep that to themselves? Jill said, "If it's beneficial, you should share and mostly in our department there is free flow of information…it's just very important that everyone feels safe to share what they are doing."

The very nature of curriculum mapping necessitates teachers to get together to discuss what they teach, what works for their students, and what needs to be improved or changed. In other words, teachers become engaged in analyzing their teaching practices

and sharing ideas with their colleagues. Teresa was sure that the purpose of curriculum mapping was to expand collaboration and discussion of teaching practices that "if somebody had a fabulous project for a particular topic that went really, really well that they could share that with other teachers through mapping." She elaborated:

> Too many times, as teachers, especially at the secondary level, we get in there, we close our doors, and we teach, and we really have no idea of what's going on outside of our own classrooms.

The importance of teacher sharing during the curriculum mapping process was echoed in the conversations with other participants. Jack pointed out, "When you are together with your colleagues and you are sharing ideas, "How do you teach this?" It's great stuff. Great ideas come out." Similarly, Julie noted, "It just opens up a lot of conversations that are useful and productive."

Some participants have indicated that curriculum maps can be a means for veteran teachers to share their experience and knowledge with their colleagues and leave their teaching legacy to benefit students and teachers when they retire. Julie remarked, "If you have a seasoned teacher who has been a highly successful practitioner retire, the map captures some aspect of that teacher who's left. We don't lose that for the person who comes in and takes that role over."

The participants have also pointed out that curriculum mapping can open up opportunities for cross-curricular integration. Teresa said, "I also think they wanted us to start looking at some cross-curricular activities that maybe something that they are doing in Chemistry also coincides with something in Algebra 2 that you get some of the cross-curricular connections there."

As indicated by the study participants, curriculum mapping can provide teachers with opportunities for collaboration and cross-curricular integration, which will make education more meaningful.

Weaknesses of Curriculum Mapping

When asked about the weaknesses of curriculum mapping, the study participants could not name many of them. One of the weaknesses revealed in the interviews was narrowing down the curriculum. Don, who thinks that curriculum mapping is a great idea to help in planning, to keep the department working together, and to make sure that the students are taught the same things, shared the following:

> We are narrowed into a tight spot. We don't get the opportunity to teach all of the subject matter that pertains to Biology. I don't spend as much time on Anatomy, Human Systems as I want. We don't have enough time. We had to choose what areas we felt best reach the goal, which is PASS objectives and the EOI test and in doing that, there's some material that's left out. If I am a great teacher of Animal Behavior, I don't get to show my abilities in that area because that's not something we cover a lot. We do touch base on it, but I wouldn't spend all the time that I have, or all the knowledge that I have. I don't necessarily think that harms kids, but it just limits them a little bit.

According to the literature, as standardized tests are used as the only legitimate means of assessing student progress, to meet the accountability requirements, schools often exclude a lot of material that does not appear on the test and offer their students a reductive, test- driven curriculum (Valenzuela, 2005).

Lucas thinks that the weakness of curriculum mapping is including only measurable objectives in maps; there are a lot of objectives that teachers actually have for their students that are not included in the maps. He further explained:

> I think that weaknesses are those intangibles. I don't know how you would put it in there. Did my Statistics students understand the uses of real world Statistics and appreciate those ideas? You can't measure that. So, that is not written down anywhere in a curriculum map. I want my Calculus students to kind of understand the underlying beauty of Calculus – why it's so important. I think it's an important objective. I can't measure whether everybody got it, but I think it's still worthwhile for me to try to make them see that. So, I think it's probably the weakness of the curriculum mapping. It's so focused on the test. Those intangibles are not mentioned.

Amy identified the weaknesses of mapping as follows:

> The only thing the map lacks is you can't just teach whatever you want and whenever you want and I think that whenever you want is limiting because some teachers want to teach this in the first term. "I'd rather teach it in the second term." Well, you can't do that with a map. I mean it has to have a sequence. The map is difficult because I mean how you come to agreement. You know, my philosophy is different from yours. I don't think either one of them is probably wrong. And it depends on your students and what they need. So I think it's a struggle with the map. But overall, I would say 95% of the time they work well and they are needed.

Darcy does not see any weaknesses in curriculum mapping. She thinks that the weaknesses can be just in the implementation. It also depends on how people view mapping –either as a chore or a valuable process. Other participants could not find any fault with the concept or process of curriculum mapping either; the problems can be in the implementation.

Seeing the Potential, but not Seeing the Personal Benefit

The participating teachers' views of curriculum mapping show that mapping can be beneficial in numerous way and can be utilized as an effective curriculum planning tool that can help ensure consistency and continuity of curriculum and sameness of experiences for students; a great collaboration tool for teachers and an effective communication tool with parents, administration, and other stakeholders. However, there were a few study participants who understood the potential benefit of the mapping process, but they either did not believe that the initiative was implementable and sustainable or did not see the personal benefit of curriculum mapping in their classroom. Jack noted, "In philosophy, I think it's a great idea. I think in the implementation it often falls short." Jill said, "I would say when properly done, it's a worthwhile process. With proper instruction, it would be a worthwhile process." Teresa shared the same idea by saying that if truly implemented, it could be a beneficial process.

To summarize, the participants viewed curriculum mapping as a worthwhile process. They identified potential benefits of curriculum mapping and pointed to some weaknesses of the mapping process. As the data suggest, curriculum mapping can serve as a planning and alignment tool that can help ensure consistent and coherent curriculum across grade levels and subject areas.

Curriculum mapping can be a good collaboration and communication tool and an ideal tool for new teachers. The weaknesses of curriculum mapping included narrowing down curriculum to the material that is going to be tested, focusing on the measurable objectives, and having difficulty in coming to consensus during the mapping process. The detailed description of the issues related to the curriculum mapping implementation phase might shed light on why some teachers understand the potential of curriculum mapping and see the personal value in the initiative and why some teachers only understand the potential, but don't see the personal value in curriculum mapping.

The Ins and Outs of the Curriculum Mapping Implementation

Creating Maps

After being introduced to the concept and process of curriculum mapping, the teachers in the core areas started working on their curriculum maps. Mapping was conducted by subject areas and grade levels. Sometimes teachers met as a department to work on their maps. Several planning and professional development days were scheduled for curriculum mapping in the summer before the school started. The Math and Science departments paid their teachers small stipends to come and work on the maps. Justin mentioned that they would meet over three or four week period to work on maps and it took the teachers approximately 20 hours to create American History maps.

The process of creating maps was frustrating for the Foreign Language department. According to Jill, it took them a few months to have the whole thing done and mapping had to be done outside of class time, but when they showed their maps to the new school district curriculum coordinator, she said that they had done them incorrectly. Jill suggested:

> In our case, it would have been probably more helpful if we could have maybe only done one month of the map and sent that in for revision and then when given corrections… before we did all nine months of the map and then we were told that it was done wrong.

Teachers in all departments started with consensus maps, although not everyone agreed that mapping should start with consensus maps. Some respondents indicated that it would be more logical and efficient to start with diary maps when individual teachers map their curriculum first and then they come together and do a consensus map based on their individual maps. According to Teresa, starting with consensus maps makes it difficult to come to consensus. She commented:

> If we had started with diary maps and done that for even a semester and mapped what we were doing and then to have something to compare, 'I am teaching this at this point of the year, you are teaching the same concept at about the same time." Then that does work towards becoming consensus, but instead we tried to figure out the best path for teaching the curriculum when you don't know your students and the map that we wrote didn't take into effect anything like "what if the students don't get a concept at the beginning of the course." And if they don't understand that concept, how can you continue on and stick with your consensus map when you haven't met their needs at the beginning.

Furthermore, Teresa indicated that she would prefer that as a district they would rather do diary maps than consensus maps because "a diary map adds that reflection, that personal 'how am I doing?' that consensus maps don't." If curriculum mapping is about students'

needs and not about the plan that 'looks great on paper,' then diary maps should be given more value and attention, Teresa suggested.

Thus, the process of creating maps was not smooth for all departments. The departments started with consensus maps, but not with the diary maps, therefore coming to consensus was difficult, as some participants revealed. One of the participants suggested that diary maps should be given more attention in the curriculum mapping process.

Tying Mapping to Book Adoption

Curriculum mapping advocates recommended connecting mapping to other processes and practices happening in the school district (Hale & Dunlap, 2010). The data from the current study suggest that not all connections of curriculum mapping to the district's processes and practices can be positive and productive. It was a book adoption year in the English department and the Board said that teachers could not receive new books unless they had a map. Julie noted, "We all got together and made a very tremendously generalized, rather vague map. We didn't even focus on essential questions. We focused on skills, content, and assessment. And we had a week."

The Foreign Language department was in the same situation. Jill said, "We were told we had to do them in order to get our books…You had to show how the books that you picked worked with your map. That was kind of the incentive from our district." Amy thought that it was not a good idea to connect curriculum mapping to the book adoption process. She commented, "It put a bad taste in the mouth of a lot of people because now we have to just develop some map; it was just a means to get a book." Amy

also added, "That's not a good way to introduce anything. You are not going to get a lot of fans of it that way. That didn't work very well. That turned a lot of people off."

Jill stated, "I think other then getting the books, I didn't see a lot of benefits to it. I felt like it was just something we were asked to do to justify why we needed the books or why we were spending the money on books." As for other departments, their mapping was not connected to the textbook adoption at all; they were in the middle of the textbook adoption cycle at that time. Connecting book adoption to the mapping process turned out to be counterproductive and might have contributed to a low acceptance level of the initiative from the very beginning

What Drove the Mapping Process

The curriculum mapping process was driven by different things at different departments. In the case of Math department, they mostly wanted to achieve a better alignment between the Junior High and the High School to smooth the transition for the students from one level to another and to make sure that the common classes they teach- Algebra 1 and Geometry-- mean the same for both buildings. Lucas said, "You just have to decide where Algebra 1 stops and where Algebra 2 begins." The Math teachers also tried to make sure that the PASS skills are covered in their classes. For the Social Studies department, the mapping process was driven by State standards. Justin noted, "For us it was PASS standards, that's kind of what runs the show is the students need to know this and be able to get to this point in American History or whatever class you are mapping." As for the Science department, Don reported the following:

> We had to choose what areas we felt best reach the goal, which is PASS objectives and the EOI test… It was easy for us to align our map right

> along with the EOI testing and we were able to narrow down and cut out some of the things from our text that not are that important, but that don't show up on the exam.

In the Foreign Language department, mapping was guided by the textbooks. Moreover, to get the new textbooks they had to create their maps based on the old textbooks. Teachers in other subject areas also think that curriculum mapping should not be based on textbooks. Darcy stated that "the textbooks should not drive the curriculum. You should have your standards and your curriculum and then pull in the text-books that will best fit your needs." The role of textbooks in the curriculum mapping process is clearly explained in the following statement:

> In curriculum mapping, textbooks, kits, and materials are not perceived as the curriculum. They are resources that enable and enhance the curriculum and the learning process. Curriculum mapping recognizes teacher determined concepts, content, skills, and assessments aligned to strategically analyzed national, state, local or self- generated standards as the curriculum. (Hale, 2008, p. 27)

Thus, the position of most interviewed Westlake High School teachers in regards to what should drive curriculum mapping and the role of textbook and other resources in the curriculum process is in line with the major suggestions of the curriculum mapping theorists.

Access to Curriculum Mapper

It is worth noting that the teachers started mapping using paper and pencil templates and then entered the maps into the computer program. The advantage of working with curriculum mapping software was pointed out by Lucas:

> The thing I like most of all about it is the fact that if you can get it all into a computerized system, then you can very easily pick out gaps and overlaps in instruction if they do a very good diary map and you'll see exactly what gaps and overlaps you have in measurable objectives and then the computer can do some sorting for you.

Darcy also thinks that curriculum mapping is better carried out electronically:

> Because I have access on the computer, I could look at the eighth grade curriculum map because the eighth grade is at a different building. I could look at the ninth grade. I could even go down and look at the sixth grade curriculum map and say what novels they are teaching there so that can I build on that.

Originally, 35 teachers had access to the curriculum mapping website, all those who were involved in the curriculum mapping process. At the beginning of the 2010-2011 school year, the number of teachers that had access to the curriculum mapping program significantly decreased because of the tight school district budget. The decision was made to give access to one or two persons from each department who can input data, which makes it difficult. Some teachers see it as a disadvantage, especially those who are still working on their maps. Christine shared:

> Now we have to go through somebody else when I type on a document and they go and in put it into the curriculum map site. It's one more step

because you can't just go in, fiddle with it, and come back to it later. Instead, I have a template which I can fiddle with and go back to it later, but then once I get it to them I can't make changes online. So they have to totally delete my whole curriculum map and input a new one every time.

Julie does not view lack of access to the curriculum mapping website as problematic because she thinks that the administrators have realized that not everybody uses the curriculum mapping website regularly and it is so expensive. She further elaborated:

> Even those of us who were trained weren't getting on there. I mean the year starts, you have your map. When you think about it, you might go in and enter something and then that's it. I have not been on it myself I am sure six months because I am starting all over. So I am relying on what's been given to me. But most teachers after they were trained and had the password were not getting online and using it that way. I don't want to say it's impractical, but it's really kind of impractical. We just didn't need all that. We decided if somebody needed to put a map online, well, one of the people in the department will put it on there for them.

I asked all the interviewed teachers to give me a copy of the consensus map that they created as a department. The review of the maps revealed that they were mostly based on Heidi Hayes Jacobs' model and consisted of the following columns: essential questions and content, skills, assessment, resources/activities, and differentiation. One of the things that the Westlake High School teachers added to the maps was the differentiation column where they can put modified tests for the students with learning

disabilities or ESL students. Julie thinks that the modification column was absolutely necessary, "I always have a modified test ready to go...It really makes a teacher more efficient, more organized, and more aware of how to immediately accommodate a whole lot of different learners."

As the data suggest, curriculum maps in Westlake High School were created following Heidi Hayes Jacobs' model with a slight modification, which is acceptable with any new programs and practices introduced to schools and school districts.

Different Levels of Mapping

The curriculum mapping initiative has been under way for almost four years at Westlake High School. The participants were asked to what extent curriculum mapping had been implemented in their school. This question yielded varied responses. Some interviewees think that they are still at the initial stage of curriculum mapping implementation. As Upton put it, "I still think we are probably at a very early stage… We have begun mapping in all of our core areas: Science, Math, Social Studies, and English. Some of our other areas, the Arts, have started curriculum mapping."

The interview data also indicated that at the time of research different school departments were at different stages of curriculum mapping. Amy noted, "There are some who have achieved and have done all this work and there are some of us who are still in the process and there are some people who are still at the ground level and really haven't done much." Julie said, "I wouldn't say that anybody is implementing less, but it may be driven by different things, the feel for a necessity to re-meet."

According to some interviewees, Math and Social Studies are the farthest along as far as curriculum mapping is concerned. Some other interviewees were sure that it was

Math and Sciences that were far ahead of the others. The respondents tried to speculate why school departments are at different level of curriculum mapping. Lucas pointed out:

> I think maybe it has something to do with the fact that there are some subjects that are easier to map than others. Mathematics is pretty easy to map really. We don't do a lot of different things. History, on the other hand, I would think would be a lot harder to map to get everybody to agree because if I'm a History teacher, "I want to teach World War II or I want to teach the Gulf War." And there's a lot more give and take in History class that there's in Math class. So I would say just ease of doing it.

Another reason that was mentioned in the interviews was that there is more need for mapping in some subject areas that in the others. English was often cited as the subject area where there is more need for mapping. Teresa said:

> There are a lot of different ways that you can go in teaching English and I could see maybe how using curriculum map might help the teachers even within the district use some of the same resources so that a child who takes English 1 will have the same sort of foundation regardless of who their teacher is to move on to English 2.

Julie pointed out:

> In the English field, you have every story on the planet and every poem and English teachers, like most teachers, are voracious readers and every time we find something new and interesting, we run and make a copy or find it, pull everybody together and go, "Hey, what do you think of this? Let's try this out." Maybe we have a larger body of work to play with.

Other teachers from the English department said that they have massive textbooks and it is nice to have a map to guide them because the map gives them the focus and it does give them the scope and sequence. Amy noted:

> I don't know how it works for Math or for Sciences. It's more like you can't learn C until you learn A and B. It's Math, you know, it's all lined up for you. I mean what else you can do. And I think English is where we really see the benefit.

The participants teaching Math stated that it can be true for lower division Math classes, like Algebra 1 and Algebra 2, in which they do not have many choices. They have to teach this to go to the next level. But even in these classes curriculum mapping can be helpful in terms of making sure that they do not have gaps and repetitions in their curriculum.

Lucas indicated that curriculum mapping can be more helpful in the classes like Pre-Calculus, Trigonometry and Math Analysis, the subjects "where you just kind of throw anything you want." If the department has several teachers teaching upper division classes and they don't have the same idea what their classes should be like, then curriculum mapping can really come in and help them look at their individual plans and pick out the things everybody agrees upon. Curriculum mapping can help them set up department goals and to be more sequential when everybody is on the same page at the same time while keeping their individual goals as well. Thus, curriculum mapping can be beneficial to all subject areas, but the benefits can be different.

Amy also suggested that different levels of mapping can be explained by how the people in leadership positions at the departments view mapping:

> I think different departments have different department heads that see things differently. So like our department head right now is… She is a new department head and so she is all for curriculum mapping. If the department head sees the value in it, they will push their department to do that.

Justin thinks that different levels of curriculum mapping can be correlated with a different degree of motivation for mapping as far as willing to do it. He stated that "it probably has to do with how much you think curriculum mapping will help." Don thinks that different levels of curriculum mapping can be explained by different levels of teachers' engagement with the process:

> My thought probably would be individuals not being whole-heartedly invested in the process. I am sure that there are some teachers that didn't participate. They were all invited I am sure, but department map was going to be made one way or the other and so I felt I wanted to be part of it. But some teachers are not being a part of it probably. I would think it would be individual instructors that are holding back the process and not everybody being at the same level yet now.

Jill thinks it has to do with the attitude from the beginning and she is not sure if the attitude in some departments was good from the beginning. Some departments might have seen it as another thing they have to do, just more paperwork. Jill's other speculation was that some departments might have been given more time to work on their maps. However, some participants have suggested that mapping is not only about having maps in place, it is also about other beneficial things that come along with it. As Upton

put it, "Our English department isn't probably as far along but has done a better job of having those discussions…The greatest benefit to me about curriculum mapping is the conversations that people have." After all, curriculum mapping is an ongoing process that will never end and teachers will have to revisit and revise their maps all the time.

A Process, not a Product

It was repeatedly stated throughout the interviews that curriculum mapping is a process, not a product and it would always be an ongoing activity. Upton commented:

> Curriculum mapping to me is to say that something's been mapped seems like it's really a finish. And it's really not a finish; it's an ongoing thing because I think what this has done for us, it's made our teachers look at their curriculum in a different way: there's a schedule, there's a sequence, there's something that I can do this better. So to say that all of them are mapped… I don't ever want to say we are all mapped. You can't. And to me again the benefit is it's never done. It's always the process.

Darcy reflected that she sometimes heard some teachers wondering when they were going to be finished with curriculum mapping and her answer was:

> It's never. Curriculum is always going to change. If it doesn't change, we are in big trouble. Society is changing, technology is changing... You know, our curriculum should be changing, it should never be finished. We always have to be aware that it's a process; it's not ever going be finished.

Teachers also mentioned that their standards will change soon and they will have to change their curriculum maps as well. Amy noted, "Now our maps are going to

change. Not drastically. But we want to make sure we include the Common Core, make sure we are addressing that for the future. So that is going to change our maps."

Most participants understand that curriculum maps are breathing, living documents, but not something that sits on the shelf and therefore they should be revisited in a consistent and frequent manner. That's why involvement of the whole staff in mapping is critical. Don is sure if everybody gets on board with curriculum mapping and participates in the process, they will have ownership of the document and the process and will be more willing to implement curriculum mapping.

As the data concerning the process of mapping show, mapping happened by subject areas and grade levels. The process of creating maps was not smooth for all departments. The teachers started with consensus maps, but not with the diary maps, as it was recommended at the national training and Heidi Jacobs' book encouraged that too. Therefore, coming to consensus was difficult, as some participants revealed. One of the participants suggested that diary maps should be given more attention in the curriculum mapping process.

The mapping process was driven by different things in different departments, mostly by State Standards and EOI tests. The study participants suggested that mapping should never be driven by textbooks. In some departments, curriculum mapping was tied to the book adoption, which might have had a negative effect on teachers' initial acceptance of mapping. At the time of research, different school departments were at different levels of the curriculum mapping implementation, which was explained by subject -specific factors and different buy-in levels of the teachers and department heads.

At the time of research, a small number of teachers had access to the curriculum mapping software, which limits the possibility of using curriculum mapping to its full potential.

Realized and Unrealized Possibilities

The research participants tried to analyze what had been accomplished in terms of curriculum mapping so far. Justin summarized it in the following statement, "I think what has been accomplished is a curriculum map for every class and what we will continue to accomplish will be modification of how we can teach our subject matter more efficiently." Similarly, Lucas noted, "It has done a good job identifying gaps in our curriculum. I don't think we have either properly used it or used it enough to improve teaching." Darcy pointed out, "We all have maps in place. Some of them are more detailed than others. Some teachers still update theirs more regularly than others. We are in a good place with them, but there's still a lot of improvement that can happen." Julie noted, "I am happy to say that at least in the core area we are to the point, where what we are doing is refining, and revisiting, and modifying, and trading out things. We are to the point, where we actually have a document that works. Other departments obviously are still coming along with the training."

As the data suggest, at least core subject areas have their maps in place; gaps and repetitions in the curriculum have been identified, but not much has been done about them. Maps have not been used properly to improve teaching. There is no evidence that other departments are close to creating their own maps.

Use of Maps

Participation in the curriculum mapping process requires from teachers "to be actively engaged in not only designing maps but also using the created maps to make

ongoing decisions about what is in the students' best interests" (Hale & Dunlap, 2010, pp. 89-90). The participants from the English department claimed that curriculum mapping became a cultural norm in their department. Amy said, "We discuss curriculum and the maps, and we refer to our maps. We refer to them constantly." The participants from other departments could not claim the same thing with certainty. Some respondents have said that their maps are in place, but they are not sure if all of their colleagues follow them. Lucas had the following to say about his department:

> I don't think that terminology is there yet. We, as a department, still talk about what we're teaching in a Math class and we can refer to the maps, but I am not sure that that's the teacher's first place to go. They'll still go to the lesson plans as opposed to a map. And so if we had a department meeting and I asked some of my teachers, "Did you follow the map?" They would still have to go get their lesson plans and review it with the map. So it's not that structural 'everybody is looking at it all the time' deal yet.

In the Biology area, curriculum mapping is much of a norm now, as Don admitted. He is always on the same page with his colleague across the hall, there is a lot of sharing among the teachers, and kids in their classes can stay and study together because even being in different classes, they are exposed to the same material. Even though not all of the teachers school wide are on board with curriculum mapping now, he thinks that "they will be at some point because we all are going to change eventually." As for his own use of the map, Don has admitted that he uses his map on a regular basis, making notations for himself to make changes in the next semester:

> I don't necessarily get online and change things daily, but I do change things daily on a piece of paper that I keep and I have to look back on day by day what I taught that day, what order and so it's really made things a lot simpler. I go into usually at the end of every semester. I go back, and I open it up and say, "Oh, I didn't teach that. I need to cancel that because that's not important to us at this point." So I replace it with whatever I did teach.

Jack confessed, "I guess in my mind I refer to the map because I was involved in the process of creating it, but as far as me pulling out a document, you know, every day I don't do that." Amy shared some interesting information about one of her younger colleagues who was recently hired and was given the map to teach from:

> She's made copies of the map and she's got a copy at home and a copy that's always with her in a purse and a copy that's here at school. She keeps them everywhere because she is like, "I've constantly got it, make notes or change or so."

As for the use of maps, the study participants are unsure if their colleagues use their maps on a regular basis. Some participants have admitted that they do not use their maps regularly either.

Mapping beyond One's Classroom

Jack suggested that the ultimate goal of curriculum mapping should be "to reach out in a larger network." In other words, engaging in interdisciplinary projects where Social Studies teachers, for example, work with English teachers to identify the areas of thematic overlap and weave the concepts from both subjects together. At the current

stage of curriculum mapping, the potential of curriculum mapping for creating cross-curricular connections and laying the foundation for project-based interdisciplinary activities has not been fully realized. Lucas said that curriculum integration has happened on a small scale. Some teachers from the Math and Science departments started looking at the differences and similarities in their subject areas. Chemistry and Physics equations, for example, do not look the same in Math textbooks. The teachers started working on a library of common terms to let their students see connections between different subject areas and "to help kids see the worldliness of what they are learning and that it's not so isolated," as Teresa suggested.

Teachers of other subjects try to integrate some parts of other curriculum areas. Julie, for example, used historical readers with her students to integrate history into the English curriculum. This year some of her Senior students decided to write highly scientific papers. So she has to learn scientific notations and other things from the Science curriculum to help them with their projects. Darcy did cross-curricular discussions with her students when they studied Japanese Internment Camps, which is also part of the American History curriculum. The History teacher also made connections about this topic to help students put History and English together. Although these teachers don't work together on any research project, they become familiar with each other's curriculum and support each other's curriculum. Darcy feels that what they do with cross-curricular integration is "more bits and pieces instead of formalized interdisciplinary level." In order to create a project-based lesson that is highly interdisciplinary, there would be a real issue with scheduling because teachers in different subjects do not share the same students. She explained:

> So for that to be fully implemented to where you do a really strong interdisciplinary unit, real project-based learning, you have to have a schedule which will allow you to have that freedom where kids could share teachers and also where teachers have some common plan.

Everybody understands that creating interdisciplinary connections is a daunting task and it is unknown whether the teachers will ever go beyond doing interdisciplinary projects on a small scale and engage their students in large-scale interdisciplinary projects.

Mapping beyond the School Building

For mapping to be effective, it should transpire beyond a single school building. The participants indicated that teachers from some departments have been able to meet with their colleagues from Junior High School. Both Junior High and High School have overlap in some classes. Algebra 1 and Geometry are offered at Junior High and High School. Spanish 1 and Spanish 2 are taught at both levels as well. Teachers in these subject areas normally meet to coordinate their curricula. Social Studies teachers also had a couple of meetings with the teachers from Junior High school. As for the other subject areas, the interviewed teachers indicated that they haven't been able to meet with their colleagues from other buildings. Amy said:

> I know that Junior High map with a Middle School. We haven't met as a whole uplink. We haven't met Middle School, Junior High and High School yet, but we had this discussion with Junior High, "Where are you teaching this? Where are you teaching this?

Upton also noted:

> Once we get comfortable with what we are doing, we can move to the next level and talk with the Junior High and Middle School about what they are doing because in the past when you get these people together, it was just "you are sending us kids that aren't prepared to do this..."

Upton and some other participants stressed that in order to move from one level to the next level, teachers need to have confidence that the people above them and below them are doing their job well and providing students with sufficient knowledge and skills that will be strengthened and developed further at the next level. The notion of trust emerged in some interviews. Amy discussed:

> I trust when my Juniors come in that I know what they've had at the Sophomore level. I know what they've written and what they've read. I trust that my colleagues are following their map and that's nice. And it's kind of has a nice connection for the kids and for colleagues and there's that trust there.

The literature stresses the importance of trust among all adults working in schools --between administrators and teachers and between teachers and teachers. Trust among teachers is the most important element needed to increase student learning and academic achievement. With trust, there is more collegial learning and reflective practice; without trust, teachers become isolated and do not share much (Hord & Sommers, 2008).

Safety Net for Teachers

With the help of curriculum maps teachers can prove what they teach and when they teach it and what type of assessment they offer to their students. Christine suggested that helping teachers ensure that all specific things they need to teach are included in the

map can provide a safety net for them to say, "This is what I've covered. My course is quite comprehensive. This is the knowledge that my students have learned. I have done all these things to the best of me." In a similar vein, Julie pointed out, "It is a form of safety. It's not a rubric, but it has that same security." Don remarked, "As long as I know that I follow the map and I know that the map's secure and I can rely on it, lean on it, and it just makes my life so much easier." Amy said that with the help of map teachers can justify their actions and all the activities in the classroom even to their students:

> I mean like today my kids were watching a film and they were asking, "Why are we watching this?" "Well, it's part of the Junior Curriculum, when our discussion is the 1920s" and now they are like, "Ah, okay." And so that was enough; that was justification. It was my evidence to them. And I am not just making it up. And I didn't just go to the library and chose some random film.

Amy would like to get to the point when she can hand a copy of her map to the parents or put it on her website so that parents can see all the skills and content, everything that her students learn, but even after four years she is not ready to do that. She said that maybe in the next year or two she would be there. Some participants commented that originally it was planned to create maps in the core areas by certain dates and publish them on the school district website for everybody to see, but this has not been accomplished and that pressure is not on the teachers any longer because some other things have become more important.

Change at a Personal Level

As the respondents reflected on their participation in the curriculum mapping implementation, they mentioned a number of aspects of their work that have been impacted by curriculum mapping. The teachers also revealed that they learned something new about themselves while being involved in the curriculum mapping process. Teresa came to realize the following:

> I learned that I do teach some things very well and there are some things that I don't, you know, that I am not strong in and I need to work on that myself. I need to find different supplemental materials, different ways to teach that concept. I did do some discovery about my own teaching practices.

Not being quite sure that curriculum mapping has changed the way she teaches, Amy noted that mapping has changed the way she plans her teaching and curriculum. She can set up the map and look at her short term and long- term goals, her monthly goals and unit plans. She can vividly see how much time it takes her to get through a unit. The thing that struck her most of all was the realization of how much she teaches her kids. She explained:

> I think sometimes in education we walk in our class and say, "Okay, I don't know if they ever understood parallel structure." But then if you actually break down like how much you do in class with parallel structure… Wow! I actually do teach them a lot. I mean I required them to read and to write and to analyze, to discuss and to think and use their high-order thinking skills, and then to reflect, and I've done all of that.

Darcy thinks that working with the maps has affected the way she goes about teaching in some ways:

> At times, I feel like I explain more to my students why we are doing this. They probably would like to know what will be happening in the next three weeks. How long are we going to spend on this unit? I think I've started explaining to them more the purpose and the timeline and as a teacher you always get questions like, 'Why do we need to learn these types of questions?" I don't usually get those questions from my students because I usually explain to them upfront.

Some participants and Lucas was among them haven't noticed any change at a personal level as a result of their participation in the curriculum mapping process:

> Working in a curriculum mapping environment is a no-brainer for me. I would say that is not the change for me. It's just doing what I've already been doing and maybe a little bit of a different way. I think that's why I can buy into it so easily because it is not changing my personal views on anything.

According to the interview data, not much change has happened at a personal level as a result of curriculum mapping implementation. Some participants reported change in the way they teach; while some other participants reported change in the way they plan their curriculum and instruction. There are participants who have not noticed any change in connection with their participation in the curriculum mapping process.

Increased Professional Dialogue and Collegiality

The most positive aspect of curriculum mapping that was specified in many interviews was the increased professional interactions and collegiality among teachers engaged in the curriculum mapping process. Most participants feel there is greater openness among colleagues with curriculum mapping and there are more candid discussions about why they teach certain things and how they teach them. Darcy explained:

> It's a conversation starter with curriculum going, "Oh, we may be considering shortening this unit because spring break is coming up. Or this didn't work well. This was too long. The students got bored by the end of this unit. We need to do something differently." Because when this paper is in front of you, it kind of jogs your memory. It's the curriculum and you are not attacking anyone personally. It's not you; it's the map. We can make changes and adjust when we need to. We can talk. We are honest. We share our struggles because of the map, but we also share our joys going, "That assignment that we talked about worked so well with the students." And so I think that is a great conversation starter.

Professional conversations and collaboration help teachers get to know each other better and learn from each other. Justin said, "To be honest, if it was not for curriculum mapping, one of our new teachers who started around three years ago, I may not know him as well as I know him now." Upton pointed out, "I think now there's much more camaraderie and there's much more of a team spirit." Don had the following to say about teacher collaboration and sharing:

> I don't know why I would not want to take other people's suggestions and what works for them and incorporate it in what I do for the end goal. I think we passed the point where you can work alone in education anymore. It has to be group… So it's probably made us work more as a unit I think, which also helps a lot, and I don't have to worry about being on an island.

Don shared that teachers in his department have always been good about sharing; there was never an ego problem among his colleagues. It is so easy for them to work together and curriculum mapping just made the things even better; there is more camaraderie now.

The increased teacher collaboration has stimulated discussions about how to improve both individually and collectively, as illustrated by the following quotes:

> I think working together with my colleagues on curriculum mapping I realized one thing -- I've been a good teacher by myself, but I've learned I can be a better teacher with input from my colleagues (Darcy, Interview).
>
> I think the discussions now are about how can we be better as departments, how can we be better as a school. And it's much more collegial and I think that there's part of it… that is accepting each other as equals, as knowledgeable about how to deal with students and appreciate getting each other's strengths (Upton, Interview).

Having provided opportunities for more collaboration and interaction, participation in the curriculum mapping process has helped teachers to get to know each other better, to have more informed discussions about curriculum and instruction, to

reduce teacher isolationism, and to become more confident in their teaching skills with the input from their colleagues.

Test Scores and Mapping

The ultimate goal of curriculum mapping is to improve student academic performance. The study participants were asked if the student achievement had increased since they started mapping. Upton said, "High School test scores have always been very, very good. I don't know that I've necessarily seen a giant jump because of curriculum mapping. I am not sure if I can prove that." Justin sees the connection between the constantly increasing test scores and curriculum mapping:

> I know our test scores have been in the top ten in the state over the last… in History and basically in every subject. Our school has been in the top ten and last year in the top five. I do believe that the students are learning what they need to learn and are given the amount of time and are being successful both on their PASS Standards and on their test. I think that's a very good benefit of curriculum mapping.

Don noted the following:

> Our scores have been climbing. You know, we are not one of the largest schools in the state, but our scores are up there right with the largest schools in the state. Obviously, there are many reasons why those scores may have risen. But I can't help but believe that it's due partially to how we are teaching, how we are going about teaching now.

Amy discussed:

> We are seeing some improvements because we've adjusted our curriculum and the state assessments help us re-evaluate our curriculum -- where we are teaching certain things. We made the decision at the Junior department to change where we have our children write an essay. Instead of the beginning of semester, we have them write an essay towards the end of the semester because there are similar essays that they write on the state test. Just moving the placement of that helps our kids.

Only five study participants saw the connection between their students' high state test scores and curriculum mapping. Two participants teach in the area that does not have a state test at the end of semester; so they could not reveal any information on this issue. The remaining respondents think that curriculum mapping did not have much effect on the standardized test scores. Teresa commented:

> I don't see that curriculum map has helped my students do any better or worth… Comparing our curriculum map for its implementation, I can't say that it has been truly implemented, but compare to the students' success, I don't see a correlation at all. You know, you have students who are going to do really well. You have students that are not, that's human nature and students have been that way since the concept of school started. I don't know that we can tie that success back to curriculum mapping.

The information obtained from the state website confirms that the test scores have been really high and constantly increasing over the last four years. However, it is difficult to prove with confidence that curriculum mapping alone can be credited for the

improved students' scores; other factors must have played a significant role in the improved performance too.

To sum up, as the data suggest, some positive achievements have been gained since Westlake High School became involved in the curriculum mapping initiative. However, as most respondents indicated, curriculum mapping has not been fully implemented. This assumption can be demonstrated by Upton's words, "It's not integrated the way that we initially started and thought it would be." Teresa feels that curriculum mapping "is not truly being used to its full potential." Some improvements are needed to use curriculum mapping to its full potential.

Barriers to Implementation

In their interviews, the study participants now and then compared curriculum mapping to other educational initiatives that they had gone through as a school building. According to Lucas, "The big difference between this initiative and other initiatives is that is school wide. It's not really a Math, Science, or History initiative. This one covers everything. It's completely all encompassing if you work with that this way." Even though curriculum mapping has the potential to impact the school building as a whole, some interviewees have concerns that curriculum mapping has lost its significance over time. Amy pointed out:

> Honestly, it's very similar to many other projects and initiatives in the school district and it's really important for about two years and then other things come up and they kind of push it back and push it back because it's not as important right now.

The study participants shared their perceptions of the major barriers they encountered while implementing curriculum mapping. After a thorough analysis of participants' responses, I grouped the data on barriers to the curriculum mapping implementation into five categories: time and money constraints, teacher buy-in, resistance to change, inadequate and insufficient training, and inconsistent administrative support and leadership. The barriers to curriculum mapping are discussed in detail in the next few subsections.

Time and Money Constraints

Time and money constraints came first on the list of barriers to curriculum mapping implementation. Despite the fact that curriculum mapping has benefitted Amy a lot as well as her students, she has admitted that she spends much time on her diary map, but as for the consensus map, she hasn't entered anything in the computer over a year. She makes notations for herself, but she is not actively updating the map and no one is checking it either, "It's like that pressure is not on us anymore because other things have become more important and that's kind of fallen back, which is kind of sad." Darcy, who is passionate about curriculum mapping, shared:

> Even if that's a priority for me, I do not go in here and get my map updated as often as I would like either. I mean I just look at it and go: "I haven't done that in two months." You know, it's time. There are other committees. I've got other projects going. Sometimes the paperwork gets put on the backburner. I mean it's like… I keep my papers graded. I keep my lessons done. It's just like I need to update a map, but I still can teach without having it updated.

Christine expressed a concurrent idea by saying:

> I am a fan of curriculum mapping. I just wish there was more time for me to do it. It's really hard with the commitments that I have…While I believe the investment in curriculum mapping is good and I think it's definitely worthwhile, but there are only so many hours in a day.

Jack said, "It is expected on teacher time, like during your lunch, during your plans." All the other participating teachers also mentioned time is a real issue for doing curriculum mapping. Jill remarked, "Teaching is so busy. You know, there's so many other things; there's always a stack of papers that need to be graded, kids that need help, committees that you are asked to serve on."

Lucas suggested that "time crunch becomes a money issue too. If you are going to give teachers more time that involves out of contract time that involves a little bit of pay somehow. So time and money become a big deal." Not finding enough time to cope with all their responsibilities, teachers have to prioritize some things over others and such prioritizing does not often favor curriculum mapping, as Christine explained:

> I mean that's just the number one issue is time. I don't think it's because we mind doing the work, it's just not finding the time to do it. What do you put down and not do to do that? And we put our students first. And curriculum mapping, it's basically paperwork, not that it's not worthwhile doing, but when you have the choice of creating a new lab that's the kids are going to be excited about and work on curriculum mapping, you are going to create a lab.

Time was reported as the number one impediment to the curriculum mapping implementation by all the study participants. The circumstances of teaching involve numerous responsibilities and duties some of which are not instruction-related. As time is a scarce resource, teachers have to prioritize certain activities over others.

Teacher Buy- in

Another important obstacle to curriculum mapping implementation, as indicated by research participants, is teacher buy- in. Christine doesn't think that "everybody has bought into the need of it." Different reasons were provided by the research participants for teachers' not buying in curriculum mapping. According to Darcy, "there are people that think that curriculum mapping is a chore. They don't see this as a useful tool; they see it as another document that they have got to complete." Justin noted, "There are several people that are just pessimists, that are skeptical about anything new, that don't like to do extra work because it's extra work." Amy pointed out that some teachers feared from the beginning that they all would have to do the same thing and they would be limited in their choice of instructional materials and their teaching would be very structured:

> Some people think the curriculum map ties you to 'well, the map says I have to teach this only for two weeks' and that's really not. That's really the guideline. It's not as structured as people might think. It still allows for some individuality. I can bring in what I want to bring in to the curriculum. And another teacher can bring in what she likes to do in her curriculum as well.

Julie conveyed a similar opinion by saying, "There are core texts that we want all students at that grade level to experience, but beyond that we bring in all kinds of stuff." Similarly, Don argued, "I teach activities that my colleague does not teach, the same subject matter, but a different way. There's a lot of flexibility. I can teach the way that I want." Lucas thinks that teachers can get both their creativity and flexibility into the maps, "If I want to mention the fact that the elections are coming up, this could be a great time to put in that beauty of statistics and why it is so important in the election session. I put that in my diary map." Data from classroom observations can prove that. In post-observation or pre-observation sessions teachers often emphasized the activities or projects that they added to their diary maps that were based on consensus maps. Having common core materials and brining in individual projects or assignments, teachers think that they can achieve the same objectives.

However, not everybody is completely assured that they can add other things to the curriculum or make certain changes to the agreed upon consensus maps. Christine shared her concerns:

> I don't want someone to look at my curriculum map and go, 'Oh, it's second week in October, she should be teaching about the planets now.' What if there is a huge space exploration going on at that particular time, some new space craft in, NASA was sending it off? Do I need to ignore it when my space exploration is at the end of the semester?

Upton commented, "From the beginning, we told our teachers there are so many creative things that you do. We don't want to stop that. You still have the flexibility to do things that you want to do." The faculty members were explained that the maps

would not impede their creativity and allow for some flexibility in planning and enacting their curricula, however, some concerns among the teachers still exist.

Resistance to Change

Another thing that was mentioned in the interviews as a barrier to curriculum mapping was resistance to change. Change may be hard to some people who think they want to teach the way they teach and they are sure that their way is the best and no one will change it. "Such people will be negative against any new initiative," Darcy said. As Lucas put it, "It's not particularly mapping that they don't like, it's more of whether you want to change or whether you don't want to change as a teacher." According to Lucas, there are people who like to change a lot and they are really adaptive and can jump on board to anything, and then there are those who like to stay the same and they are not going to change no matter what.

The teachers who were cited most often to find difficulty with curriculum mapping were seasoned teachers. The respondents indicated that older teachers do not see any difference between curriculum mapping and scope and sequence or any other things related to curriculum planning that they have done in the past. The metaphors of 'reinventing the wheel' and 'educational pendulum' have been used by the research participants to describe their colleagues' unwillingness to accept curriculum mapping. Julie argued:

> A lot of seasoned teachers talk about pendulum and how it swings this way, and now we all are going to do this sort of thing, and then it swings this way, and now we are going to do this. You wait long enough and it's going to swing back and here we go again.

Thus, teacher resistance to curriculum mapping was explained by skepticism and negativity of some teachers to anything new in education that will change the way they teach or by "teachers' age-based and age-attributed responses to educational change" (Hargreaves, 2005, pp. 968-969).

Inadequate and Insufficient Training

In some interviews the type of training provided for mapping was identified as a possible barrier for curriculum mapping implementation. Some of the study participants indicated that training for curriculum mapping was not sufficient to ensure success of the curriculum mapping implementation. The training that participants got was a one- short event, very general without taking into consideration the specific characteristics of different subject areas. Amy suggested that it would help if more teachers went to the training for mapping at the national level because she and some other participants had an impression that those teachers who had gone through the formal training became the fans of curriculum mapping.

Lucas had an opposing view about sending more teachers to the national mapping conferences: "I don't think every teacher needs the real formal training, just a well-trained leader per group." Lucas is sure that those teachers who were chosen to go to the curriculum mapping conference were enthusiastic about going and that sending people who were resistant from the beginning would not change anything:

> So I am not sure that if you sent unenthusiastic teachers to that training that they would come back enthused, but we don't have any evidence of that here. Everybody that went was already going enthused. I can think of some of the people who don't particularly like mapping around here and I

don't really think there's anything that would have changed that. I think if they just sat there in those meetings with me, probably they would just have brought me down instead of the meeting bringing them up.

The literature also suggests that curriculum mapping leaders "need to be cognizant of new teachers who may need a little or a lot of training and mentoring concerning curriculum mapping's processes and procedures" (Hale & Dunlap, 2010, p. 88). Amy suggested that if the school administration sees curriculum mapping as a long-term goal, they should continue providing training for teachers, especially the new ones, whether sending them to conferences or having mentor teachers provide those trainings. In other words, training should be ongoing and relevant to the needs of teachers and it should be subject specific.

Inconsistent Support and Leadership

The issue of inconsistent support and leadership as the initiative progresses was indicated by the participants of the study. Some teachers have reported that at the onset of curriculum mapping there was a lot more support from both district and school administration and mapping was intense for two years, but now it seems that there is not much discussion of curriculum mapping at the faculty meetings. Amy has mentioned that she even does not know who does mapping and who does not in the school building. Elizabeth said, "We are not talking about curriculum mapping very much. It was the latest thing to do last year and now that's it. It's already put aside." Christine conveyed similar concerns, "This year we had only one mention of it. And then last year we had several mentions of it. And then the year before when it was started that was when we had the most."

Lucas commented, "We used to have meetings set up regularly to discuss curriculum mapping, then this meeting is curriculum mapping and this is not, and this meeting is and this is not. So we have already seen the time whittled away from it." Lucas thinks that the school principal is still behind curriculum mapping and tries to build in as much time as possible. For instance, they have gone to early release days this year and they have an afternoon free once a month to do professional development. Lucas hopes that they will use these days to focus on curriculum mapping because there are usually a lot of things that the school district requires them to do in such meetings.

Christine and a couple of other participants don't think that school administrators have gone away from the curriculum mapping either. Christine discussed:

> They know the school is in tight budget crunch and they are being considerate and kind of knowing the demands that we have on us because the high school lost ten teachers this year. All of our classes are thirty-three students throughout entire school and so I think they back off curriculum mapping a little bit because they know we are doing the best we can with what we've got. I think the expectation is there and they want it, but in the current environment they are trying not to rock the boat and make it a gentle, but firm approach.

The participating school administrator confirmed this assumption by saying, "It's an ongoing thing and we keep telling them to work on their curriculum maps and we ask them to justify why they are doing what they are doing, and not in a threatening way, but in a school culture improvement way." The responses of other interviewed teachers have indicated that they understand that the school administrators are also restrained by time

and financial issues. Amy thinks that the school principal sees the value in curriculum mapping and he wants the teachers to continue doing it, but "it's harder for him to give us time with budget cuts and with other things that have come up. We used to have time to work on it." Amy and some other teachers recalled that in the beginning the principal used to tell them if they needed time he could give them subs for the half of the day "but now with budget cuts he can't just use that money. It's not that he doesn't want to. So his hands are tied in some ways. We use some professional development days, but we can't use all of them."

As for the school district level, there has been change of administration there over the last two years and some participants assume that the new superintendent and the new curriculum coordinator are not as behind curriculum mapping as the previous administrators were. Lucas thinks that although the district curriculum coordinator has switched, there are people in the curriculum department who worked with curriculum mapping and the initiative might sustain. For Lucas, it's difficult to say what the new curriculum person's ideas are.

Some other participants who had to deal with the new curriculum coordinator concerning curriculum mapping said that she is supportive of curriculum mapping, but she has a different view of the content and structure of maps. Darcy mentioned that the new curriculum coordinator wants curriculum maps to be more specific and detailed, "She wants them to really not be a list. She wants them to be worded just right; where anybody could come in and understand it…She is supportive and encourages us to make them better."

Overall, the participating teachers indicated that more support and assistance from the central office administration throughout the process of curriculum mapping would be helpful. At that point of the curriculum mapping process, the leadership came mostly from the department heads. Lucas noted, "Those are probably the leaders that still try to get our departments to do what they are supposed to do with curriculum mapping…Our principal calls us the school leadership cadre or something like that." It is not enough to have support and leadership from the department heads; administrative leadership and support at both school and district levels are much needed too.

The Future of Curriculum Mapping

One of the questions that I asked each participant was what would happen to curriculum mapping in their school building in five years. The responses ranged from optimistic to cautiously optimistic and to pessimistic. It is worth noting that only few of the study participants believed that curriculum mapping would be gone in five years. Teresa said, "It's one of those trends. I mean education is so full of trends, "Oh, this is the best practice." Well, in four or five years they move on to something else." Expressing an opposing viewpoint, Justin shared the following, "I don't see it going anywhere or leaving. There are a lot of obstacles including apathy, just people not wanting to do it, but if you ask me, if I am still working here in ten years, I think curriculum mapping will still be here." Justin further speculated, "Probably for us it is going to be something that just becomes a way of life, the norm …just a habit that we use all the time." Lucas commented:

> It's one of those educational philosophy things that educational pendulum won't particularly influence. You have educational pendulum right now

> swinging towards testing everything. So classes get more focused towards the test. And we found out that it doesn't work very well because we are focusing so far towards the test that students are not learning their critical skills and everything. So it's started swinging back. And I don't think curriculum mapping will be influenced by the swing. Maybe curriculum mapping can keep us in the middle.

Christine was very positive that the emphasis on curriculum mapping would be back soon, "Even though I think they backed off a little bit, I think there will come a time where there will be a mandated due date-do or die." The majority of the participants have opined that if the current principal is gone, the entire idea of curriculum mapping might change or the initiative might fade away. Lucas said, "I think we will have certain teachers doing it. I don't think that part will change, but I certainly think if the principal isn't forcing the issue on some people, they won't do it." Eight out of twelve respondents indicated that they would continue doing mapping even if it were not required any more. The quote taken from the interview with Amy demonstrates her dedication to mapping and her intention to continuously use maps:

> I don't know if it's a forever thing or not, but I do find value in it right now. I think it is helping my students; it helps me as a teacher. If it's gone in a few years, it's gone, but I think I will still continue doing it. I wouldn't look back on it and say, "Oh, I can't believe I did that. I wish I had never done this." I think I would ever do that.

Don expressed the same opinion, "If we stopped being required to use this, I am going to use the same method for ever because that's meant that much to me."

As the data suggest, if the initiative doesn't sustain at a school or district level, it might sustain in the individual teachers' classrooms. However, the change scholars argue that educational initiatives can be sustained through the efforts of the people at the 'bottom' for several years, but without ongoing active support of those at the 'top', there is the likelihood that the change efforts will founder (Hall & Hord, 2010).

Strategies for Successful Curriculum Mapping

The participants of the study shared their ideas about what strategies and activities are necessary to make curriculum mapping a successful initiative. Jill suggested, "Good instruction from the beginning and continuous assistance through the process would certainly lead to success." Justin shared:

> Going over the benefits of curriculum mapping and showing results, statistics of other schools that have gone with curriculum mapping and how that's helped them. First accounts of other teachers, other schools that have implemented this would help. A lot of people I knew asked questions: "Why are we doing this? Is this really going to help?"

The interviewed teachers think that a significant amount of time should be provided to them on a regular basis without any distraction where they sit down and work on their maps, either reviewing or revising them. Christine said, "An hour or two at a time is not beneficial to do curriculum mapping. It would be good to sit down and do maps for three intensive days when school is not in session." Amy made some comments about the issue of time:

> In a perfect world, we would have a common planning period because right now we all have different planning periods. We meet at lunch and

> then by the time you get lunch, you have another lunch meeting. I mean we have about 15 minutes and that is not adequate time to get down to a major discussion about the map or curriculum. And then professional development days, but you need more than an hour. You need a block of time, two or three hours to sit down I mean and then… It would help if whoever is in charge had the agenda, 'here's your goal for this, or here's what you need to work on.'

Leadership and consistency were mentioned in most interviews as significant factors in curriculum mapping success. Julie asserted, "There has to be consistency, otherwise people forget about it. The leadership has to have a constant voice, even if it's a little nagging." Julie also pointed out that leadership should be predominantly administrative. She argued, "That can't be departmental. Otherwise you pit colleagues against colleagues." Some participants think that leaders need to do everything possible to get everybody onboard with curriculum mapping. Jill mentioned, "I think everybody has to be onboard. It can be where some people are trying to do it and other people are not really contributing or not made to contribute - that sort of things creates problems." Jack discussed:

> A lot of people would rather sit back and let other people do. So I think a lot on the curriculum mapping depends on where you fit on the chain. If you are a doer, you are going to be bogged down with a lot more responsibility and things to do along with the load you already have. And if you are a person that might not be a doer, this will make your life a lot easier because folks do the work for you.

Jill believes if the school becomes truly committed to curriculum mapping, everybody should be required to work on a map. She also offered to have "some disciplinary action for those that choose not to come to meetings that don't pull their weight and don't do their part."

Most of the interviewees would endorse the idea expressed by Lucas, "Our district public schools might have a big problem with curriculum mapping, if they don't start putting emphasis back on it." Jack believes that "any decision that educators make should be made for students. If it truly benefits students, then there should be commitment at the district level. If there's that commitment, the time for the teachers to do these things should be provided." Lucas commented:

> It just won't last because you can't do it on your own. I can do curriculum map all day long, and, if I am the only guy doing it, this is no good at all. You have to have everybody involved. If you take that time away, it's going to die out here.

To sum up, the research participants provided a lot of information about curriculum mapping initiation and implementation and speculated about the possibility of curriculum mapping sustainability. The positive gains related to curriculum mapping initiative were identified and the factors that impeded curriculum mapping implementation were specified.

Analysis and Interpretation of Research Findings

The analysis and interpretation of the findings are presented to respond to the following research questions:

1. How and why did one high school become involved in the curriculum mapping initiative?
2. What are the teachers' perceptions of curriculum mapping?
3. What are the opportunities and challenges of curriculum mapping implementation in this particular school setting?
    a) What is the extent of curriculum mapping implementation?
    b) Are there any barriers to curriculum mapping implementation?
    c) What changes (if any) occurred in the school setting as a result of curriculum mapping implementation?
4. What strategies might contribute to the sustainability of the curriculum mapping initiative?

The analysis and interpretation of research findings are organized thematically and embedded in the literature related to the phenomenon of the study and the theory guiding the study. The following themes emerged as a result of the data analysis: initiation, understanding the potential of curriculum mapping, challenges and successes of implementation, and sustaining the initiative. The section that follows addresses the first theme.

Initiation Theme

The education change literature suggests that introducing any educational initiative is a complex and challenging endeavor that involves a number of stages and activities. In Fullan's (2007) theory of educational change initiation is the first and significant phase of the initiative that helps the leaders prepare the foundations for the planned change and make a decision to proceed with implementation. Thus, it is

important to understand what happens at this phase to identify specific activities and strategies that can facilitate the change process. The theme of initiation was recurrent throughout all the interviews as some interview questions focused on why and how the school came to be involved in the curriculum mapping initiative. The study participants provided a lot of information about the processes and activities that occurred prior to the decision to adopt curriculum mapping and after the decision was made to proceed with the initiative.

Fullan and Stiegelbauer (1991) suggested that in making a decision to adopt any initiative, a combination of three Rs should be taken into consideration: relevance, readiness and resources. Relevance addresses the perceived need for any new program, practice, or policy that is going to be initiated and what it has to offer to students and teachers. Readiness refers to the school's or district's capacity to initiate and implement any innovation. Resources are concerned with "the accumulation of and provision of support as part of the change process" (Fullan & Stiegelbauer, 1991, p. 64). All the three components were present to a varying extent in Westlake school district at the time of the curriculum mapping initiation. Kezar (2001) argued, "Change occurs because leaders, change agents, and others see the necessity of change" (p. 33). Based on the information gathered from the interviews, even before the concept of curriculum mapping became the topic of discussions in the district, the teachers of some subject areas were looking for the ways to coordinate and align their curricula. Curriculum mapping could serve as an ideal means for that purpose.

Although some teachers reported a perceived need for a curriculum planning tool that would make curriculum more aligned and coordinated, broad consensus about the

necessity of the initiative had not been achieved. Comments like "why reinvent the wheel", "they are always giving us more to do, more to do," "we already have scope and sequence," demonstrate that there were teachers who did not see the need for mapping. Such comments as "why it hasn't become a trend earlier," "curriculum mapping is a no-brainer for me," and "ninety-five percent of the time they work well and they are needed," prove that there were teachers who saw the necessity in curriculum mapping. Fullan (2007) argued that it is one of the leadership dilemmas at the initiation stage "whether to see majority agreement before proceeding versus being assertive at the beginning" (p. 81). He further observed that both the initiatives that have been imposed from top down and the initiatives that started with majority agreement may have similar outcomes -- succeed or fail. Thus, the fact that the whole organization has not been involved in the decision making process, cannot predict failure; there is still a chance for the initiative to succeed.

Hall and Hord (2010) discussed the role of mandates in the change process. Having been criticized for being ineffective due to their top-down orientation, mandates can work very well. "With a mandate, the priority is clear, and there is an expectation that the initiative will be implemented…when a mandate is accompanied by continuing communication, on-going learning, on-site coaching, and time for implementation, it will work" (Hall & Hord, 2010, p. 15). For the initiatives to succeed, mandates should be supported with all the needed interventions during the change process.

As for the school's capacity to launch the initiative and carry out its implementation, Westlake High School had a collegial culture in place with the collective focus on student learning and school improvement, which was a good fit for curriculum

mapping due to the collegial nature of the curriculum mapping process. Needless to say, some initiatives are more readily implemented in certain organizational climates and cultures. Fullan (1999) argued that schools with collaborative cultures manage change best. In the case of this organization, there is strong collegiality coupled with commitment to learning and, if supported with needed policies and resources, this school had good chances of working successfully through the change process.

Education change researchers argue that initiation of change rarely happens without advocacy and support. The sources of advocacy may include district and school level administrators and individual teachers (Fullan, 2007). As for this particular case, the curriculum mapping initiative was advocated by the person from the central office, a district curriculum coordinator, and it was supported by the building principal and some enthusiastic classroom teachers who also became advocates for the initiative in the school setting and beyond it. The district support came not only in the form of leadership, but also in the form of financial assistance that was provided to send groups of teachers for the formal training and to purchase curriculum mapping software to make the curriculum mapping process more efficient.

In the current study, the building principal was identified as an active supporter of the initiative from the very beginning. He was part of the curriculum mapping committee and attended the formalized training at the national level to get first- hand knowledge of the curriculum mapping process and to explain it to the teachers. The majority of respondents cited the principal as the change leader. Six participants gave exclusive credit for leadership to the principal, while the remaining six also acknowledged the principal, but included department heads and some teachers as well. Jacobs (1997)

argued that curriculum mapping should start with establishing a leadership cadre at each building. The principal encouraged and organized the group of teacher leaders to provide the leadership and training throughout the process of initiation and implementation of the initiative. The teacher leaders went to the training first and then shared their knowledge and skills with their colleagues. Thus, leadership at the initiation phase of the initiative was not limited to those assuming the administrative positions; it was more of a distributed type of leadership.

Kallick and Colosimo (2009) stated that "curriculum mapping requires a great deal of planning and preparation" (p. 44). The district curriculum mapping committee played a great role in setting the stage for the curriculum mapping initiative and planning the activities related to initiation and early stages of implementation. However, the committee didn't sustain and the initiative became mostly a school-based endeavor and more teacher-led. So, the district showed a real commitment to curriculum mapping only during the first two years of the initiative. As the initiative began to move beyond the initiation phase, the school district personnel became less involved in the process.

As the previous research suggests, change needs as much support at the implementation phase as at the initiation phase. Fullan (2007) claimed that support of district administration is essential to the success of any change initiative. Inconsistent district support throughout the curriculum mapping process in this case might be one of the reasons why the curriculum mapping implementation has been a slow process. The school administration leadership has been more or less consistent during both the initiation and implementation phases, being more intensive at the time of initiation. Overall, Westlake High School had good, supportive conditions for initiating curriculum

mapping and the initiative started with high expectations and promise. However, leaders of change would be better served by seeking teachers' input about the necessity of the advocated change and how this change would fit school or district needs.

Understanding the Potential of Curriculum Mapping

In order to understand the processes inherent in the implementation of the initiative, it is important to understand how people involved in the process view the initiative because, as stated by Hall and Hord (2010), "Change begins and ends at the individual level. An entire organization does not change until each member has changed" (p. 7). Hall and Hord (2010) argued that even when the initiative is presented to each member of the organization at the same time, the response is different. Needless to say, change is an individual process and is influenced by prior knowledge and experiences. The interviews reflected that not everybody immediately accepted the initiative. For some participants, it took some time to fully embrace the change.

I think for teachers to buy in faster, more information should have been provided at the beginning about how the proposed initiative would affect them and their students. Moreover, some change researchers advise to involve the whole organization in the decision -making process concerning the adoption of the initiative. In this case, there was no research done prior to the adoption of the initiative whether it is a worthwhile practice and/or whether to get involved in this process. That is why some teachers experienced uncertainty and confusion when they were first introduced to curriculum mapping. However, as the initiative unfolded, more and more people were buying into it, but still there was some proportion of teachers who remained unresponsive to the initiative.

As for the participants of the study, they all had a positive view of curriculum mapping and they believed that the initiative had the potential to help their school achieve consistency and continuity of curriculum that would translate into fair and equitable education for all. Dewey (1938) underscored the importance of continuity in students' educational experiences when "every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after" (p. 27). Students will be exposed to the same curriculum and the same experiences irrespective of which class they are in and sequential learning will be provided to them. As an effective curriculum planning tool, curriculum mapping can help eliminate gaps and redundancies in curriculum and better align curriculum with state standards and assessments, which will result in increased student academic achievement.

Research suggests that teachers' positive views of the educational initiative serve as the primary indicator of the initiative successful implementation (Hall & Hord, 2010). The teachers in this sample saw the value in curriculum mapping, but not all of them believed that curriculum mapping was an implementable and sustainable initiative. While discussing curriculum mapping, some teachers used such phrases as 'in theory,' 'in philosophy' and 'in an ideal world it would be…,' implying that curriculum mapping is a good idea and process, but it might not survive the test of reality. The metaphors of 'educational pendulum' and "this too shall pass" were used by some participants to describe the likelihood that curriculum mapping, like many other initiatives, may be short- lived. Thus, the leaders of the initiative should have developed a higher buy-in level among the teaching staff at the onset of the initiative to achieve a sufficient level of commitment to curriculum mapping.

If teachers get sufficient information about the proposed initiative at the initiation phase and get involved in the decision making about the adoption of the initiative, they might be more supportive of the initiative and develop a higher level of commitment as the initiative progresses. One of the most important aspects of the change literature indicates that 'teachers who have no input into the innovation will have no sense of ownership of it and, consequently, little commitment to it" (O'Donoghue, 2007, p. 74). Change leaders should not ignore that aspect either.

Challenges and Successes of Implementation

Implementation has received more attention in the literature than any other phase of the change process because implementation is a means of achieving desired objectives -- putting new policies or programs into practice. What happens during this phase can determine the probability of success and failure of change efforts. Research suggests that many educational initiatives are ineptly implemented and rarely go beyond 'the initial rush of enthusiasm" (Hargreaves, 2002). Furthermore, education has a long history of repeated failures of reforms and initiatives, which has become a reason for teachers' cynicism and skepticism about the prospects of any future change. As Hargreaves (2002) put it: "In the minds and the memories of teachers the failure of change becomes a cumulative phenomenon" (p. 189). In a similar vein, Fullan (2007) asserted:

> The more that teachers or others have had negative experiences with previous implementation attempts in the district or elsewhere, the more cynical or apathetic they will be about the next change presented, regardless of the merit of the new idea or program. (p. 93)

The seasoned teachers were often cited in this study as the ones who did not respond to curriculum mapping adequately and did not accept the initiative whole-heartedly because of their previous experiences with unsuccessful change initiatives. This finding is consistent with the conclusion of Churchill and Williamson (1999) from their study that teachers' previous experiences with educational initiatives impact their receptivity to future initiatives.

What should change leaders take into consideration to ensure implementation success? According to Fullan (2007), "Success is about one quarter having the right ideas and three-quarters establishing effective processes that sort out and develop the right solution suited to the context in question" (p. 104). Based on the educational change literature, I was able to identify certain factors and activities that can contribute to the successful initiative implementation and used them as criteria for analyzing the implementation phase of the initiative under review. Fullan (2007) argued, "The more factors supporting implementation, the more change in practice will be accomplished" (p. 86). The critical factors affecting implementation derived from the works of Fullan (2007) and Hall and Hord (2010) are as follows: (1) clarity of guidelines and expectations; 2) planning and providing resources; 3) investing into training and professional learning; 4) mix of pressure and support; 5) monitoring and checking on progress; and 6) providing continuous assistance throughout the change process.

Clarity of Guidelines and Expectations

No doubt implementation of any initiative should start with clear guidelines and expectations. According to Kallick and Colosimo (2009), change leaders have "to ensure that all involved have a clear idea of how the process will work and why it is being done"

(p. 44). The people who are supposed to implement the initiative need to know where they are headed, what are the expected outcomes and what the ways of achieving these outcomes are. A lack of clarity might result in the intended change being implemented only modestly across the organization (Hall & Hord, 2010). As it follows from the data, not all participants felt that clear guidelines and expectations were provided to them when the initiative was launched. Some participants indicated that the purpose of curriculum mapping was explained in a perfunctory manner; mostly the technical aspects of the mapping were addressed. The participants who had gone through the formal training at the national level had no problems with the clarity of guidelines and expectations. The efforts of the leaders should have be directed towards making sure that the initiative does not create uncertainly and confusion among the entire school staff.

Planning and Resources

Planning and providing resources are essential elements of the implementation process that will enable implementers to move forward throughout the change process. Fullan (1992) argued:

> Good implementation requires good planning. Plans do not have to be in the form of elaborate documents, but they do need to focus on the right factors and have the approval of people in positions of authority to see that they are carried out. (p. 41)

In regards to this case, at the initiation phase, planning was evident in terms of outlining the major activities and processes involved in setting the stage for the change, training a core group of teachers, choosing the curriculum mapping software that fits the needs of the district, and planning the introductory session and initial training for the

staff. Based on the data, it is difficult to say that planning was thorough at the implementation phase. Furthermore, there was no evidence of formal planning at this phase of the initiative. There was no proof of a developed clear vision of the initiative either. During the first year of curriculum mapping, the principal set the deadlines specifying when to complete certain columns of maps, then different types of communication about curriculum mapping significantly decreased.

There has not been much discussion of curriculum mapping recently. The literature suggests that regular communications about the initiative should take place to generate and sustain interest in the initiative; otherwise people who are directly involved in the implementation process might think that the initiative has lost its value and the progression of the initiative might slow down (Hall & Hord, 2010). Truesdale, Thompson, and Lucas (2004) recommended, "Frequent updates in all meetings and constantly seeking ways to use maps as the hub of all discussions about teaching and learning will help to institutionalize mapping as a daily tool" (p. 23).

Change cannot happen without sufficient resources to be provided for its implementation because any initiative increases teacher workload in terms of additional non-teaching duties and paperwork. Change efforts that lack necessary resources can hardly bring desired results. As research suggests, one of the scarcest resources is time, time for planning, time for professional development, and time for sharing ideas and experiences.

Many schools expect teachers to volunteer their own time to the change efforts, but no matter how much teachers value any given initiative or innovation their days are filled with so many responsibilities that it is difficult for them to prioritize some things

over others. Time was cited as number one barrier to curriculum mapping implementation in this research. The study participants indicated that they had to use lunch time or planning time to do mapping, which is not only unproductive, but is also against their contract. "When a school's teachers are not provided adequate time or support in gaining the knowledge base necessary to fully participate in the mapping process, their abilities to move mapping forward are difficult" (Hale & Dunlap, 2010, p. 19).

Providing time for teachers to work on maps also involves money. Like many schools around the nation, Westlake High School feels restricted by lack of funds due to the difficult economic situation in the society as a whole. At the time of research, the state was experiencing steep budget shortages and spending reductions, which resulted in decreased funding for local school districts. The interviewed school administrator described the school financial situation as limiting their ability to implement curriculum mapping as it was originally planned.

The fact that many teachers involved in curriculum mapping were denied access to the curriculum mapping website and had to go back to using word document processing or a paper and pencil method was another barrier that this initiative encountered. The proponents of curriculum mapping argue that curriculum mapping software is crucial to the long-term success of the curriculum mapping initiative. They find paper and pencil approach and the word-processing document models to be counterproductive as these approaches limit access and privatize the curriculum as opposed to fostering open sharing between members of a professional community.

Moreover, mapping software allows for immediate revisions and adjustments in real time, which makes the mapping process more efficient (Jacobs, 1997)

As in numerous other implementation studies, time and money were identified as major barriers to the curriculum mapping implementation. What is also documented in previous research is that the change leaders try to be very resourceful in allocating time for teachers to work on the implementation of the intended change. Introducing early release days in the researched school was cited by study participants as a means to allow teachers extra time to work on curriculum maps. However, these days are usually filled with numerous issues that are handed down by the central office staff and there is hardly any time left for working on curriculum maps. Professional development days are also filled with numerous activities and curriculum mapping does not often fit there.

The study participants are concerned that the time whittled away from curriculum mapping because the district leaders do not see as much value in the curriculum mapping as in the beginning. Thus, it is important how the powers that be view and support the initiative because their support is usually manifested through the resources they provide and the resource number one is time. Without being accommodated additional time for meeting, the expectations of the initiative or reform even the most enthusiastic teachers might become frustrated and lose faith in the successful outcome of the reform efforts.

Investing into Training and Professional Learning

Change initiatives cannot entirely rely on the previous body of knowledge and skills; they challenge people "to come to terms with and master new knowledge, skills and experiences" (Hargreaves, 2002, p. 189). Therefore, learning is viewed as "the basis of and corollary to change" (Hall & Hord, 2010, p. 150). To prepare implementers for

change, training and other forms of professional development need to be provided. Many change scholars argued that teachers' constant learning is essential to successful school reform efforts (Hall & Hord, 2010; Sykes, 1996). Moreover, if change is viewed as a process, not as an event, training should be ongoing either in the form of coaching sessions for the new teachers or refresher sessions for experienced implementers of change.

The implementation of educational initiatives is always loaded with uncertainties, doubts, and difficulties that may discourage the participants of the change process. To address the emerging challenges and difficulties, continuous learning opportunities should be provided (Yuen & Cheng, 2000). Change scholars suggest investing early in demonstrations and modeling and providing training in a workshop environment at a later stage (Fullan, 1992). School leaders who assist the implementers need training in the proposed initiative too. As the data suggest, the building principal and the curriculum coordinator at the time went through the training for curriculum mapping at the national level and those teachers who were to form the leadership cadre went to the training too.

Based on the interview data, not all the study participants felt the training that they received in the school setting was adequate enough for the successful curriculum mapping implementation. Some participants called it a crash course or a one-shot event. I would endorse the idea expressed by some of the participants that when the training for a new practice or program is provided, it is not enough to attend to the technical aspects of implementation only-- which columns to fulfill and how to fulfill them. The primary focus should be on the theory and philosophy behind the initiative and the benefits of the initiative. After that the focus should be shifted to the technicalities of the process. The

trainers for curriculum mapping at the national level used that same approach to the trainings they provided to the groups of teachers from all over the country.

According to previous research findings, many change efforts have not succeeded because teachers have not been provided with the opportunities for developing the new knowledge and skills that they needed for implementation. In that case, frustration rather than resistance undermines the success of the initiative implementation. If the district and school administrators have an intention to continue with curriculum mapping, they should continue investing into professional leaning of the teachers. At least part of professional development should be oriented towards providing assistance with the curriculum mapping implementation problems and helping clarify some issues that teachers have with curriculum mapping.

Mix of Pressure and Support

In any educational change, leadership is critical for achieving success because certain actions of the leaders can motivate the staff to change, lessen the feelings of uncertainty when those arise and help translate the initiative intentions into reality (Bolman & Heler, 1995). Researchers studying change efforts argue that leaders of change should not expect a smooth and non-problematic journey towards achieving desired outcomes, but they should place reasonable demand for significant results in the conceivable future providing both pressure and support (Fullan, 1992, 2007). Fullan (1992) pointed out:

> We usually think of pressure as a bad thing and support as good. But there is a positive role for pressure in change. There are many forces maintaining the status quo. When change occurs, it is because some

> pressure has built up that leads to action…successful change projects always include elements of both pressure and support. Pressure without support leads to resistance and alienation; support without pressure leads to drift or waste of resources. (p. 25)

In his study of exemplary schools, Sagor (1992) concluded that "the secret seemed to be in providing the right combination of pressure to improve along with meaningful support" (p. 13). McLaughlin (1987) argued, “Effective implementation requires a strategic balance of pressure and support “(p. 171)

The actions of the school administration during the first and second year of implementation in this study attest to maintaining pressure and providing support. In this particular case, there was pressure as the school principal set up deadlines for completion of a certain portion of mapping and checked on the progress. The participants did not mind that pressure at all; moreover, they found it to be very productive and stimulating. Many of the participants became frustrated when they realized that the pressure to continue working on maps had faded away.

As for support, it involved providing teachers time to work on maps, initial training for mapping, and investing into curriculum mapping software. One of the means of supporting the initiative is to acknowledge the efforts of individuals who make good progress in the process of change from time to time. In other words, participants of the change process should be provided with incentives and rewards. As the evidence suggests, the school teachers engaged in the curriculum mapping process have not been provided enough incentives. Teachers from some departments were given a small stipend to come and work on their maps in the summer of 2007. Some teachers

mentioned that developing a consensus map to get new textbooks might be considered an incentive, but they did not find such an incentive to be appropriate and stimulating.

Curriculum mapping leaders should have looked for some positive gains in the curriculum mapping process and recognize and praise the teachers who contributed most of all. Celebrating progress is an aspect that is most often overlooked while change is implemented in the school setting (Kallick & Colosimo, 2009). When balance is achieved between focusing on the positive achievements and putting pressure for more results, then the leaders and implementers will get closer towards achieving goals and expectations established for this particular initiative.

Monitoring and Checking on Progress

No matter how well- planned an educational initiative is the leaders of change should expect concerns and problems that people may experience while being engaged in the change process. Spillane, Reiser, and Reimer (2002) noted that implementation failure can be explained by inability of principals to adequately supervise the implementation process. Louis and Miles (1990) recommended constant monitoring of the change process to identify the problems when they first appear in order to act accordingly. The formal methods for monitoring may include surveys; informal methods include interaction between change leaders and people implementing the initiative. The resulting information should lead to consulting and assisting implementers.

According to the interview data, the process and progress of curriculum mapping was not monitored by the district and school administrators at the time of research. The slow process of change in terms of curriculum mapping in this school setting can be explained by inadequate supervision of the administration and other change leaders of the

progression of the initiative. There was no evidence found in the interview data indicating that the curriculum mapping leaders were doing everything possible to identify emergent needs and solve the problems that the implementers encountered in their change efforts. Hall and Hord (2010) warned that quite often the change effort might be lost when the change leaders fail to routinely check the progress of the initiative implementation and address the concerns and problems of the implementers. If the leaders monitored the progress, they would be able to collect data from teachers about their needs and concerns and plan some interventions and design some strategies to address implementers' needs and concerns and to pave the way for curriculum mapping successful implementation.

The researchers of educational change warned against punitive purpose of monitoring, stressing that monitoring should be used to identify teachers that needed additional help and provide that help in a timely manner. Monitoring and checking on how the implementation is going would signify to the implementers a continuous interest of school leaders in the initiative progress and that the implementers' efforts are "worthy of notice and support" (Hall & Hord, 2010, p. 150). The efforts of administrators in keeping the hand on the pulse of the initiative might help increase teacher buy-in and commitment to the initiative.

Providing Continuous Assistance throughout the Initiative

Teachers' comments in this case about the need for more consistent administrative support suggested that the district and school administration should work together to create more supportive conditions for curriculum mapping. The administrators at both levels should demonstrate the significance of curriculum mapping

by placing more emphasis on ongoing training and professional development, allocating adequate resources, and maintaining constant communication about the initiative. The needs of implementers might change throughout the implementation process; they should be met by more training opportunities. Monitoring of the implementers' efforts that was addressed earlier can help identify those needs and provide assistance based on these needs. The assistance can be provided in a variety of formats-- one-on-one or group coaching from peers, administrators, or district resource staff; sharing among colleagues from the same subject area, arranging visits to sites where implementation has been successful. One of the simplest forms of support is giving teachers released time to meet regularly. Change is dependent upon the amount and time of assistance and appropriateness of the assistance. Providing assistance to the people involved in the change process will help to create a context conducive to the initiative success.

Modest Successes of Implementation

Any change effort is challenging and never goes smoothly without overcoming obstacles on its way. The five categories of obstacles to curriculum mapping full implementation have been identified through the interviews with the participants of this study: time and money constraints, low teacher buy-in, resistance to change, inadequate and insufficient training, and inconsistent administrative support and leadership. The reason for the widespread change occurring only modestly, as emphasized in the literature, is that change facilitators do not fully understand the major aspects of the change process and what the initiative should look like when implemented in the intended way (Hall & Hord, 2010).

Some participants that are familiar with Jacobs' model of curriculum mapping have stated that curriculum mapping in Westlake High School bears little resemblance to what Heidi Hayes Jacobs and her followers suggested originally. Only some aspects of curriculum mapping have been integrated since the school became involved in the mapping process. The consensus maps have been created in all the core areas, some departments have reviewed them, but some have not; for some departments curriculum mapping has become a cultural norm, for some others not.

The fact that curriculum mapping has not been evenly implemented across school departments is not surprising. The change theorists argue that change does not occur evenly or simultaneously in all parts of the organization. Interviewees gave many reasons for the uneven curriculum mapping implementation often citing subject-specific factors such as some subjects are better suited for mapping than others, or teachers in some departments see more value in curriculum mapping or some department heads are more supportive of curriculum mapping. Hall and Hord (2010) argued that "implementation may be said to start in earnest when users and their clients (i.e. company staff, teachers, and students) begin the use of innovation" (p. 96). Some study participants have indicated that they do not have a clue if their colleagues are following the maps.

One of the most positive aspects of curriculum mapping specified by all study participants was increased collaboration, collegiality, and professional dialogue. In the change literature, collaboration is viewed both as a necessary condition for the change implementation and an outcome of the change efforts (Senge, 2000). On the one hand, implementation of educational initiatives requires a collegial and collaborative culture.

On the other hand, it promotes collaboration and collegiality and stimulates professional dialogue.

The opportunities for collaboration and communication varied from department to department in this study. The English department was credited by the interviewed administrator for the frequency of interaction in terms of curriculum mapping. The interviewed teachers from the English department have indicated that they value their ongoing curriculum conversations and they view their colleagues as a resource more and more. The mutual support and sharing enhanced by curriculum mapping implementation was cited by the participants from the Science department. The collaborative efforts of teachers should be encouraged further by providing them with structured meeting time and possibly some incentives.

According to some previous research findings, measureable signs of success with curriculum mapping included improvements in students' state test scores in the subject areas involved in curriculum mapping. Some of the participants reported improved test scores as a positive effect of curriculum mapping. There were some participants who stated that they did not see any connection between the curriculum mapping implementation and increased test scores because state test results had always been high in Westlake High School. Those participants who saw connection between increased tests score and curriculum mapping credited the aligned and coordinated curriculum across subject areas for the increased test scores. Their main argument was that the curriculum maps helped them make sure that there were no unproductive repetitions and gaps in the curriculum and that the taught curriculum addressed the state standards and objectives for a particular subject area and grade level. The analysis of the returned test

results enabled the teachers to determine the weak areas and adjust their curriculum maps and instruction accordingly. I find such arguments legitimate.

Having curriculum maps in place does not only help ensure that the curriculum is aligned with state standards and objectives, but curriculum maps also provide a safety net for teachers who can justify to anyone who will make an inquiry about their curriculum why they teach what they teach and explain the chosen activities and assessment practices. Due to the difficulties of implementation that have been discussed earlier in the section, curriculum mapping has not become a communication tool with the stakeholders. This is the area that needs improvement if curriculum mapping sustains in the given school.

To sum up, in spite of some positive gains, the implementation phase of curriculum mapping in Westlake High School is filled with uncertainties, concerns, and challenges. It is difficult to predict the future of curriculum mapping in this school with certainty. Although some research participants have admitted that they will use curriculum mapping in their classrooms even if it's not mandated, to become sustainable, the change initiative cannot be individual and fragmented; it should have a widespread use in the school setting.

Sustaining the Initiative

The major concern of educational change theorists has been how to move beyond the implementation phase to the institutionalization phase, when the new programs and policies become integrated routinely into every day school practices and affect many teachers, not just some of them. A considerable amount of research indicated that many initiatives did not move beyond the implementation phase (Fullan, 2007; Hall & Hord,

2010; Evans, 2001). The research on educational change informs us that change is never an easy process and it can be loaded with uncertainty and hesitance. It takes time for people to internalize new practices and ideas. As for this particular case, it was not only the internal factors that impeded the implementation and institutionalization of curriculum mapping, but also external factors like the exacerbated economic situation in the society as a whole. Sustainability of this initiative remains problematic at this point.

The participants of the study truly believe that the current situation can be changed for the better if the school and district leaders put emphasis back on curriculum mapping and find ways to provide more time and financial resources for the teachers to get together and continue working on curriculum mapping. As the data suggest, in order to ensure successful implementation and institutionalization of curriculum mapping, there should be commitment at all levels. Without unwavering commitment, curriculum mapping in this particular school might follow the destiny of numerous other education initiatives that had promising and enthusiastic beginnings, but did not survive the test of reality.

Data collected in this study provide some insight into how to enhance sustainability of curriculum mapping in this particular school and provide recommendations for successful implementation of the initiative in other school settings. To increase capacity and promote sustainability of curriculum mapping takes more than efforts of one person. An ongoing, systematic approach with clear guidelines and expectations is needed. The school and district leaders should constantly demonstrate the significance of curriculum mapping by placing more emphasis on ongoing training and

professional learning, allocating adequate resources for curriculum mapping, and maintaining constant communication about the initiative.

Lessons Learned

The data show that implementation of the curriculum mapping initiative requires input from both the district and the school administration to support the efforts of the teachers involved in the change process. Hale and Dunlap (2010) argued, "For curriculum mapping to be systematically sustainable, district and school-site administrators must work harmoniously" (p. 14). Change can be achieved in three sequential phases and leadership and support are needed during all the three phases of the change process. District's strong and visible role in curriculum mapping needs to be evident from the initiation to full implementation. Specific activities and strategies should happen at each stage of the change process for success to be achieved. The strategies that can make for successful curriculum mapping initiation are as follows:

- assessing the needs of the district in curriculum mapping;
- establishing a district curriculum mapping committee;
- developing a common vision and a clear action plan for curriculum mapping in the district and in the school to declare long-term goals for the initiative;
- sending a core group of teachers to be formally trained for curriculum mapping;
- establishing a leadership cadre in the school building;
- selecting curriculum mapping software that fits the needs of the district;

- encouraging communication among all stakeholders and building capacity at the school and district levels.

The key components and activities that can lead to successful curriculum mapping implementation are the following:

- providing subject-specific initial and ongoing training that focuses on the processes and procedures involved in curriculum mapping;
- creating and maintaining a high buy-in level for curriculum mapping through explanation of the theory and philosophy behind curriculum mapping and expected benefits for teachers and students;
- allocating the time and resources needed for developing and reviewing curriculum maps;
- monitoring and checking on the process of curriculum mapping to identify emergent problems and challenges and developing strategies to cope with them;
- providing adequate incentives and rewards for the participants of the curriculum mapping process;
- continuing to provide assistance through the whole process of the curriculum mapping implementation.

To move from implementation to institutionalization of curriculum mapping, it is necessary to ensure that:

- curriculum mapping is ingrained into the school culture;
- there is widespread use of curriculum maps in the school and the district;

- there is confidence that curriculum mapping will be sustained regardless of the change in the leadership and any other new initiative being introduced to the school and the district.

Chapter IV Summary

This chapter presented the research findings and the researcher's interpretation of the findings based on the literature pertinent to curriculum mapping and educational change. The findings were analyzed in the light of what other researchers have concluded to be factors affecting initiation, implementation, and sustainability to draw conclusions about this particular case based on its unique context, structures, and practices. The majority of findings were aligned with those suggested by other authors; however, some additional findings were also apparent. The next chapter focuses on the summary of findings, conclusions, and implications for theory, practice, and future research.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS FOR THEORY, PRACTICE, AND RECOMMENDATIONS FOR FUTURE RESEARCH

Introduction

Embedded in the interpretive paradigm and drawing on Fullan's (2007) theory of educational change, this instrumental case study relied on qualitative data collected in a Midwestern high school involved in the curriculum mapping initiative to describe the processes and activities related to curriculum mapping implementation and identify the challenges and opportunities that the participants of the curriculum mapping initiative experienced. The researcher examined the developmental stages of the curriculum mapping process--initiation and implementation from the perspectives of the participants of the study to determine the possibility of curriculum mapping sustainability in this particular school setting. The factors that might contribute to the curriculum mapping sustainability were explored through the interviews. This chapter presents the summary of the research findings, conclusions, and implications for educational theory, practice, and future research.

Summary of Research Findings

The summary of research findings is presented in connection with the research questions posed for the study.

Research Question #1: How and why did one particular school become involved in the curriculum mapping initiative?

Westlake High School became involved in the curriculum mapping process as part of a top-down district -wide initiative. Most of the interviewees concurred that the impetus for implementing curriculum mapping came from the school district administration and the initiative was supported and promoted by the building principal. The reason the district initiated curriculum mapping was to achieve alignment and coordination of the district curriculum across subject areas and grade levels in order to ensure consistency and continuity of curriculum and sequential learning for students to provide them with the same foundations and experiences and better align the district curriculum with state standards and assessments.

The initiation phase was very active and included such activities and processes as establishing a district curriculum mapping committee, sending groups of teachers and administrators to trainings at the national level, encouraging communication among stakeholders, selecting curriculum mapping software that fit the needs of the district, and establishing the leadership cadre in the school building. Before commencing curriculum mapping, the prospective curriculum mapping leaders acquired sufficient knowledge of mapping and the mapping process at the national curriculum mapping conferences. As the evidence suggest, at the initiation phase of curriculum mapping, planning and leadership were sufficient to lay the foundations for the intended change. However, consistency of leadership and planning was not maintained in the subsequent stages of the curriculum mapping process.

Research Question # 2: What are the teachers' perceptions of curriculum mapping?

The majority of the interviewees reported positive perceptions concerning curriculum mapping relevance to their teaching practices and benefits of curriculum mapping. Previous research has demonstrated positive views of teachers on curriculum mapping as an effective tool for curriculum planning and alignment, a means of collaboration among teachers, and a vehicle for improving student learning and achievement. This study confirmed these results by finding that curriculum mapping as a planning tool can help eliminate gaps and unproductive repetitions in the curriculum, set up short-term and long-term instructional goals, ensure that teachers do not favor certain topics in the curriculum over other important material, and provide better alignment of curriculum with state standards.

Participation in the curriculum mapping process makes it essential for teachers to be constantly engaged in the professional dialogue, focusing on the standards, curriculum, student outcomes, and instructional practices. These processes and activities make teachers more fluent in the state standards and objectives and enhance collaboration and professional dialogue among colleagues. Curriculum mapping provides the opportunity for teachers to analyze state assessment data and make adjustments to curriculum and instruction as needed. As a result, aligned and coordinated curriculum can help ensure consistency and continuity of student learning and increase student academic performance. Participation in curriculum mapping creates more possibilities for increased trust among teachers, which also positively influences student achievement.

Additionally, the current research has provided the evidence that teachers view curriculum mapping as 'a safety net' that enables them to prove to the interested stakeholders what they teach, when they teach it, why they teach it, and what activities and assessments they use to achieve their curricula and instructional goals. Curriculum mapping was identified as a great tool for new teachers to help them determine the sequence and pace in which to cover the material and to meet the school and department expectations.

It is worth noting that some weaknesses of curriculum mapping were also specified by the participating teachers. Among them were narrowing down curriculum to the material that is emphasized in the state standards and is going to be tested at the end of semester, exclusive focus on measurable objectives, and the difficulty of coming to consensus during the process of creating consensus maps because of the teachers' differences in philosophy of teaching. To this end, the benefits and strengths of curriculum mapping identified by the study participants outnumber the weaknesses.

The data suggested that curriculum mapping was met with differing levels of support among the school teaching staff. The seasoned teachers were identified as a group that did not show enthusiasm or eager towards the proposed initiative. This finding is in line with Hargreaves' (2005) suggestion that teachers at a later career stage can be less enthusiastic about change processes than their younger colleagues.

To sum up, the Westlake High School staff interviewed for this study strongly support the concept of curriculum mapping, but they have not implemented the initiative to the extent that will make it sustainable over time because of the persistent challenges encountered during the implementation process.

Research Question # 3: What are the opportunities and challenges of curriculum mapping implementation in this particular school setting?

Interviewees discussed the opportunities that curriculum mapping opened up for them and challenges they faced during the curriculum mapping implementation phase. Curriculum mapping presented ample opportunities for school improvement through increased collegiality, good quality professional conversations focused on student learning and curriculum, and the possibility of integrating different curriculum areas to make learning more meaningful and enriching. Needless to say, not all the opportunities that curriculum mapping could offer were realized to the full potential because curriculum mapping implementation encountered numerous barriers and problems.

The participating teachers and school administrator not only discussed challenges of curriculum mapping implementation, but also provided recommendations for overcoming such challenges to give some insights to school leaders and teachers implementing curriculum mapping in their own settings. The data revealed that the implementation process is lengthy and complex and requires a combination of different factors that can help meet the challenges and realize opportunities to ensure successful implementation and continuation of curriculum mapping. The realized and unrealized potential of curriculum mapping is detailed in responses to the sub-questions that follow.

Sub-question A: What is the extent of curriculum mapping implementation?

From the interviews, there was a clear indication that curriculum mapping had not been fully implemented. Moreover, curriculum mapping was not spread evenly throughout the school organization because different subject areas were at different stages of curriculum mapping implementation at the time of research. Only core subject

areas developed their maps, but it was unclear if teachers used their maps on a regular basis.

Curriculum mapping is an ongoing process that constantly requires reviews and revisions, as all the participants agreed. However, there has been no evidence provided that maps are constantly reviewed and revised by the departments. Gaps and repetitions in the curriculum have been identified, but not much has been done about them. The possibility of mapping to integrate different subject areas has been realized to a little extent resulting in small-scale interdisciplinary projects. Some participants found cross-curricula mapping unrealistic due to the unique coursework at the high school level and not sharing the same students in classes for completing formidable interdisciplinary projects.

The participating teachers did not have much information about the mapping processes in the school district. Some participants were unsure if other schools were involved in the mapping process. This implies that the curriculum mapping initiative lacked its district-wide continuity at the time of research. Some study participants are concerned that curriculum mapping has not been fully implemented and is not used to its full potential.

Sub-question C: Are there any barriers to curriculum mapping implementation?

Five major barriers to curriculum mapping implementation have been identified as a result of data analysis and interpretation. The list of barriers is not surprising and includes the issues that are typically identified in change efforts: time and money constraints, insufficient and inadequate training for mapping, low teacher buy-in, resistance to change, and inconsistent administrative support and leadership. Time and

money constraints often come first as limiting factors in the implementation research. Initially, some time was secured for teachers to work on maps, but then, due to the budget constraints, no more additional time was allocated for mapping. Participants contended that the diminished provisions of resources left them with the impression that mapping became a low priority in the school district.

Insufficient and inadequate training for mapping was another barrier to successful curriculum mapping implementation. The training that was provided before implementation was a one-short event and focused mostly on the technical aspects of the mapping process. Some of the study participants wished there had been more emphasis on the theory and philosophy behind mapping and on the relevance of curriculum mapping to their teaching practices and the benefits of curriculum mapping for students and teachers.

Some participants suggested that training should be subject-specific and ongoing. Although turn-over in this building is not high, new teachers are hired every year, but they are not provided with the training for curriculum mapping. The participants' recommendation is that training or coaching should be provided to the newly hired teachers and the existing teachers as well to refresh their knowledge of the mapping process and provide assistance with the problems they encounter during curriculum mapping implementation. Some of the participants have indicated that if administration sees curriculum mapping as a long-term goal, they should continue sending teachers to the trainings for mapping at the national level.

Two other barriers to curriculum mapping are low teacher buy-in and resistance to change. Low teacher buy- in and teacher resistance to the curriculum mapping initiative

were explained by teacher age and career stage, prior history with unsuccessful educational initiatives, and lack of understanding of the relevance of the curriculum mapping initiative to their teaching practices. The relevance and perceived benefits of curriculum mapping should have been explained to the teachers better. The teacher buy-in would be higher if teachers were more involved in the decision- making processes concerning curriculum mapping adoption and implementation. There was no evidence that the vision and mission for the change were developed and agreed upon collectively with the staff when the schools started the implementation phase. These findings underscore the importance of developing high level of teacher buy-in to proceed with the implementation of curriculum mapping.

Participating teachers stressed the importance of leadership and support for the sustainability of curriculum mapping because the challenges of curriculum mapping implementation were mostly related to inconsistent administrative support and leadership throughout curriculum mapping implementation. As the evidence suggested, support and commitment of the district administration was short-term and hardly ever went beyond the initiation phase. The curriculum mapping initiative was already under the way, when there was change of administration at the district level and the new district administrators might not see as much value in curriculum mapping as the previous administration. As research has demonstrated, many change efforts have disappointing results partly because of the limited participation of the school district administration in the implementation process (Honig & Hatch, 2004; Marsh, 2002). Unfortunately, the findings of this study are similar to previous research concerning the school district administration role in the

change process and underscore the importance of substantial school district support in realizing change efforts.

The role of administrative leadership in the curriculum mapping process cannot be underestimated. Moreover, the data suggest that there is a relationship between teachers' perception of the leadership throughout the curriculum mapping process and prospects of curriculum mapping sustainability. If the leaders see the value in curriculum mapping, there is a possibility for curriculum mapping successful implementation and sustainability. The leadership and support should come through adequate provision of resources to work on maps, monitoring of the process of implementation, providing assistance if needed, constant communication about the initiative to emphasize the school priority, and providing participants of the mapping process with some incentives.

Sub-question C: What changes (if any) occurred in the school setting as a result of curriculum mapping implementation?

In spite of the challenges of implementation, some positive changes happened at the personal and organizational levels as a result of curriculum mapping implementation. The literature suggests that establishing and facilitating collegial, collaborative relationships is an essential component of the curriculum mapping initiative (Hale, 2008; Jacobs, 1997). The data revealed that increased collaboration and professional dialogue became the major successes of curriculum mapping in Westlake High School. Trust to share data and instructional practices became a common practice in some school departments. Curriculum mapping became a cultural norm in the English department. No other departments could claim the same, as the data suggested.

Curriculum mapping started with the administrative leadership, but the emergence of new leaders was encouraged and supported. However, ordinary staff members did not report developing their leadership skills through participation in curriculum mapping and there were no reports of leadership outside the administration and teachers in the formal leadership positions, like department heads. As the data analysis revealed, two of the study participants, who are regular classroom teachers, stepped up and led the process of developing consensus maps at their grade level, but their leadership roles diminished once the maps were in place. It is evident that some teachers have increased their leadership potential through curriculum mapping without realizing it.

Previous research demonstrated positive impact of mapping on student achievement. Not all participants in the current study attributed their students' continual rise in the EOI scores to the curriculum mapping implementation. Five out of twelve participants found a relationship between curriculum mapping implementation and increased test scores, arguing that students' test results have increased due to the more aligned curriculum and constant changes and adjustments they make to the curriculum based on the previous test results.

As for the change at the personal level, some teachers reported that their teaching improved because their curriculum became more organized and instruction became more focused. Some of the respondents indicated that they had not noticed any change in their teaching, but their planning had significantly improved. It can be concluded that only some modest changes at the personal and organizational levels transpired as a result of the curriculum mapping implementation.

Research Question # 4: What strategies might contribute to the sustainability of the curriculum mapping initiative?

The data indicated that only a small number of participants perceived that curriculum mapping would sustain in the school setting. The beliefs that curriculum mapping would be sustainable were based on the perceived benefits of curriculum mapping, school principal's commitment to the initiative, and some teachers' enthusiasm for mapping. Those participating teachers who were not sure if curriculum mapping would sustain based their perceptions on the following indicators: the administrative priority for mapping had diminished, resources for mapping had been significantly reduced, and mapping had not been ingrained in all aspects of the school life. There were some concerns expressed by the study participants that curriculum mapping might not sustain if there were changes in the leadership positions at the school level.

The administrative leadership was emphasized by the study participants as essential to the success and sustainability of the curriculum mapping initiative. As the data suggested, leadership should be consistent through all the stages of curriculum mapping. During the initial phase of the implementation process, the curriculum mapping leaders should build the case for the potential benefits and significance of curriculum mapping by looking at the examples of schools that implemented curriculum mapping successfully.

Identifying challenges and barriers to curriculum mapping implementation and developing strategies to overcome them should become one of the major responsibilities of the leaders of curriculum mapping. The participants' responses implied that the ingredients of effective leadership for mapping should consist of the combination of

pressure and support. This finding confirms Fullan's (1992) statement that "successful change projects always involve elements of pressure and support" (p. 25). Planning for mapping should be consistent at all stages of the curriculum mapping process. Time to work on maps should be provided on a regular basis. One of the suggestions was that some professional development days should reserve time for mapping work. The other suggestion was to provide common planning time for teachers of the same subject area and the same grade level.

The leaders need to believe in the importance of teacher ownership. For this to happen, teachers need to be more involved in the decision-making processes concerning curriculum mapping. The study participants also recommended that the curriculum mapping leaders should find ways of getting everybody onboard and provide appropriate incentives to teachers actively participating in the mapping process. To this end, curriculum mapping, if fully implemented, could be a worthwhile process for the school and the district.

Conclusions

The results of this study are similar to previous research findings in numerous areas; however, several additional findings emerged that are not frequently discussed in the existing curriculum mapping research, but are seemingly necessary for understanding the process of curriculum mapping. This study provided evidence that teachers in the school under study perceived potential benefits of the mapping process including alignment of curriculum with state standards, raised awareness in state standards, and increased collegiality and professional dialogue about curriculum and teaching. However, the lack of consistent administrative support and leadership, time and money

constraints, low level of teacher buy-in, and resistance to change undermined the process of curriculum mapping implementation. As a result, curriculum mapping has not been fully implemented and the sustainability of curriculum mapping is questionable.

The realization of the potential benefits of curriculum mapping and the sustainability of curriculum mapping process are contingent upon a number of factors. One such factor is consistent and sustainable leadership throughout the process of initiation and implementation. Leaders should have a strong understanding of what is needed to successfully implement and sustain curriculum mapping initiative. While acknowledging the decisive role of the principal during implementation process, the participants of the study suggested that the school district administration leadership is vital to curriculum mapping successful implementation and sustainability.

An ongoing review of maps is essential to ensure that the school curriculum meets the needs of students in terms of supporting their academic success. Sufficient resources, the most important of which is time, should be provided on a regular basis. New staff members should be provided with the support needed to join the curriculum mapping process. Study findings indicate that to achieve a higher teacher buy-in, curriculum mapping leaders should provide sufficient information about the mapping process, purpose, and benefits of curriculum mapping, help teachers develop a sense of ownership of the initiative, and demonstrate constant support of and commitment to mapping.

Implications for Theory

This section addresses the possible contributions of this study to the extant literature on curriculum mapping and educational change. The majority of the findings of

this research are congruent with the major positions formulated by the curriculum mapping theorists concerning curriculum mapping benefits. Curriculum mapping is presented as a viable means of creating a more rigorous and consistent curriculum that benefits both teachers and students. This study confirmed this notion and added an additional finding to the list of the benefits of curriculum mapping –providing 'a safety net' for teachers to prove to the interested audience the relevance of their curriculum to their instructional goals and state standards. The current research has identified some of the weaknesses of curriculum mapping that were not discussed in the literature such as the focus on the measurable objectives and testing, narrowing down curriculum to the material that will be tested, and difficulty of coming to consensus while creating consensus maps.

The critical role of leadership for mapping has been well-established in the literature. Moreover, the literature emphasized leadership at all levels involving numerous individuals both in the formal and informal positions: district administrators, school administrative personnel, department heads, teacher leaders, and combinations of these. Teacher leadership is cited as a critical factor to the success of curriculum mapping. The findings of this research argue for a different conclusion -- although teacher leadership is very important, administrative leadership has the utmost importance to the successful implementation and sustainability of curriculum mapping.

To achieve desired outcomes and sustainability, curriculum mapping, like any other initiative, is in need of effective strategies to be applied at all stages of the change process. This study has confirmed the strategies for successful implementation and continuation of curriculum mapping from other studies and added some new ones. Some

suggestions for the training and professional learning related to mapping have been offered. There should be more emphasis on the theory and philosophy of curriculum mapping than the technical aspects of the mapping process at the initial training sessions. Another suggestion is that training for mapping should be subject-specific. The experience of other schools that have been successful with curriculum mapping should be utilized to lay the foundations for the successful mapping implementation.

Fullan's (2007) theory of educational change has proven to be a viable lens for analyzing the processes and factors related to the curriculum mapping implementation and the possibility of curriculum mapping institutionalization in this study. Change theory cannot only serve the research purposes; it can also be used by practitioners. The knowledge of change theory can be a powerful tool for those who initiate curriculum mapping in their own settings to understand how different factors operate to get desired results. The use of change knowledge as a resource by change leaders should be promoted more.

Implications for Practice

As a result of this study, I have identified some implications for practice that are detailed in this section. First of all, the findings from this study point to several implications for educational leaders. As any educational initiative, curriculum mapping is a complex and lengthy process and should be planned in advanced. Before launching the curriculum mapping initiative, educational leaders should develop a vision of the curriculum mapping process that will establish and maintain awareness of the need for the proposed change. More emphasis should be placed on the clarity of goals and

expectations concerning the initiative and teachers' understanding of the purpose and benefits of curriculum mapping.

Second, change will not happen unless the majority of the staff members understand its necessity. Each staff member should have a voice in decision making concerning curriculum mapping adoption and implementation. It is advisable to develop implementation plans collaboratively with the staff members. The execution of the initiative should not be left to the discretion of a small group of people; rather, the involvement of the majority of the teaching staff is critical. Seasoned teachers were identified as having little level of buy-in in this research. School leaders contemplating adoption of curriculum mapping should take this into consideration and additional efforts should be made to convince the veteran teachers in the viability and relevance of curriculum mapping to the curriculum planning and instructional practices.

Third, curriculum mapping requires sufficient resources for implementation and institutionalization. It is important to provide adequate training for teachers and then sufficient time to develop and review maps and not to expect maps to be done on teacher's time. Soliciting external help and support is appropriate. As Hall and Hord (2010) put it, "Change is a complex, dynamic and resource-consuming endeavor. No single organization, be it a school or a national corporation, is likely to have all the expertise and resources needed to succeed in change" (p. 9). Assistance and support should be ongoing; otherwise teachers might lose interest in the initiative in the face of different obstacles.

Lastly, curriculum mapping leaders need to make sure they have developed accountability and monitoring mechanisms that are not punitive in nature and will enable

them to stay focused on the initiative, respond to implementers' questions and concerns in a timely manner, provide interventions if needed, and celebrate even modest successes to signify the importance of the initiative and promote its success and sustainability.

Recommendations for Future Research

This study was conducted in one school setting. The researched school is a high performing school; it would be interesting to see the impact of curriculum mapping implemented in a low performing school. A comparative analysis of low performing and high performing schools engaged in the curriculum mapping process would add rigor to the research process. This study can be replicated with the middle school teachers as primary informants for the research to identify whether similar findings can be obtained regarding teachers' perceptions of and experiences with curriculum mapping at that level.

Future inquiry can expand the breadth of this research by selecting a few schools in the district and conduct a collective case study to determine what specific school characteristics can be conducive to successful curriculum mapping implementation. Another venue of research should purposefully select the school that has successfully implemented curriculum mapping and identify the factors that contributed to the successful initiative implementation. Further research needs to illuminate what type of leadership is most effective in successful curriculum mapping implementation and continuation. That type of research should be conducted in a purposefully selected school setting with confirmed curriculum mapping success.

Given the fact that the legacy of the change literature contains numerous constructs, principles, and approaches, it would be advisable to conduct a study on curriculum mapping using a different theoretical framework from the one that was used for this study. The future research efforts may be built around the constructs of the

concerns-based adoption model (CBAM) to examine either the stages of concerns of the individuals involved in curriculum mapping or the levels of use of curriculum mapping in the school and the district to determine the probability of curriculum mapping success. Another topic for research using the CBAM is to examine how teachers' level of concerns regarding curriculum mapping changes as their involvement in the initiative grows.

The diffusion of innovations theory can be used as a lens to explore how the school culture and climate can affect the rate of acceptance of curriculum mapping. In summary, there are still numerous venues for further exploration of curriculum mapping. As the use of curriculum mapping in the school settings grows, the importance of 'empirically-derived knowledge' about curriculum mapping will increase.

Significance of the Study

As many schools and school districts are acquiring curriculum mapping as a curriculum planning tool that helps teachers document the content and skills they teach and align them with standards and assessment to create a holistic picture of students' experiences from grade to grade, there is a need for further research in the area of curriculum mapping. This study has the potential to expand the knowledge base related to curriculum mapping. Trying to present relevant research and the details of the school that is in the midst of curriculum mapping implementation, this study might provide understanding of the complex factors and events inherent in the curriculum mapping process. This research may be useful to schools that are initiating curriculum mapping or are at some stage of the curriculum mapping process in terms of highlighting the major challenges and problems they may encounter while implementing this initiative.

Lessons learned from this case study might help practitioners and planners pave the way to successful curriculum mapping implementation and institutionalization. This study can also influence the decision of schools and school districts regarding adoption of curriculum mapping as a curriculum planning tool. This research can be also beneficial at the local level, as it examined the actual, ongoing school-based initiative; thus, the research findings might better inform the people involved in the change process. This study may encourage the leaders and participants of the change process to consider long-term goals for implementation and sustainability of curriculum mapping.

Concluding Thoughts

Choosing a topic for a dissertation can be either easy or tormenting. To select a topic of curriculum mapping for my dissertation was relatively easy. When I first heard about curriculum mapping, I immediately got interested in the concept and process of curriculum mapping and decided to explore it in-depth. However, the easiness of selecting the topic does not automatically mean the easiness of the research process. Any research process is loaded with challenges, frustrations, and confusion. At the same time, the dissertation path can be a rewarding experience filled with 'aha' moments and the joy of discovering something new and meaningful.

The dissertation process can provide us with numerous opportunities to learn a lot of useful lessons. One of the most important lessons I learned was read, read, and read. Reading extensively at the planning stage of my research helped me identify the gaps in the theoretical and empirical literature on curriculum mapping. As the review of literature revealed, previous research focused mostly on the positive aspects and outcomes of the curriculum mapping process. I realized that curriculum mapping might

encounter different challenges and obstacles that are not discussed in the literature. I decided to undertake the study to examine the processes involved in the curriculum mapping implementation to create a more complete picture of the challenges and opportunities of the curriculum mapping process.

My first proposal draft was very general and the committee recommended making it more focused and specific. I engaged in more reading to refine my problem statement and research questions and to build a more solid theoretical framework for my research. The qualitative research methodology chosen for this study predetermined the dialectical and dynamic character of the research process that involved revision or change of organizing concepts as the study moved along (Stake, 1995). I continued conceptualizing, framing, and focusing my study even during the fieldwork.

Parlett and Hamilton (1976) coined the term "progressive focusing" to describe the process of clarification and re-defining of the research questions and the research focus as the investigation unfolds. Stake (1995) argued, "Initial questions can be modified or even replaced by case study researchers" (p. 9). In the beginning, the focus of my study was on the initiation and implementation of the curriculum mapping initiative. In the process of research, the theme of sustainability of curriculum mapping emerged and I added one more question to the set of research questions and reviewed literature related to sustainability of educational initiatives.

I continued reading extensively during all stages of the research process. The seminal works of Norman Denzin, Egon Guba, Yvonna Lincoln, Michael Quinn Patton, Robert Stake, and Sharan Merriam became my constant companions along the dissertation journey. I verified each step and procedure of my research process with the

ideas and suggestions of these authors. Stake's (1995) *The Art of Case Study Research* and Merriam's (2009) *Qualitative Research: A Guide to Design and Implementation* were most helpful in shaping my study's methodological considerations, choosing data collection methods, and reporting my research findings.

The results of this study have confirmed and extended the findings from previous research and made some additional contributions to the curriculum mapping and educational change literature. I believe this case study has helped open the 'black box' of what is required for implementation and sustainability of curriculum mapping; therefore its results may provide insights into challenges that might arise in the process of curriculum mapping implementation

REFERENCES

Ackerman, R., & Mackenzie, S. (2006). Uncovering teacher leadership. *Educational Leadership*, *63*(8), 66-70.

Ananda, S. (2003). *Rethinking issues of alignment under No Child Left Behind.* San Francisco: WestEd.

Anderson, L. W. (2002). Curricular alignment: A re-examination. *Theory into Practice, 41*(4), 255–260.

Barth, R. S. (2001). Teacher leader. *Phi Delta Kappan, 82*(6), 443–449.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, *13*(4), 544-559.

Berends, M., Bodilly, S., & Kirby, S. (2002). *Facing the challenges of whole-school reform: New American Schools after a decade.* Santa Monica, CA: RAND.

Berman, P. & McLaughlin, M. (1978). Implementation of educational innovation. *Educational Forum, 40*(3), 345-370.

Blackledge, D., & Hunt, B. (1985). *Sociological interpretations of education*. London: Routledge.

Bolman, L. & Heler, R. (1995). Research on school leadership: The state of the art. In S. B. Bacharach & B. Mundell (Eds.), *Images of school: Structures and roles in organizational behavior* (pp. 315-358). Thousand Oaks, CA: Corwin Press.

Bolstad, R. (2004). *School-based curriculum development: Principles, processes and practices.* Wellington: New Zealand Council of Educational Research.

Carl, A. E. (2009). *Teacher empowerment through curriculum development: Theory into*

practice (3rd Ed.). Kenwyn: Juta Academic Press.

Churchill, R., & Williamson, J. (1999). Traditional attitudes and contemporary experiences: Teachers and educational change. *Asia-Pacific Journal of Teacher Education and Development, 2*(2), 43-51.

Clandinin, D. J., & Connelly, F. M. (1992). Teacher as curriculum maker. In P. W. Jackson (Ed.), *Handbook of research on curriculum* (pp. 363–401). New York: Macmillan.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education.* New York: Routledge.

Connole, H., Smith, B., & Wiseman, R. (1993). *Issues and methods in research: Study guide*. Adelaide: University of South Australia.

Craig, C., & Ross, V. (2008). Cultivating the image of teachers as curriculum makers. In M. Connelly, M. He, & J. Phillion (Eds.), *The SAGE handbook of curriculum and instruction* (pp. 282-306). Los Angeles, CA: Sage Publications.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J.W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Cuban, L. (1993). The lure of curriculum reform and its pitiful history. *Phi Delta Kappan, 75*(2), 181-185.

Cuban, L. (1998). How schools change reforms: Redefining reform success and failure. *Teachers College Record, 99*(3), 453-477.

Cuban, L. (2001). *Answering tough questions about sustainability.* Paper presented at

The First Virtual Conference on Local Systemic Change. Retrieved from http://sustainability2003.terc.edu/do/288/show.html

Datnow, A. (2005). The sustainability of comprehensive school reform models in changing district and state contexts. *Educational Administration Quarterly, 41*(1), 121-153.

Datnow, A., Hubbard, L., & Mehan, H. (2002). *Extending educational reform: From one school to many.* New York: Routledge Falmer.

Drake, S., & Burns, R. (2004). *Meeting standards through integrated curriculum*. Alexandria, VA: Association for the Supervision and Curriculum Development.

DeClark, T. (2002). Curriculum mapping: A how-to guide. *The Science Teacher, 69* (4), 29-31.

Desimone, L. (2002). How can comprehensive school reform models be successfully implemented? *Review of Educational Research, 72*(3), 433-480.

Dewey, J. (1938). *Experience and education*. New York: The Macmillan Company.

DuFour, R. & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Bloomington, IN: National Educational Service and Alexandria, VA: Association of Supervision and Curriculum Development.

Ellsworth, J. (2000). *Surviving change: A survey of educational change models.* Syracuse, NY: ERIC Clearinghouse.

Elmore, R.F. (2000). *Building a new structure for school leadership*. Washington DC: The Albert Shanker Institute.

Elmore, R. F. (2004). *School reform from the inside out: Policy, practice, and*

performance. Cambridge, MA: Harvard Education Press.

English, F. (1980). Curriculum mapping. *Educational Leadership, 37*(7), 558- 559.

English, F. (2000). *Deciding what to teach and test: Developing, aligning, and auditing the curriculum.* Thousand Oaks, CA: Corwin Press.

Evans, R. (2001). *The human side of school change*. San Francisco, CA: Jossey-Bass.

Fairris, J. (2008). *The effect degree of curriculum mapping implementation has on student performance levels on sixth and eighth grade benchmark examination*. (Doctoral dissertation). Retrieved from ProQuest Digital Dissertations. (UMI No. 3313258).

Fosnot, C. T. (1989). *Enquiring teachers, enquiring learners: A constructivist approach to teaching*. New York: Teachers College Press.

Fosnot, C. T. (1996). *Constructivism: Theory, perspectives, and practice*. New York: Teachers College Press.

Fullan, M. (1992). *Successful school improvement: The implementation perspective and beyond.* Buckingham, England: Open University Press.

Fullan, M. (1998). Leadership for the 21st century--breaking the bonds of dependency. *Educational Leadership, 55*(7), 6-10.

Fullan, M. (1999). Leading change in professional learning communities. *Education Update, 41*(8), 1–4.

Fullan, M. (2001). *The new meaning of educational change*. New York: Teachers College Press.

Fullan, M. (2002). The change leader. *Educational Leadership, 59*(8), 16–20.

Fullan, M. (2005). The meaning of educational change: A quarter of a century of

learning. In A. Lieberman (Ed.), *International handbook of educational change: The roots of educational change* (Vol. 1, pp. 202-216). The Netherlands: Springer.

Fullan, M. (2007). *The new meaning of educational change*. New York: Teachers College Press.

Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research, 47*(2), 335-397.

Fullan, M., & Stiegelbauer, S. (1991). *The new meaning of educational change*. New York: Teachers College Press.

Glaser, B. G. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: The Sociology Press.

Glaser, B. & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Chicago, IL: Aldine.

Glatthorn, A. A. (1999). Curriculum alignment revisited. *Journal of Curriculum and Supervision, 15*(1), 26-34.

Gorin, J. S., & Blanchard, J. S. (2004). *The effect of curriculum alignment on elementary mathematics and reading achievement.* Paper presented at the 2004 Annual Meeting of the American Educational Research Association, San Diego, CA.

Gross, S. (2001). *Curriculum renewal: Curriculum mapping*. Alexandria, VA: Association for Supervision and Curriculum Development.

Guba, E. (1990). *The paradigm dialog*. Newbury Park, CA: Sage Publications.

Hale, J. (2008). *A guide to curriculum mapping: Planning, implementing, and sustaining the process.* Thousand Oaks, CA: Corwin Press.

Hale, J., & Dunlap, R. (2010). *An educational leader's guide to curriculum mapping: Creating and sustaining collaborative cultures*. Thousand Oaks, CA: Corwin Press/Sage.

Hall, G. & Hord, S. (2010). *Implementing change: Patterns, principles, and potholes* (3rd Ed.). Boston, MA: Allyn and Bacon.

Hamilton, L. S., Stecher, B. M., Marsh, J. A., McCombs, J. S., Robyn, A., Russell, J.,… Barney, H. (2007). *How educators in three states are responding to standards-Based accountability under No Child Left Behind*. Santa Monica, CA: RAND Corporation.

Hargreaves, A. (2002). Sustainability of educational change: The role of social geographies. *Journal of Educational Change, 3* (3-4), 189-214.

Hargreaves, A. (2005). Educational change takes ages: Life, career and generational factors in teachers' emotional responses to educational change. *Teaching and Teacher Education, 21*(8), 967-983.

Hargreaves, A., Earl, L., Moore, S., & Manning, S. (2001). *Learning to change: Teaching beyond subjects and standards.* San Francisco, CA: Jossey- Bass.

Hargreaves, A. & Fink, D. (2000). The three dimensions of reform. *Educational Leadership, 57*(7), 30-34.

Hargreaves, A., & Fink, D. (2003). Sustaining leadership. *Phi Delta Kappan, 84*(9), 693-700.

Hargreaves, A., & Fink, D. (2006). *Sustainable Leadership*. San Francisco, CA: Jossey-Bass.

Hargreaves, A., & Goodson, I. (2006). Educational change over time? The sustainability

and nonsustainability of three decades of secondary school change and continuity. *Educational Administration Quarterly, 42*(1), 3-41.

Hargreaves, A., Liberman, A., Fullan, M., & Hopkins, D. (2005). International handbook of educational change: Introduction. In A. Lieberman (Ed.), *The roots of educational change: International handbook of educational change* (pp. vii-xi). Dordrecht, The Netherlands: Springer.

Harris, A. (2005). Teacher leadership: More than just a feel-good factor? *Leadership and Policy in School, 4*(3), 201-219.

Harvey, G., & Hurthworth, R. (2006). Exploring program sustainability: Identifying factors in two educational initiatives in Victoria. *Evaluation Journal of Australasia, 6*(1), 36-44.

Hatch, J. A. (2002). *Doing qualitative research in education settings.* Albany: State University of New York Press.

Honig, M. I., & Hatch, T. J. (2004). Crafting coherence: How schools strategically manage external demands. *Educational Researcher, 33*(8), 16–30.

Hopkins D,. & Reynolds, D. (2001). The past, present and future of school improvement: Towards the third age. *British Educational Research Journal,* 27(4), 459-475.

Hord, S. M. (1997). *Professional learning communities: Communities of continuous inquiry and improvement*. Austin, TX: Southwest Educational Development Laboratory.

Hord, S. M. & Sommers, W. A. (2008). *Leading professional learning communities: Voices from research and practice.* Thousand Oaks: Corwin Press.

Huberman, M. (1992). Teacher development and instructional mastery. In A. Hargreaves

& M. Fullan (Eds.), *Understand teacher development* (pp. 122-142). New York: Teachers College Press.

Huberman, A. & Miles, M. (1984). *Innovation up close*. New York: Plenum.

Huffman, S. (2002). *Middle school teacher' perceptions of the value and efficacy of curriculum mapping and state standards.* (Doctoral dissertation). Retrieved from ProQuest Digital Dissertations. (UMI No. 3044121).

Jacobs, H. (1997). *Mapping the big picture: Integrating curriculum and assessment K-12.* Alexandria. VA: Association for Supervision and Curriculum Development.

Jacobs, H. H. (2003). Connecting curriculum mapping and technology: Digital forms aid data analysis and decision making. *ASCD Curriculum Technology Quarterly, 12*(3).

Jacobs, H. H. (2004). *Getting results with curriculum mapping*. Alexandria, VA: Association for Supervision and Curriculum Development.

Jacobs, H. & Johnson, A. (2009). *The curriculum mapping planner: Templates, tools and resources for effective professional development*. Alexandria, VA: Association for Supervision and Curriculum Development.

Kallick, B., & Colosimo, J. (2009). *Using curriculum mapping and assessment data to improve learning.* Thousand Oaks, CA: Corwin Press.

Kelly, A. V. (2004). *The curriculum: Theory and practice*. London: Sage Publications.

Kercheval, A., & Newbill, S. (2000). *A case study of key effective practices in Ohio's improved school districts*. Bloomington: Indiana Center for Evaluation.

Kezar, A. (2001). *Understanding and facilitating organizational change in the 21st*

*century. ASHE-ERIC Higher Education Report, Series 28:4.*San Francisco: Jossey-Bass.

Killion, J., & Bellamy, G.T. (2000). On the job: Data analysts focus school improvement efforts. *Journal of Staff Development, 21* (1), 27-31.

Knapp, M., Copland, M., & Talbert, J. (2003). *Leading for learning: Reflective tools for school and district leaders.* Seattle, WA: Center for the Study of Teaching and Policy.

Lincoln, Y. & Guba, E. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

Louis, K.S. & Miles, M.B. (1990). *Improving the urban high school, what works and why*. New York: Teachers College Press.

Lucas, R. (2005). *Teachers' perceptions on the efficacy of curriculum mapping as a tool for planning and curriculum alignment*. (Doctoral dissertation). Retrieved from ProQuest Digital Dissertations. (UMI No. 3190194).

Lunenburg, F.C & Ornstein, A. (2011). *Educational administration: Concepts and practices* (6th Ed.). Belmont, CA: Wadsworth.

MacDonald, B., & Walker, R. (1977). Case study and the social philosophy of educational research. In D. Hamilton (Ed.), *Beyond the numbers game: A reader in educational evaluation* (pp. 181-189). Basingstoke, UK: MacMillan.

Marsh, C. (2009). *Key concepts for understanding curriculum.* London: Routledge / Taylor & Francis Group.

Marsh, J. A. (2002). How districts relate to states, schools, and communities: A review of emerging literature. In A. M. Hightower, M. S. Knapp, J. A. Marsh, & M. W.

McLaughlin (Eds.), *School districts and instructional renewal* (pp. 25–40). New York: Teachers College Press

Marshall, C., & Rossman, G. (2011). *Designing qualitative research* (5th Ed.). Thousand Oaks, CA: Sage Publications.

Mathiesen, J. (2008). *Teacher perceptions related to technology tools for curriculum alignment: A survey of teachers' response to a curriculum mapping tool*. (Doctoral dissertation). Retrieved from ProQuest Digital Dissertations. (UMI No. 331401).

McLaughlin, M. W. (1987). Learning from experience: Lessons from policy implementation. *Educational Evaluation and Policy Analysis, 9*(2), 171-178.

McLaughlin, M.W., & Talbert, J. E. (2006). *Building school-based teacher learning communities: Professional strategies to improve student achievement*. New York: Teachers College Press.

Merriam, S. (1998). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass.

Merriam, S. (2009). *Qualitative research: A Guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Miles, M. & Huberman, M. (1994). *Qualitative data analysis: An expended sourcebook*. Thousand Oaks, CA: Sage.

Mills, M. S. (2003). Curriculum mapping as professional development. *Curriculum Technology Quarterly*, *12*(3), 1-4.

Muncey, D., & McQuillan, P. (1996). *Reform and resistance in schools and classrooms*:

An ethnographic view of the coalition of essential school. New Haven, CT: Yale University Press.

Nolet, V., & McLaughlin, M. (2005). *Accessing the general curriculum: Including students with disabilities in standards-based reform* (2nd Ed.). Thousand Oaks, CA: Corwin Press.

O'Donoghue, T. (2007). *Planning your qualitative research project: An introduction to interpretivist research in education*. London: Routledge.

Patton, M. (2002). *Qualitative research and evaluation methods* (3rd Ed.). Thousand Oaks, CA: Sage Publications.

Parlett, M. & Hamilton, D. (1976). Evaluation as illumination: A new approach to the study of innovative programs. In G. Glass (Ed.), *Evaluation Studies Review Annual,* 1, 140-157.

Reynolds, D., Teddlie, C., Hopkins, D., & Stringfield, S. (2000). Linking school effectiveness and school improvement. In C. Teddlie & D. Reynolds (Eds.), *The international handbook of school effectiveness research* (pp.206-231). London: Falmer Press.

Rogers, E. M. (2003). *Diffusion of Innovations* (5th Ed.). New York: Free Press.

Rosenholtz, S.J. (1989). Workplace conditions that affect teacher quality and commitment: Implications for teacher induction programs. *Elementary School Journal, 89*(4), 421-439.

Roulston, K., deMarrais, K., & Lewis, J. (2003). Learning to interview in the social sciences. *Qualitative Inquiry, 9*(4), 643-668.

Sagor, R. (1992). *How to conduct collaborative actions research.* Alexandria, VA:

Association for Supervision and Curriculum Development.

Sanger, J. (1996). *The compleat observer? A field research guide to observation.* London: The Falmer Press.

Sarason, S. (1993). *The predictable failure of educational reform: Can we change course Before it's too late***.** San Francisco, CA: Jossey-Bass.

Schein, E. (2004). *Organizational culture and leadership* (3rd Ed.). San Francisco, CA: Jossey-Bass.

Senge, P. M. (2000). The academy as learning community: Contradiction in terms or realizable future? In A. F. Lucas & Associates (Eds.), *Leading academic change: Essential roles for department chairs* (pp. 275-300). San Francisco, CA: Jossey-Bass.

Shanks, D. (2002). *A comparative study on academic gains between students in second through sixth grade before and after curriculum mapping.* (Doctoral dissertation). Retrieved from ProQuest Digital Dissertations. (UMI No. 3061779).

Simons, H. (2009). *Case study research in practice*. Thousand Oaks, CA: Sage Publications.

Spillane, J. (2006). *Distributed leadership.* San Francisco, CA: Jossey-Bass

Spillane, J. P., B. J. Reiser, & T. Reimer (2002). Policy implantation and cognition: Reframing and refocusing implementation research. *Review of Educational Research*, 72 (3), 387-431.

Spillane, J.P. & Seashore Louis, K. (2002). School improvement processes and practices: Professional learning for building instructional capacity. In J. Murphy (Ed.), *The educational leadership challenge: Redefining leadership for the 21st century* (pp.

83-104). Chicago, IL: The University of Chicago Press.

Squires, D. (2009). *Curriculum alignment: Research-based strategies for increasing student achievement*. Thousand Oaks, CA: Corwin Press/Sage.

Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.

Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (3rd Ed., pp. 443-466). Thousand Oaks, CA: Sage Publications.

Steel, C., & Craig, E. (2006). Reworking industrial models, exploring contemporary idea and fostering teacher leadership. *Phi Delta Kappan, 87*(9), 676-680.

Stevenson, R. B. (2004). Constructing knowledge of educational practice from case studies. *Environmental Education Research, 10*(1), 39-52.

Sykes, G. (1996). Reform of and as professional development. *Phi Delta Kappan,*77(7), 465-476.

Toma, J. D. (2006). Approaching rigor in applied qualitative research. In C. Conrad & R. Serlin (Eds.), *The Sage handbook of research in education: Engaging ideas and enriching inquiries* (pp. 405-423). Thousand Oaks, CA: Sage.

Trice, H. & Beyer, J. (1993). *The cultures of work organizations*. Englewood Cliffs, N.J: Prentice Hall.

Truesdale, V., Thompson, C., & Lucas, M. (2004). Use of curriculum mapping to build a learning community. In H. Jacobs (Ed.), *Getting results with curriculum mapping* (pp. 10-35). Alexandria, VA: Association for Supervision and Curriculum Development.

Tyack, D., & Cuban, L**. (**1995**)**. *Tinkering toward utopia**:** A century of public school*

reform. Cambridge, MA: Harvard University Press.

Udelhofen, S. (2005). *Keys to curriculum mapping: Strategies and tools to make it work.* Thousand Oaks, CA: Corwin Press.

Usher, R. (1996). A critique of the neglected epistemological assumptions of educational research. In D. Scott & R. Usher (Eds.), *Understanding educational research* (pp. 9-32). London: Routledge.

Valenzuela, A. (2005). Accountability and the privatization agenda. In A. Valenzuela (Ed.), *Leaving children behind: How "Texas- style" accountability fails Latino youth* (pp. 263-294). Albany: State University of New York Press.

Wiersma, W. & Jurs, S. G. (2005). *Research Methods in Education (*8th Ed). Boston, MA: Pearson.

Wiggins, G., & McTighe, J. (2005). *Understanding by design* (expanded 2nd Ed.) Alexandria, VA: Association for Supervision and Curriculum Development.

Wilansky, J. A. (2006). *The effects of curriculum mapping on the instructional practices of professional collaboration, standards alignment, and assessment.* (Doctoral dissertation). Retrieved from ProQuest Digital Dissertations. (UMI No. 3205824).

Yuen, P.Y. & Cheng, Y.C. (2000). Leadership for teachers' action learning. *The International Journal of Educational Management, 14* (5), 198-209.

APPENDICES

Appendix A

Oklahoma State University Institutional Review Board

Date:	Tuesday, August 31, 2010
IRB Application No	ED1074
Proposal Title:	A Case Study of Curriculum Mapping Implementation
Reviewed and Processed as:	Expedited

Status Recommended by Reviewer(s): Approved Protocol Expires: 8/30/2011

Principal Investigator(s):

Tamara Roman
26 N. Univ. Place Apt. 2
Stillwater, OK 74075

Pamela Brown
237 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

X The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Shelia H. Kennison

Shelia Kennison, Chair
Institutional Review Board

Appendix B: Invitational Email to School Administrators

Title of Project: A Case Study of Curriculum Mapping Implementation
Investigator: Tamara Roman, Doctoral Candidate, Oklahoma State University

Dear School Principal /Assistant Principal (real names will be used in an actual email),

My name is Tamara Roman. I am a doctoral candidate in the program of Curriculum and Social Foundations at OSU. I am writing to request your help with the research that is of great interest and importance to me.

For my dissertation, I have chosen to conduct a case study focusing on curriculum mapping as a school wide initiative. More specifically, I want to explore teachers' and administrators' experiences with curriculum mapping and the meaning of these experiences to them in order to develop a more comprehensive understanding of the phenomenon of curriculum mapping. I know that your building is actively involved in curriculum mapping and your school can be an ideal site for research.

I would like to invite you to participate in an interview that will last 45-60 minutes at the place of your choice to share your personal experiences and your building's experiences with curriculum mapping. I hope for your cooperation in this research study.

If you have any questions about the research or your rights as a participant in this study, please feel free to contact my doctorate advisor Dr. Pamela Brown from Oklahoma State University at (405) 744-8004 / pamela.u.brown@okstate.edu. If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

Thank you for considering my request.

Sincerely,

Tamara Roman
PhD Candidate
STCL/ SES
260 Willard Hall
Oklahoma State University
Stillwater, OK 74078
405- 744-7605

Appendix C: Invitational Email to Participate in a Survey

Dear Teacher:

I am a doctoral candidate in the program of Curriculum and Social Foundations at OSU. Currently, I am working on my dissertation that aims to explore teachers' and school administrators' experiences with curriculum mapping. I am asking you to fill out a web-based survey set up through *SurveyMonkey*. The survey consists of only 19 items and demographics and should take less than 10 minutes to complete.

Your participation is voluntary. You can discontinue the survey at any time without reprisal or penalty. You may also skip questions that you do not wish to answer. The investigators will keep your responses confidential. All responses will be stored in a password protected electronic format. To allow for recruitment to the second stage of research, the survey responses will be linked to email addresses through a Survey Monkey's Email Invitation collector tool. The responses will remain identifiable during the interviewee recruitment process (until mid October). Research records from the survey will be stored securely and only investigators and individuals responsible for research oversight will have access to the records. Any written results from the survey will discuss group findings and will not include information that will identify you.
To participate in the survey please:

- Go to *SurveyMonkey* link at: http://www.surveymonkey.com/
- Follow the instructions answering each question.
- Click .done. at the end of the survey when you are finished.

If you have any questions about this study, please contact me at romant@ okstate.edu. If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu.

Consent: I have read and fully understand the consent form. I understand that my participation is voluntary. By accessing and completing the survey, I am indicating that I freely and voluntarily agree to participate in this study and I also acknowledge that I am at least 18 years of age. I understand that this survey forms the first part of the research project and my consent only applies to the survey.

Sincerely,
Tamara Roman
PhD Candidate
260 Willard Hall
Stillwater, OK 74078
405- 744-7605

Appendix D: Invitational Email to Participate in Teacher Interviews

---

Dear Teacher:

You have completed and returned the initial teacher questionnaire and I truly appreciate your time. I am a doctoral candidate in the program of Curriculum and Social Foundations at OSU and I am working on the dissertation to explore teachers' and administrators' experiences with curriculum mapping and the meaning of these experiences to them in order to develop a more comprehensive understanding of the phenomenon of curriculum mapping.

I would like to invite you to participate in two individual semi-structured interviews that will last 45-60 at the place of your choice to share your personal experiences with curriculum mapping. I am also asking for your permission to observe your classroom during two block periods. Scheduling for these observations will be arranged by you, so as not to disrupt any classroom routines. Classroom observations will be focused on your teaching practices and not on students. Your name will be removed from any transcripts or notes made and a pseudonym will be assigned to assure your confidentiality.

I appreciate your consideration in this study and hope that I may have the privilege of working with you. If you are willing to participate in the interviews and allow me to observe your classroom please contact me at romant@okstate.edu.

If you have any questions about the research or your rights as a participant in this study, please feel free to contact my doctorate advisor Dr. Pamela Brown from Oklahoma State University at (405) 744-8004 / pamela.u.brown@okstate.edu. If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

Sincerely,

Tamara Roman
PhD Candidate
STCL/SES
260 Willard Hall
Oklahoma State University
Stillwater, OK 74078
405- 744-760

Appendix E: Teacher Questionnaire

Title of Project: A Case Study of Curriculum Mapping Implementation
Investigator: Tamara Roman, Doctoral Candidate, Oklahoma State University

Read each statement carefully and choose only one that best describes you:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Curriculum mapping is a worthwhile process for high school	O	O	O	O	O
2. Goals and objectives for curriculum mapping are clear to me	O	O	O	O	O
3. Curriculum mapping helps eliminate gaps, redundancies, and repetitions within grades and subject areas	O	O	O	O	O
4. Curriculum mapping is a valuable tool for curriculum alignment with state standards	O	O	O	O	O
5. Teachers in my department have favorable opinions of curriculum mapping	O	O	O	O	O
6. I like to be involved in the curriculum mapping process	O	O	O	O	O
7. I have had enough training for curriculum mapping	O	O	O	O	O
8. We have a curriculum mapping software program in place	O	O	O	O	O
9. I use curriculum mapping software	O	O	O	O	O
10. Curriculum mapping helps me reflect on what I have taught and how I have taught the material	O	O	O	O	O
11. Curriculum mapping is an instructional tool	O	O	O	O	O
12. Curriculum mapping has no effect on my teaching	O	O	O	O	O
13. Curriculum mapping is a measure of administrative control	O	O	O	O	O

14. I collaborate with other teachers about curriculum mapping	O	O	O	O	O
15. If curriculum mapping were optional in our school, I would choose not to participate	O	O	O	O	O
16. I believe that curriculum mapping will improve instructional practices	O	O	O	O	O
17. Curriculum mapping will eventually improve student achievement	O	O	O	O	O
18. I believe the curriculum mapping process will continue	O	O	O	O	O
19. I believe the curriculum mapping process will fade away	O	O	O	O	O

Demographics:

Gender :_____(male) _____ (female)

Age group _____ (20-30) _____ (31-40) _____ (41-50) _____ (over 50)

Years of teaching experience: __0-5___6-10 ____11-15 ____16-20

____21-25 ____over 25

How long have you been teaching in this school?_____

Your assigned teaching area:_____ Grade level_____

What is your level of proficiency with curriculum mapping?

__none ___very little ____somewhat proficient

_____ reasonably proficient ____expert

Appendix F: Teacher Interview Protocol 1

Interview questions will be similar to the following:

1. Please tell me about yourself and your teaching experience.
2. What school projects and initiatives have you participated in?
3. Could you tell me about the implementation of curriculum mapping in your school?
    - How did your school become involved in curriculum mapping?
    - Who began the curriculum mapping initiative?
    - What kind of training did the teachers get? How would you describe the training you received throughout the curriculum mapping process?
    - How is this initiative similar or different from other initiatives in your district?
4. How would you describe curriculum mapping?
    - Who participates in the curriculum mapping process?
    - Whose responsibility is mapping in your building?
    - What resources are available to support teachers?
    - Please describe the main activities connected with curriculum mapping?
    - Could you describe the key components of the curriculum mapping process?
    - Who benefits from curriculum mapping?
5. Could you tell me about your personal experience with curriculum mapping?
    - What were your initial thoughts when you found out about curriculum mapping?
    - At what point did you make a definite decision to participate in curriculum mapping?
    - How do you feel about curriculum mapping now?

- What types of interactions do you typically have with your colleagues regarding curriculum mapping?

6. What does participation in curriculum mapping mean to you?
7. What did you find out about yourself during the curriculum mapping process?
8. How do you use maps in your every day teaching?
9. Is there anything else that you would like to share about curriculum mapping?

Appendix G: Teacher Interview Protocol 2

Interview questions will be similar to the following:

1. How have you been since our last meeting?
2. Could you elaborate more on your experiences with curriculum mapping?
3. Please tell me a little more about the responsibilities you had to assume in connection with curriculum mapping.
4. How often do you revisit your maps?
5. Is there any impact of curriculum mapping on your instructional practices?
6. How does curriculum mapping help you meet your students' needs?
7. Have your views of school curriculum changed since you started curriculum mapping?
8. Are there any changes in your interaction with colleagues since you started mapping?
9. How has participation in curriculum mapping influenced your teaching philosophy?
10. What are the strengths of the curriculum mapping process?
11. What are the weaknesses of curriculum mapping?
12. What advice would you give teachers and school administrators who have just started implementing curriculum mapping?
13. What will curriculum mapping be like five years from now?

Appendix H: Administrator Interview Protocol

Interview questions will be similar to the following:

1. How long have you been in education?
2. How long have you been a principal (assistant principal) of this school?
3. How has your school building become involved in the curriculum mapping process?
4. How is curriculum mapping similar or different from other initiatives in your school district?
5. Who leads the curriculum mapping process?
6. What professional development and training have your teachers been provided in terms of curriculum mapping?
7. What other mechanisms are in place to support teachers participating in curriculum mapping?
8. From your observations, to what extent are teachers involved in the curriculum mapping process in your school?
9. What are the obstacles/constraints of mapping in your school?
10. How do you use maps as part of your everyday work as a school administrator?
11. How beneficial is curriculum mapping for teachers and students in your school?
12. What do you think of the future of mapping in your school/district?
13. Would you like to share any other information concerning curriculum mapping?

VITA

Tamara Shilling

Candidate for the Degree of

Doctor of Philosophy

Thesis: A CASE STUDY OF CURRICULUM MAPPING IMPLEMENTATION IN ONE HIGH SCHOOL: IMPLICATIONS FOR PRACTICE AND RESEARCH

Major Field: Curriculum and Social Foundations

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Curriculum and Social Foundations at Oklahoma State University, Stillwater, Oklahoma in December 2011

Completed the requirements for the Master of Education in Social and Philosophical Foundations of Education at Rutgers, The State University of New Jersey, New Brunswick, New Jersey in 2005

Completed the requirements for the Bachelor of Arts in English at Kyiv Linguistic University, Kyiv, Ukraine in 1986.

Experience:
Research Associate/Teaching Assistant, College of Education, Oklahoma State University, 2006-2011
Instructor, Foreign Language Department, Kryvyi Rih Technical University, Ukraine, 2005-2006
English Teacher, School #71, Zhovtnevyi School District, Kryvyi Rih, Ukraine, 1987-2003

Professional Memberships:
Oklahoma Educational Studies Association
American Educational Studies Association
American Evaluation Association
American Association for Advancement of Curriculum Studies

Name: Tamara Shilling Date of Degree: December 2011

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: A CASE STUDY OF CURRICULUM MAPPING IMPLEMENTATION IN ONE HIGH SCHOOL: IMPLICATIONS FOR PRACTICE AND RESEARCH

Pages in Study: 220 Candidate for the Degree of Doctor of Philosophy

Major Field: Curriculum and Social Foundations

Scope and Method of Study:

The purpose of this qualitative case study was to explore the experiences and perspectives of the teachers and administrators implementing a curriculum mapping initiative to determine opportunities and challenges of the curriculum mapping process and suggest strategies for successful curriculum mapping implementation and sustainability. Eleven teachers and one school administrator were recruited for the study. Data collection procedures included semi-structured interviews, document analysis, and classroom observations. The constant comparative method of data analysis was used to examine recurring patterns and regularities across data and develop categories and themes.

Findings and Conclusions:

- The findings illuminated both strengths and weaknesses of curriculum mapping. Curriculum mapping was viewed as an effective planning tool to ensure consistency and continuity of curriculum and alignment with state standards, thus providing 'a safety net' for teachers. Participants also perceived mapping as a means to increase collaboration, cross-curricular integration, and communication with stakeholders. The weaknesses of mapping included exclusive emphasis on measurable objectives, reduced and test-driven curriculum, and difficulty of coming to consensus during the mapping process.
- Despite some positive gains, curriculum mapping was neither fully implemented nor used to its full potential in the school setting. The barriers to curriculum mapping implementation involved time and money constraints, insufficient and inadequate training for mapping, low teacher buy-in, resistance to change, and inconsistent administrative support and leadership.
- The strategies for successful implementation and sustainability of curriculum mapping were identified as follows: consistency of leadership and planning, provision of adequate resources and assistance, constant communication about the initiative, monitoring the implementation process, and maintaining a strategic balance between pressure and support.

ADVISER'S APPROVAL: Dr. Pamela U. Brown