IMPLEMENTATION OF AN AVID ELEMENTARY PROGRAM IN A TECHNOLOGY-RICH ENVIRONMENT

by

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The following individuals read and discussed the dissertation submitted by student Molly J. Large, and they evaluated her presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

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DEDICATION

To Cami - you provide the motivation to keep learning, innovating, and leading change in education.

To Keara and Tyler – I could not be more proud of the amazing adults you have become. I am forever grateful for your love and acceptance.

To Mom and Dad – despite all my odd choices in life, you never doubted in my abilities. I wish you could have seen this.

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ABSTRACT

The purpose of this study was to explore the innovations that occurred as the AVID Elementary program was implemented in a technology-rich school environment and the ways in which those innovations were communicated and adopted across the school. It examined how the AVID Elementary program functioned at the site and how teachers developed technology-enabled alternatives to traditional AVID strategies and materials.

The primary question for this study was "How is AVID Elementary implemented in a technology-rich environment?" A qualitative ethnographic case study methodology was appropriate for this study, and the study was conducted through an ethnographic lens that explored the patterns and relationships that influenced the adoption and diffusion of AVID strategies and tools. With little research currently available about innovations to traditional AVID strategies to meet the needs of a technology-rich environment, this study addressed a gap in the literature and lead to further questions for study, and may provide guidance that may inform other sites as they integrate technology in the implementation of an AVID Elementary program.

This study found that extensive teacher time and effort was required to adapt the strategies presented by AVID to fit the needs of a technology-rich environment. In addition, it found that the development and dissemination of technology-enhanced and technology-enabled strategies depended significantly upon school culture, teacher agency, and opinion leadership. Teachers in this study were highly aware of the

affordances of technology tools, and regularly made decisions about what technology tools to use based on their instructional purpose as they innovated and implemented. In addition, technology-based innovations to the management of the AVID certification process were required to meet teacher demands for efficiency.

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CHAPTER ONE: INTRODUCTION

> Innovation in the classroom can never be just a question of implementing a recommendation derived from research. It is always a process of negotiation, involving the teacher's overall educational ideology, the learner's expectations and preferences and local constraints that determine what is feasible. (Ellis, 1990, p. 68).

In the fall of 2015, the Board of Education for the Liberty Unified School District[1] acknowledged that Advancement Via Individual Determination (AVID) was a research-based program that was particularly well suited to the students in the district, noting that students enrolled in the AVID program at the high school level seemed to be more successful with college preparatory courses. At the middle school, AVID students were more likely to complete assignments and return homework. The Board directed all school sites to implement AVID in the coming school year, expanding the program into elementary schools. The district believed that students exposed to the AVID program in the elementary grades would develop and internalize the organization, note-taking and critical thinking skills necessary for rigorous high school courses. The superintendent notified elementary school principals that they would need to make arrangements to send teachers to an AVID Summer Institute in the summer of 2016, and the district allocated funds to support that mandate. At Grandview Elementary, several teachers immediately began to voice their concerns based on their understanding of the AVID program

[1] The names of the county, district, school, and personnel in this document are pseudonyms unless otherwise noted.

according to experiences with their own children and their belief that AVID was incompatible with the site culture of technology integration (D. McCoy, personal communication, April 11, 2016). This study documents the journey taken by the school staff as they adapted and innovated within the implementation of the AVID Elementary program.

For the purposes of this study, innovation was defined as the generation of processes and products that are new to users (Birkinshaw, Hamel, & Mol, 2008; Rogers, 2003). Drucker (1998) suggested that opportunities for innovation can occur when there are incongruities between what exists and what is required, when an existing process is insufficient, and when new knowledge or changes in perception create a need for a different response. Innovation thus represents the ways in which people create new processes and objects to respond to changing conditions and address unmet needs (DeMaria, 2013). Therefore, the ways in which teachers generate strategies and tools to meet the broad goals of the AVID Elementary program while honoring existing knowledge and systems represent innovations.

Reinvention and adaptation are terms that will be used interchangeably to refer to subsequent changes to the innovations as they are being implemented (Choi & Moon, 2013; Rogers, 2003). As teachers implement innovations that are developed individually or by a team, they may adapt the innovation based on the successes and challenges they experience. These reinventions and adaptations are a vital part of the innovation process, ensuring that the final product is successful (DeMaria, 2013). Choi and Moon (2013) note that the implementation stage can be fertile ground for studying the unique ways in which people use and adapt innovations. The process of innovation and adaptation that occurs as

Grandview Elementary where the AVID Elementary program was implemented shaped the storyline for this study.

Brief Overview of AVID

Advancement Via Individual Determination (AVID) was developed by Mary Catherine Swanson in 1980 as a way to improve results for her underachieving students (Mathews, 2015). The original mission of the AVID program was to ensure that the least served students, those who had been receiving Bs and Cs, would succeed in a rigorous college preparatory path and increase their enrollment in four-year colleges (Swanson, 1989). The program historically serves students who are (a) economically disadvantaged, (b) ethnically underrepresented in colleges and universities, (c) generationally from homes in which they would be first in their family to go to college, and (d) currently enrolled in regular education classes (Mathews, 2015). AVID's core model centers around an elective class at each high school grade; increasingly, however, AVID is seen as a school-wide endeavor (Watt, Powell, Mendiola, & Cossio, 2006). AVID encourages changes in school procedures and norms that support the goals of the program and extends beyond the sections of AVID electives to permeate throughout the school (Watt, Powell, Mendiola, and Cossio, 2006).

Traditionally, AVID has been focused on high school and to a certain extent, middle school. In the past decade, however, AVID programs have been expanding to elementary schools (Mathews, 2015). AVID Elementary focuses on specific characteristics to ensure a transformational system that is consistent with AVID core principles. The following AVID essentials are the characteristics deemed critical for successful implementation in the elementary school: (a) instruction, (b) culture, (c)

leadership, and (d) systems (AVID Center, n.d.a) and will be described in detail in Chapter 2. Consistent with their goal of improving college readiness and success, AVID includes organizational tools, strategies, and materials that have remained largely unchanged since the inception of the program in 1980. In today's technology-rich classroom, classic AVID materials such as a three-inch binder and spiral notebooks for every subject seem redundant and anachronistic. Rogers (2003) argued that the incompatibility with cultural values can block the adoption of an innovation; therefore, in schools and districts that have made substantial investments in technology and have shifted to a technology-enabled model of instruction, a requirement to use the traditional AVID materials may well predict that the AVID program will not be successful.

Purpose and Justification for the Study

The purpose of this study was to explore the implementation of technology-enabled alternatives to traditional AVID strategies and materials, in a school where technology is already being used by students daily for assignments and communication. This intersection of new AVID model and existing technology integration knowledge and skills provides the opportunity for innovation, which was the focus of this study. As the AVID program continues to expand into elementary sites, there is a need to examine the ways in which the strategies and materials are reinvented to be used appropriately in a paper-reduced environment, one in which teachers frequently provide assignments digitally, and students complete them on their device and submit them online. This case study is timely in that both school culture and school-wide systems are changing as they adopt new digital tools, new technology integration paradigms, and new methods of assessment and accountability. As a school modifies the traditional AVID model during

implementation, the affordances of Web 2.0 tools are to be used by teachers to further the AVID goals of writing to learn, organization, and collaboration. Choi and Moon (2013) suggest there is an inherent advantage in studying the innovations that occur as users adopt and adapt particular programs. Therefore, this study will document the process, providing a detailed analysis of the steps taken, the challenges faced, and results obtained for both teachers and students. Conclusions from this study may serve to provide insight for schools that have technology-rich environments but are new to AVID, as well as for sites that are experienced with AVID but are just beginning to incorporate technology tools.

AVID has historically been fertile ground for study, focusing on the AVID program through the lens of leadership traits, characteristics of effective AVID elective teachers at high school, college readiness and college retention rates among AVID graduates, and perception studies of students, parents, and teachers (Huerta, Watt, & Reyes, 2013; Lozano, Watt, & Huerta, 2009; Mendiola, Watt, & Huerta, 2010; Watt, Huerta, & Alkan, 2011). As of the 2014 school year, there were 5,007 K-12 school sites implementing an AVID program, including 1,453 in California alone (AVID Center, 2016).

AVID Elementary is a relatively new iteration of the program, starting in 2007 (AVID Center, n.d.b.). The use of technology in AVID programs is also a relatively new phenomenon. The first mention of the use of AVID digital organization tools is in 2013, and no recent studies focused on the efficacy of digital organization tools as compared to the traditional binder in an AVID program. Personal communications with a regional AVID staff member provided further evidence of the gap in the literature, as the staff

member was unaware of any published studies that address digital organization or elementary implementation of AVID (D. Piazza-Ramsey, personal communication, March 14, 2016). A search of the literature through the university library revealed dozens of studies done at the secondary and post-secondary levels on AVID programs, along with a small number that study middle school student success. The majority of studies have examined underserved high school student populations, particularly in California and Texas. A review of dissertations published in the ProQuest Dissertation and Thesis database found 1,049 dissertations that studied various components of the AVID program since 1991. Based on author keyword choices, none of the dissertations specifically addressed the AVID Elementary program or the role of technology in any AVID program.

Implementing an AVID Elementary program in a technology-rich environment may require staff to draw upon foundational research about AVID's strategies, including Bandura's social learning theory and Costa's inquiry method and levels of questioning, in order to incorporate the affordances of Web 2.0 tools in a meaningful way. The AVID model provides opportunities for students to co-construct meaning, use academic language to develop their content knowledge, and write in a variety of ways to boost learning (AVID Center, 2016). Consistent with the Common Core State Standards and the STEM focus of the school site, technology tools may provide further opportunities for students to write to authentic audiences, such as their peers, their school community, and members of other social groups. Teachers may foster academic discourse in the development of writing, as well as in the writing itself, by modeling appropriate discussion and commenting strategies designed to increase learning and collaboration.

Johansson (2006) suggested that opportunities for innovation occur when different fields, knowledge, and cultures intersect. As the AVID Elementary program intersects with existing technology tools and skills at the site, teachers may be able to develop innovations that meet the AVID Elementary foundational goals in novel ways. Using diffusion of innovation theory (Rogers, 2003) as a theoretical model, this study explored the ways in which the adapted components of the AVID Elementary program were communicated and adopted throughout the site. De Jong, Marston, and Roth (2015) claimed that innovations consist of actions that occur within a specific context or model. Therefore, this study framed a description of innovations within the context of a technology-rich school site.

While Rogers (2003) indicated that an innovation is a process or product considered new by the user, new combinations of ideas and practices that occur when two established fields intersect are also considered innovations (Johansson, 2006). In this case, the AVID Elementary program is mandated by the district. The ways in which the tools are adopted and reinvented to match the technology-rich context of the school site can be considered innovations for all the staff at the school. Communication channels were described in detail within the context of the study, using relevant data from field observations of professional development, team meetings, and classroom implementation. The technology in place at the site to support the AVID implementation was not new to staff. However, the technology did influence the ways in which the AVID program was implemented and reinvented. This intersection of program, context, and existing knowledge contributed to the innovations that were the focus of this study.

This study used a qualitative case study methodology to examine the context and conditions related to the implementation of an AVID Elementary program and the ways in which digital tools were integrated in a manner consistent with AVID philosophy and strategies. Although not all schools have one-to-one technology programs in place before implementing AVID Elementary, it is not unique. This study explored a case of a technology-rich school in a predominantly socio-economically disadvantaged urban and suburban area, implementing an AVID Elementary program in a manner that capitalized on the technology already in place. Context is a major component of a case study (Creswell, 2012). Therefore, this study examined the system as a whole in order to best understand the ways in which the AVID program components and the technology integration strategies in place at the site overlapped, meshed, or resulted in a disconnect between the two for implementing teachers.

Research Questions

This study focused on the diffusion and implementation of AVID strategies and materials in a technology-rich environment. It explored the complexities associated with implementing a program conceived before technology was readily available in a school in which technology integration was a cornerstone of the school's culture and identity. The primary research question to be addressed was as follows:

1. How does AVID Elementary get implemented in a technology rich environment?

In answering the primary research question, the following sub-questions were also explored:

- What specific aspects of the AVID program and materials were modified and how?

- What were the challenges encountered as teachers adapted and/or reinvented the traditional AVID materials and strategies?
- In what ways did teacher perceptions of AVID and of technology change during the implementation process?

Summary

This qualitative case study addressed a gap in the literature regarding the implementation process of a school-wide AVID Elementary program. In addition, it explored the innovations that occur when traditional AVID strategies and methodologies are adapted and implemented in a technology-rich environment. The history of and research behind AVID, models of technology integration, and affordances of various tools will be examined in Chapter 2 through the lens of diffusion of innovation model. In Chapter 3, a "detailed rendering" (Creswell, 2012, p. 472) of the school history, culture, and stakeholders will deliver a context for this study.

By providing a rich description of the implementation process, this study may produce guidance for others seeking to implement an AVID Elementary program or to incorporate digital tools in an existing AVID Elementary program. The discussion addressed the ways in which AVID tools and strategies were adapted and how those innovations were diffused throughout the site, including the role of the principal and AVID Site Team as change agents, the communications channels used to share knowledge, and the reinvention that occurred as the AVID Elementary program was implemented in the classroom. Further, the discussion contextualized the adoption of AVID Elementary within a culture of technology integration and raised additional research questions for future study. The importance of understanding what happens as an

AVID Elementary program is adapted during implementation is significant to those schools and districts who are struggling to integrate technology in a meaningful way or who are attempting to overlay programs that are traditionally pencil-and-paper based into environments already permeated by the use of technology.

CHAPTER TWO: REVIEW OF LITERATURE

Introduction

This chapter begins with an overview of the AVID Elementary program, as that serves as a critical foundation for the context of the case. Next, the review of literature explores diffusion of innovation theory (Rogers, 2003) and innovation implementation theory (Klein & Sorra, 1996) to frame the innovations that were expected to occur in the process of implementing the AVID Elementary program. As data was collected and analyzed in the study, Rogers' theories of perceived attributes and Klein and Sorra's values-fit proposition provided a structure to examine ways in which the AVID Elementary program components were adapted and then adopted at the site. Teacher agency and self-efficacy were explored in terms of their impact on the ways in which teachers embrace or fail to embrace new programs. Finally, affordances of Web 2.0 tools were addressed. The choices that teachers made about how to adapt to the traditional components of the AVID Elementary program were based upon their perceptions of the affordances of various Web 2.0 tools to meet both program and academic goals.

Advancement Via Individual Determination (AVID)

History of AVID

In 1980, English teacher Mary Catherine Swanson started AVID as a way to address the needs of an influx of low-income students in her San Diego high school (Swanson, 1989). Her goal was to ensure her students were prepared to meet college

requirements before they graduated (Mathews, 2015). According to founder Mary Catherine Swanson (2000),

> AVID pedagogy emphasizes methodologies that empower students to take responsibility for their own learning. AVID coaches students to develop the academic and interpersonal skills that allow them to take rigorous college prep courses. By developing their "perceived confidence" through their involvement in AVID, students' lives are changed dramatically by new opportunities available to them. (p. 26)

The AVID program was adopted by the San Diego County Office of Education in 1986 and began to be disseminated throughout the county (AVID Center, n.d. a). In 1989, the program expanded into Riverside County and began providing summer professional development institutes for teachers. The AVID program incorporated as a nonprofit in 1992 as the AVID Center. Throughout the 1990s, the focus of AVID was on high school students in the academic middle (students who typically earn Bs and Cs) and who lack college-going models at home. Swanson (2000) described these students as having college potential but also as lacking the support required to be successful in challenging courses. She promoted the belief that these underrepresented students could be successful in college preparatory courses with support to strengthen their academic skills and interpersonal relationships. The AVID curriculum provides students with a framework for writing, organization, and collaboration (Mathews, 2015).

As the research on the success of the AVID program for high school students accumulated, the program began to be implemented in middle schools and elementary schools (Gira, 2004). According to Ward (2008), the strategies used by the AVID elective class tend to diffuse throughout the school in the form of Cornell notes, Socratic seminars, and tutorials, all of which are typically implemented in the content areas. Gira (2004) claimed that students with exposure to critical thinking and organization skills in

fourth and fifth grade were better able to focus on college preparatory skills in middle school and advanced placement courses in high school. Based on studies demonstrating the effects of AVID programs on advanced placement (AP) and honors class participation and on significantly increased college-going rates for AVID participants, the state of California began to fund AVID professional development and support in 1996 (AVID Center, n.d.a.; Matthews, 2015; Swanson, 2000). In addition, AVID programs were able to access grant monies through expanded partnerships with the College Board, based on their reputation for increasing participation in AP courses and encouraging students to take the SAT for college admission (Mathews, 2015).

AVID Elementary

In 1999, a desire for a smooth transition from elementary to secondary education prompted initial explorations of modified AVID strategies for upper elementary students (McAndrews, 2006). A pilot took place in 2002, the first training for upper elementary teachers began in 2006, and AVID Elementary was officially launched in 2007 (AVID Center, n.d. a; Mathews, 2015). According to the AVID Center, AVID Elementary is a foundational component of the AVID College Readiness System that "focuses on specific AVID Essentials to ensure quality and consistency as a transformational system" (AVID Center, n.d. a, para. 1). AVID Elementary is designed for self-contained, multi-subject classrooms to provide a foundation for the AVID College Readiness System as implemented in middle and high schools (McAndrews, 2006). AVID Elementary focuses on developing high expectations, rigor, and a college readiness culture in grades three through five, with additional structures to support students in kindergarten through second grade. The goal of AVID Elementary is to close the achievement and college

readiness gap through strategies embedded into daily instruction of all classrooms at designated grade levels (AVID Center, n.d.b)

According to AVID Elementary (n.d.b), the implementation of AVID Elementary is centered on the philosophy that students can be taught a growth mindset, which will allow them to succeed academically and fulfill their aspirations. This foundational program was initially offered for fourth- through sixth-grade students in self-contained, multi-subject classrooms that fed into AVID elective programs at both the middle and high school levels. The AVID Elementary program has four Essentials, or areas of focus: (1) instruction using WICOR, which stands for writing to learn, inquiry, collaboration, organization, and reading to learn across content areas; (2) a school-wide culture of college readiness; (3) leadership that supports and facilitates AVID implementation; and (4) systems that utilize accountability, assessment, and calibration to ensure implementation with fidelity across the grade levels (AVID Center, n.d.b). These Essentials represent the elements that AVID considers important and are the areas in which schools are required to rate themselves as part of the AVID certification process.

AVID Elementary instructional components include WICOR, student success skills, and organizational skills. WICOR is an AVID acronym that represents Writing to learn, Inquiry, Collaboration, Organization, and Reading to learn. These strategies, which formed the foundation of the original AVID program in 1980, are consistent across all grade levels in the AVID system. WICOR is used to guide lesson plan development, ensuring a variety of reading and writing tasks that support the acquisition of content knowledge and the sharing of that knowledge with others. According to the Garland ISD AVID Elementary Handbook (2015), writing to learn includes such strategies as two- and

three-column notes, Cornell notes, dialectical journals, and peer editing. Inquiry and collaboration strategies encouraged by AVID practitioners include Socratic dialogue, carousel brainstorming, concept mapping, and the use of student consultants. Organization strategies typically revolve around a three-ring binder, with a specific set of tabs and materials. Although there is no specific required model for each of these elements, AVID Elementary site teams must determine the ways in which each element will be addressed at each grade level (AVID Center, n.d.b). Grade level teams then adapt the strategies in a way that they feel is most appropriate for their students, taking advantage of the technology they have available to them at their grade level. In this study, the 16 teachers in attendance at the AVID Summer Institute collaborated to determine two areas of focus for the first implementation year: (a) writing to learn and (b) reading to learn.

Student success skills, as defined by AVID, include skills in communication, self-advocacy, time management, goal setting, and assessment. Heavily influenced by Bandura's Social Cognitive Theory (Bandura, 1986), the AVID Elementary program includes specific instruction for students in the use of observation, imitation, and modeling as strategies to learn from one another. Consistent with Bandura's work on self-efficacy (1986), the AVID Elementary program includes models for student goal setting, reflection, and peer coaching. In addition, specific lessons in developing a growth mindset and building interpersonal relationships are considered hallmarks of effective implementation (Dweck, 2006).

Organizational skills, as implemented in the AVID program, include time management strategies and goal-setting. Metacognition, or thinking to organize a process

and thinking to perform the process itself, must be explicitly taught and the practice embedded in instruction. In AVID materials, Costa's levels of questioning are part of baseline instruction, helping students to understand the different levels of intellectual functioning inherent in questions of what, how, and why (Costa, 1985).

AVID eBinders

In 2013, AVID Center identified a need to create a digital model of their organizational tool, the classic three-inch, three-ring binder. According to the AVID Center guidance on implementing digital organizational tools (2015), an eBinder is a "collection of apps that work together to organize digital notes, class documents, assignments, and events in order to maximize accessibility and collaboration" (p. 8). There is no guidance regarding the specific tools to be used; rather, the eBinder planning document recommends that sites select a technology tool that best reflects site technology tools already in place. A search of the literature reveals no studies on the effectiveness of eBinders as an alternative tool for student organization. However, Clark's (2012) findings of no significant difference in the learning benefits between the uses of any particular medium might suggest that an eBinder approach is simply a substitution and would have little or no effect on student outcomes.

AVID Successes

According to Matthews (2015), AVID has become the largest college preparatory program in the United States, with approximately 400,000 students at 5,000 schools in 44 states and 16 countries. Mehan, Villanueava, Hubbard, Lintz, and Okamoto (1996) studied records of more than one thousand AVID program graduates in eight high schools and found that AVID graduates were more likely than comparison groups to

enroll in college, in numbers exceeding local and national averages. Moreover, the authors found that 89% of AVID graduates were still enrolled in college after two years. While Farkas (1997) noted empirical issues with the attrition rates and the lack of adjustment for control variables in the Mehan study, it is nonetheless listed in AVID literature as evidence of program success (AVID Center, 2016). In July 2006, the United States House of Representatives acknowledged the success of the AVID program with Resolution 576, which noted that AVID "has provided academic and motivational support that has enabled more than 95% of the over 257,000 underperforming students who have been in its program to go on to college" (H. Res. 576, 2006, Paragraph 1).

In a controlled study of high school seniors, Lozano, Watt, and Huerta (2009) found that there were significant differences in college anticipations (expectations of level of higher education degree) between students in the AVID program and the general population of high school students. Students enrolled in a high school AVID elective are significantly more likely to take AP courses, higher level mathematics courses, and courses that provided college credit than their non-AVID peers (Watt, Huerta, & Lozano, 2007). Parker, Eliot, and Tart (2013) reported that the nine African American college students in their case study felt AVID had increased their interest in education in general and college specifically, while also providing the necessary note-taking skills to successfully complete college courses. According to Watt, Powell, and Mendiola's multi-year study of 10 high schools (2004), AVID students outperformed their classmates on a range of standardized tests, including ACT, SAT, and state assessments. In addition, the researchers found that AVID students had better attendance rates than their peers.

Since 1991, more than 1,000 authors of doctoral dissertations have studied the impact and outcomes of AVID programs in the high school, middle school, and community college setting with mixed results. Contributing to the literature on the relationship between AVID participation and college preparation, Hodges (2013) found that students who received instruction in AVID methodologies had statistically significant greater mathematics achievement on Algebra end-of-course exams. AVID students had significantly higher grades than their non-AVID counterparts when pre-program academic achievement was controlled for (Bailey, 2002). Pugh (2015) found positive correlations between AVID and attendance. However, he found that AVID participation was only positively correlated with grade point average for one subgroup (African American students) in his study.

Diffusion of Innovation

The theory of diffusion of innovation explains the adoption and adaptation of new programs, systems, and technologies. It provides a useful lens for exploring the ways in which components of AVID Elementary are adopted and reinvented by teachers at the school site under study. Originally developed by Everett Rogers as a model to address ways in which innovation in agricultural practices spread through a rural society, the model has expanded and shifted in focus to include public health, education, economics, and the adoption of specific technologies (Tidd, 2010). Diffusion is the process by which innovations are accepted or rejected by a particular group over time (Surry, 1997). Dello-Iacovo (2009) found that even when innovative programs or systems are mandated by an organization of authority, the degree of adoption and implementation and speed of diffusion is influenced by the attitudes and values of those implementing the innovation.

The process by which an innovation is diffused throughout a community is influenced by four major factors: (a) what the innovation is, (b) how information about the innovation is communicated, (c) time, and (d) the community into which the innovation is being introduced (Rogers, 2003).

Although much diffusion of innovation research has addressed the ways in which individuals progress through the process of adopting an innovation, the theory has worked for organizational adoptions as well. According to Rogers (2003), an organization is a group of individuals who work together on common goals. In some cases, organizations make decisions about innovations to adopt based on input from a small number of individuals with influence, power, or expertise about the innovation. This process, called "authority innovation-decisions" by Rogers (2003), takes the initiation phase out of the diffusion process. Instead, the diffusion of innovation in the organization becomes a study of implementation. School districts and schools can be considered organizations, and within each, there are a number of "authority innovation-decisions" (Rogers, 2003, p.28), in which a small number of individuals with power or expertise make choices about materials or programs to adopt. However, within that decision model, teachers retain the authority to make decisions about what pedagogies to use and what technologies to integrate based on their perceptions of usefulness.

Since Rogers' seminal work in diffusion of innovations in 1962, the theory has been applied in multiple contexts and fields (Sargent, 2015). In education research, the theory has been used as a basis for the study of adoption of new curriculum (Hyland & Wong, 2013), new technologies (Perkins, 2011), and new pedagogies (Sargent, 2015). In this study, diffusion of innovation theory was not used as a predictor of the

implementation process. Rather, it was used as an interpretive lens to examine the many decisions individuals and teams made as they developed, implemented, and adapted innovations to address program requirements, using the technology tools and resources available to them at the school site to best meet the needs of their students. As discussed in Chapter 5, teachers determined which tools and strategies of the AVID Elementary program to prioritize and which to adapt or reinvent to take advantage of the technology resources and skills at the school site.

Referencing his theory of perceived attributes, Rogers (2003) stated that an innovation's attributes in terms of trialability, observability, relative advantage, complexity, and compatibility will influence the rate of diffusion of that innovation. Trialability is the degree to which users can test an innovation by implementing it on a small scale. Observability refers to how visible the results of an innovation are to others. Relative advantage is the degree to which an innovation is perceived as an improvement over the current practice or model. Complexity is the perception of how difficult an innovation is to implement. Compatibility refers to the perception of whether an innovation is consistent with the adopter's existing values, beliefs, and past experiences (Rogers, 2003). Surry (1997) remarked that sociological and interpersonal factors often play a significant role in the adoption of an innovation, as well.

Rates of adoption of innovations can be influenced by societal factors, such as the norms of the group, the involvement of a change agent, and the communication strategies employed (Rogers, 2003). A perception that a critical mass of members of a group has adopted an innovation is also associated with a higher rate of adoption (Ilie, Craig, Green, & Hao, 2005). Dearing (2009) indicated the distinction between adopters and

implementers; adopters make policy decisions about an innovation, whereas implementers are those who must apply the innovation in their practice. Adopters may or may not be implementers and vice versa. This disconnect between decision-makers and implementers may lead to a reinvention of the innovation.

Reinvention within the diffusion of an innovation refers to the morphing that takes place as the innovation diffuses within a social system and is adopted by users (Rogers, 2003). Reinvention occurs for a variety of reasons, including the unpredictability of how the original innovation performs when put to use by an individual or organization. Rogers (2003) underscores the malleability of innovation when he stated the following:

> Instead of simply accepting or rejecting an innovation as a fixed idea, potential adopters on many occasions are active participants in the adoption and diffusions process, struggling to give their own unique meaning to the innovation as it is applied in their local context. Adoption of an innovation is thus a process of social construction. (p. 179)

Reinvention involves "diverse forms of deletion, addition, and/or alterations in the design, features, and functions of the innovation," which occur as new programs are implemented (Choi & Moon, 2013, p. 292). As new ideas and existing knowledge intersect, reinvention creates new products and innovations that may be better suited to the prevailing culture (Johansson, 2006). These innovations then must be disseminated throughout the organization and implemented in a systematic way for the innovations truly to be considered as adopted by an organization.

Innovation Implementation

Choi and Moon (2013) suggested there is an inherent advantage in studying the innovations that occur as users adopt and adapt particular programs. They note that

innovations rarely go as planned, and users tend to adapt and adopt new innovations to best meet their needs. According to Klein and Sorra (1996), innovation implementation is the "process of gaining targeted employees' appropriate and committed use of an innovation" (p. 1055). They further define implementation as "the critical gateway between the decision to adopt the innovation and the routine use of the innovation within an organization" (p. 1057). The model of innovation implementation rests on an assumption of authority innovation-decision (Rogers, 2003) and explains the ways in which individuals in an organization implement or fail to implement a given innovation. Klein and Sorra (1996) posited that implementation is a function of the organization's climate regarding a particular innovation and the perceptions of organization members' regarding the ways in which the given innovation fits with their values. Dong, Neufeld, and Higgins (2008) concluded that implementations are more likely to be successful when both climate of implementation and values-fit are strong.

In the innovation implementation model, climate refers to the structures in place institutionally to support innovation and the perceptions that group members have of those structures (Klein & Sorra, 1996). A strong climate is one that supports, incentivizes, and holds members accountable for the innovation (Jacobs, Weiner, Reeve, Hofmann, & Christian, 2015). Choi and Moon (2013) identified three factors contributing to a strong implementation climate: (a) providing professional development, (b) the use of incentives and disincentives, and (c) removing obstacles around the use of the innovation.

In addition to the climate of an organization being one factor in successful implementation of innovations, the values-fit is a critical factor in ongoing, committed

implementation of innovations (Klein & Sorra, 1996). Klein and Sorra indicated that group values represent commonly shared beliefs about what is important to the organization, how the organization should be perceived, and how the organization should function.

Top-down decision-making is common in American public schools (Spain, 2016). Decisions are handed down, sometimes with little regard for the teachers' context, which typically has its own well-defined sets of norms and practices (Scheerens, 2012). In the case of AVID Elementary at the site being studied, teachers' perception that a required element of AVID Elementary was a 3-ring binder caused initial strong resistance, since such an implementation was at odds with their values. An implementation model that allowed for adaptation and reinvention was required in order to ensure that the values-fit was strong. Support in the form of time, funding, and a commitment to ongoing professional development represent a strong climate for implementation of innovations.

Agency and Self-Efficacy

Bandura (1994) defined self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance" (p. 71). Tschannen-Moran, Hoy, and Hoy (1998) distinguish self-efficacy from self-esteem in that self-efficacy is specific to a particular task. Self-efficacy beliefs strongly influence how people act and motivate themselves (Bandura, 2000). Agency, in contrast, is about action rather than beliefs. Campbell (2012) defined agency as the ability to "make free or independent choices, to engage in autonomous actions, and to exercise judgment in the interests of others and oneself" (p. 183). Buchanan (2015) described it more simply, saying agency allows

teachers “to be the kind of teacher they wanted to be” (p. 714). Agency is thus the autonomous action that self-efficacy enables.

Teachers come to the profession with a wide range of knowledge and aptitudes and develop further as they progress through their teaching career (Buxton et al., 2015). Teachers with greater professional knowledge and skills are more likely to evidence agency (Biesta, Priestley, & Robinson, 2015). These more-experienced teachers are more likely to engage in experimentation and activism as they explore new strategies and share with their peers (Buchanan, 2015). Peer learning and peer communication are strongly related to teacher agency (Bridwell-Mitchell, 2015). Teachers routinely compare their practices with those of others and receive feedback that influences their instruction. As Priestly (2012) noted, agency is also strongly connected to context and is frequently transactional as teachers work within their social constructs. Bandura (2000) found that collective efficacy, that is, the belief in a group’s ability to effect change, creates a much stronger force in terms of motivation, perseverance, and ultimately accomplishments.

Educational policy, including mandated programs and accountability measures, can limit autonomy and create tension between teacher beliefs and required outcomes (Priestley, Edwards, Priestley, & Miller, 2012). Bandura (1994) suggested that a belief in one’s ability to effect change is highly influenced by the perception of the degree to which the environment can be changed. Bridwell-Mitchell (2015) found that an environment rich in peer learning with ample innovation opportunities can mitigate feelings of powerlessness that may arise due to mandates. As teachers address policy demands, they actively use prior knowledge and attitudes to assess, interpret, and adapt new requirements (Buchanan, 2015). According to Bridwell-Mitchell (2015), teacher

agency can be a foundation of change as teachers interpret and adapt a given model or reform. Bower and Parsons (2016) further suggested that alignment with teacher perceptions, beliefs and values is necessary for the successful adoption of even mandated programs.

Affordances of Web 2.0 Tools

Although teachers at the site currently integrate technology into many aspects of teaching and learning, a careful analysis of the affordances of various tools was required in order to effectively adapt the AVID curriculum in a way that was faithful to the intent of the strategies. Teachers approached this task in a variety of ways, sometimes innovating individually and sometimes working with their peers to identify a tool with the best affordances for a given task. As they developed innovations to the AVID Elementary program, individual teachers and grade level teams were informed by their knowledge of the affordances of Web 2.0 tools and influenced by their exposure to and knowledge of particular applications, websites, and tools. Web 2.0 activities should be designed with specific goals that are meaningful to the group, using tools that have the most appropriate set of affordances for the activity (Hsu, Ching, & Grabowski, 2014). Stahl, Koschmann, and Suthers (2006) suggested that technology tools cannot by themselves define practice but are only relevant based on the ways in which such tools are used by learners to make meaning. Thus, Web 2.0 tools might be used to provide a context for demonstration of understanding and a purpose for using new content and vocabulary. Brown, Collins, and Duguid (1989) suggested that knowledge is a product of the activity in which it is produced. Specifically, they claimed that a concept “will continually evolve with each new occasion of use, because new situations, negotiations,

and activities inevitably recast it in a new, more densely textured form" (p. 33). Blogging, microblogging, and discussion forums all have the potential to create a situated learning environment in which students can develop understanding through ongoing interaction with the concepts and with their peers.

The AVID Elementary program emphasizes social learning as a critical component of quality instruction (AVID Center, n.d.a). Web 2.0 tools, by their nature, "value the participatory culture, to emphasize collaborative learning and peer to peer interaction, to promote active participation and interactive multi-way communication, and to engage learners in knowledge creation activities" (Ching & Hsu, 2011, p. 794). Dohn (2009) also noted that participation, production, dialogue, and collaboration are inherent in Web 2.0 tools, which are believed to be effective tools for fostering active engagement and collaboration in the learning process. Blogs, for example, have the potential to be both interactive and collaborative through the use of hyperlinked media or through content and comments from and with readers of the blog (Ducate & Lomicka, 2008).

Hsu, Ching, and Grabowski (2014) identified three characteristics of technological use of tools that constitute effective uses. First, the tool must allow users to build on each other's work as they create products together. Second, it must allow users to easily exchange ideas throughout the process. Third, the tool must strengthen communication among all collaborators, allowing interaction at multiple levels. Assessment of technology integration throughout the implementation of the AVID Elementary program must, therefore, address each of the three characteristics of the

technology tools, in addition to evaluating growth in student content knowledge and academic skills.

According to Hsu, Ching, and Grabowski (2014), blogs have demonstrated their worth as effective Web 2.0 applications for publishing and sharing learning progress and achievement, for supporting collaborative tasks, and for building authentic communities of practice in a meaningful context. In addition, they found that microblogs, such as Twitter, are effective for communicating ideas and disseminating products. According to McGrail and Davis (2011), "academic blogging provides a space for modeling and developing the literacy processes, critical thinking, reflection, questioning, and social practices engendered by this communicative technology" (p. 416). Students must use language to their benefit, connecting with the culture of their audience through appropriate vocabulary, voice, and linguistic complexity. Miceli, Murray, and Kennedy (2010) found that teacher voice was a critical element in students' respectful interaction; the AVID Elementary program includes a Socratic dialogue protocol which teachers use to explicitly model reflection, questioning, and social practices in teaching these skills to students. The consistent use of a common protocol ensures that all students will have multiple opportunities to apply these skills in a variety of situations, with expectations at different times for short or long responses, responses to single posts or synthesis of two or more posts, and responses that provide encouragement or constructive criticism.

In communities of practice, participants co-construct knowledge related to their field or their group-specific interests (Hsu, Ching, & Grabowski, 2014). As Grandview Elementary implemented the AVID program, one community of practice might be considered the students in the class, with common goals and standards they are expected

to learn. Ducate and Lomicka (2008) suggested that reading and writing online are often collaborative activities, whereby students are able to participate both socially and academically. Student collaboration can occur during many phases of writing development, according to the teacher's instructional emphasis (Baker et al., 2014). For example, students might use small group dialogue to discuss key points of the content, collaborate as a whole class to develop a pre-writing graphic organizer, or conduct peer-editing and commenting on each other's drafts as ways to improve their written language outputs. Consistent with Stahl, Koschmann, and Suthers' (2006) recommendations for further research, teachers will utilize technologies that are fundamentally social and contain built-in affordances "to mediate and encourage social acts that constitute group learning and lead to individual learning" (p. 421). Many technology tools with social learning capabilities are already in use at the school site. However, such tools are not necessarily being used in a way that takes greatest advantage of their affordances.

Web 2.0 tools have the potential to "bring learners together" and support academic meaning-making activities in conjunction with social interaction (Stahl, Koschmann, & Suthers, 2006). Ducate and Lomicka (2008) described social networked learning as taking place "with and in a community" (p. 9), underscoring that it is a concept that teachers tend to want to foster, whether in an online environment or face to face. Teachers might foster that sense of community through the supports for collaboration built into Web 2.0 tools, such as embedded email, chat or instant messaging, discussion forums, and or videoconferencing (Stahl, Koschmann, & Suthers, 2006). Miceli, Murray, and Kennedy (2010) found that the use of blogs in a hybrid (online and face to face) course contributed to a sense of online community. The goal is

to take full advantage of the "participatory, interactive, collaborative and social aspects" (Ching & Hsu, 2011, p. 782) of Web 2.0 tools and leverage the use of such tools to improve learning outcomes. By using digital tools such as blogging, microblogging focused on collaborative annotation, peer editing, and discussion forums, students will engage with content and concepts in a situated learning environment that provides social networking and peer collaboration opportunities.

Digital Organization and Personal Information Management

Teaching students to effectively manage information is one of the core elements of the AVID program (AVID Center, 2016). There is increasing redundancy and duplication of information as mobile devices allow users to capture analog information and store it in a digital format for easier retrieval (Jones, 2012). As the amount of information available grows, it becomes increasingly important to have strategies to manage digital information items (Park, 2011). Jones (2007) described information items as documents, files, webpages and/or messages "in a persistent form that can be created, stored, moved, given a name and other properties, copied, distributed, deleted, transformed, and so forth" (p. 461). Cabanac, Chevalier, Chrisment, and Julien (2010) suggested that the ability to find information in one's personal information management space is a key to successful knowledge work. A personal information management process is one in which users find, keep, and manage information in organized folders and subfolders which reflect the association of ideas and topics in a hierarchical manner (Jones, 2007).

The process of determining which folder in which to store a file or whether a new folder is called for requires critical thinking and flexibility (Cabanac, Chevalier,

Chrisment, & Julien, 2010). In order for a user to be productive, the organization of information must be logical, hierarchical and multi-layered, with a clear definition and purpose of each label (Jones, 2007). Khoo et al. (2007) described two types of folder organizational structures: broad tree structures with a large number of folders at the top level and few sub-folders nestled within each folder; and deep tree structures with a small number of top-level folders containing many layers of sub-folders within each. Broad tree structures provide faster access to folders but increase the time needed to scan for particular files, while deep tree structures allow faster scanning of each folder but may require more clicks to reach the desired file (Bergman, Whittaker, Sanderson, Nachmias, & Ramamoorthy, 2010).

In early studies of computer users, Barreau and Nardi (1995) found that the majority of people preferred to search for information using hierarchical folder searching, using naming cues to guess which folder a file is in, then browsing the information in the folder, and repeating the process if the desired file isn't located. More recent studies confirmed the preference for location searching, with the added strategy of using the sorting features of the software or platform in order to more quickly locate files and information (Khoo, Luyt, Ee, Osman, Lim, & Yong, 2007). Clearly labeled folders for inactive files were found to help reduce visual clutter and made it easier for users to find the file they were seeking (Bergman, Beyth-Marom, & Nachmias, 2008). Naming conventions that incorporate topic, time and/or people also play a crucial role in a user's ability to find information within their own personal information space (Park, 2011).

Krtalić, Marčetić, and Mičunović (2016) cited numerous studies over the past two decades that have illuminated a need for education in methods and processes for personal

information management. Students rarely manage and archive their digital information as a planned or regular activity, and have limited knowledge of strategies and processes that would allow for efficient curation of their files. They wrote:

> "Digital information, unlike analogue information stored on traditional media, depends on technology that makes it accessible and usable. And since every new technology can create new problems or new issues, students... need to be aware of all the issues that ensure long-term preservation and long-term access to their digital data and documents." (Krtalić, Marčetić, and Mičunović, 2016. Conclusion Para. 5)

Summary

The Advancement Via Individual Determination (AVID) program is one that is based upon the belief that organization, note-taking, critical reading, and inquiry skills are requisite skills for success in college courses. To meet these needs, the program provides a set of scaffolds for students in the areas of writing, inquiry, collaboration, organization, and reading. Its incorporation into elementary schools such as Grandview is based upon the hypothesis that teaching these skills to students earlier in their educational career will result in increased opportunities for success. Both Rogers' (2003) theories of perceived attributes and Klein and Sorra's (1996) values-fit proposition provide a structure by which to examine ways in which program components were implemented, adapted and adopted at the site. As innovations were implemented, their diffusion across the site was influenced by their perceived attributes of complexity, trialability, and observability. Further, their compatibility with site cultural values influenced implementation, adaptation, and adoption.

Teacher self-efficacy refers to teachers' beliefs in their professional abilities in specific circumstances (Mellegard & Peterson, 2016). In contrast, agency represents teachers' ability to act, advocate, and support their peers based upon those beliefs

(Buchanan, 2015). Externally imposed events such as mandates and accountability policies frequently impact both teacher self-efficacy and teacher agency (Priestley, Edwards, Priestley, & Miller, 2012). The ways in which teachers respond to mandates and new program adoptions such as AVID Elementary is related to their sense of agency as they interpret, adapt and communicate with one another about the program (Bridwell-Mitchell, 2015).

Technology tools cannot by themselves define practice but are only relevant based on the ways in which such tools are used by learners (Stahl, Koschmann, & Suthers, 2006). Affordances of technology tools are an inherent part of their functionality such as those found in specific types of Web 2.0 tools. It is imperative that technology tools were identified and selected based on their affordances and values-fit for site culture (Rogers, 2003), while ensuring consistency with the goals of the AVID Elementary program. Digital organization and personal information management can support the needs of those implementing a program that formerly required paper-based accounting of student work (Jones, 2007; Park, 2011).

Taken together, the components found in this literature review lay the groundwork for a study that explores how AVID Elementary is implemented by teachers who work in a technology-rich school environment. Subsequent chapters further explore the context for the study and, separately, the research methodology is explained in detail.

CHAPTER THREE: CONTEXT

A critical requirement of case study research is a thorough grasp of the case (Creswell, 2012). Further, ethnographic methods mandate sufficient description to be able to deeply understand the perspectives of participants (Schensul, Schensul, & LeCompte, 2013). This chapter provides a detailed demographic description of the school along with a brief history as relevant to this study. A description of the technology in place and vignettes that illustrate the ways in which technology was used are provided in order to create the sense of place called for in ethnographic research (Bhatti, 2012). It further situates the study within the policy context of the time, providing a foundation for the research questions and goals of the study.

School Profile

Liberty Unified School District is located in the western United States, approximately 70 miles east of a major metropolitan area. During the 2014-15 school year, the district's schools served more than 19,000 students residing in rural and suburban communities of two cities and the unincorporated area between them. The district currently operates twelve elementary schools, four middle schools, three comprehensive high schools, a virtual academy, and a continuation high school.

Grandview Elementary was built in 1989 and has 24 permanent classrooms and eleven portable classrooms on its seven-acre lot. At the time of this study, Grandview Elementary School served 805 students in grades K-5, approximately 8% of whom receive special education services, which is typical across the state. The percentage of

English learners (15%) is slightly lower than the state average of 22%, and the 65% qualifying for free or reduced-price meals is higher than the state average of 59%. Table 3.1 below illustrates student demographic data for Grandview Elementary as compared to the district, county, and state. For the past seven years Grandview Elementary has been on a trajectory of increased enrollment from both inter- and intra-district transfers. The school has been recognized with numerous local, state and federal awards for its academic achievement and innovative programs.

Table 3.1 Demographic data comparison (2014-2015 School Year)

	African American not Hispanic	**Asian**	**Filipino**	**Hispanic or Latino**	**White not Hispanic**	**Two or More Races**	**English Learners**	**Free and Reduced Price Meals**
Grandview Elementary	201 (27.3%)	15 (2.0%)	18 (2.4%)	392 (53.3%)	75 (10.2%)	28 (3.8%)	108 (14.7 %)	478 (65.0%)
District Total	2,889 (14.6%)	288 (1.5%)	290 (1.5%)	14,607 (73.6%)	1,129 (5.7%)	317 (1.6%)	4,544 (22.9 %)	15,818 (79.7%)
County Total	27,336 (6.4%)	12,768 (3.0%)	8,178 (1.9%)	263,967 (62.0%)	97,464 (22.9%)	10,511 (2.5%)	89,137 (20.9 %)	272,494 (64.0%)
State Total	373,280 (6.0%)	545,720 (8.8%)	158,224 (2.5%)	3,344,431 (53.6%)	1,531,088 (24.6%)	175,700 (2.8%)	1,392,263 (22.3%)	3,655,624 (58.6%)

In 2010, Liberty Unified School District gave Grandview Elementary the opportunity to be labeled a district STEM (Science, Technology, Engineering, and Math) elementary school. The majority of staff at the time voted to accept the designation of district STEM school, and many began to attend professional development focused on hands-on science and the use of technology in the classroom. A new principal was hired in 2011 with the charge of moving the site forward as a model of STEM education. Between 2011 and 2015, the site became well known regionally for its model of a high-

quality STEM program. Additionally, the principal encouraged staff members to present at a wide variety of professional education conferences, often with students as co-presenters or aides.

Today, teachers design lessons based on the state-adopted Common Core State Standards (CCSS) for math and English language arts and state-adopted Next Generation Science Standards (NGSS) in interdisciplinary units to create a pathway of STEM learning experiences. By aligning literacy skills with science and engineering concepts, Grandview teachers ensure that all students read rigorous scientific works, write informational text and presentations, and generate products that show a mastery of scientific content knowledge and skills. Since 2011, Grandview has recorded among the highest science CST scores in Oak Valley County. In every year since 2011, more than 70% of Grandview fifth graders have scored at proficient or advanced levels on the California State Test (CST) for Science, compared to a statewide average of 55%. In 2015, despite an influx of new students who had not participated in a STEM model prior to arriving at Grandview, only 6% of students scored Far Below Basic, compared to an average of 17% across the county.

I was hired as principal of Grandview mid-year of 2015 to replace a principal who had accepted a promotion to the district office. I quickly became aware of the sense of self-efficacy among the majority of staff. Teachers and classified staff informed me repeatedly that there was a "Grandview way," which was perceived by staff as considerably better than the way things were done in other schools. In particular, teachers were proud of the ways they used technology, noting that they started the first iPad pilot in the district. In individual conversations and during staff meetings, most teachers

expressed the belief that meaningful use of technology was vital to student preparedness, and shared that they felt they had made substantial strides in the use of technology for teaching and learning. Student agency, as demonstrated by the ways in which Grandview students used their communication skills to present to each other, to the community, and even at education conferences, was firmly embedded in the site culture.

Technology

During the 2012-2013 school year, Grandview Elementary piloted a program of iPads in a one-to-one model in fifth grade. Although the district as a whole opted to move away from iPads, Grandview had the support of the superintendent to continue to invest their technology dollars in increasing iPad access for students. In 2013-2014, the one-to-one program was expanded to fourth grade, and in 2014-2015, all third-grade students were given an iPad to use at school. Students who were not part of the program had a computer lab through which they rotated. By the beginning of the 2016-2017 school year, Liberty Unified School District had implemented a district-wide one-to-one program, providing Chromebooks for every student in grades K-3. Since 2009, Grandview Elementary has had ubiquitous wireless internet access across the campus. Currently, three wireless networks provide access for staff, students, and guests. Networks are maintained remotely by district information technology (IT), and network issues are typically resolved within minutes. IT staff support printers and devices other than iPads from a central district location, with response rates of under 24 hours. Site teacher technology leaders provide troubleshooting assistance with iPads and Chromebooks on site and are responsible for iPad device management.

As this study began, students in third through fifth grade were using iPads daily for much of their work in all subject areas. The district maintained a Google Apps for Education (GAFE) domain, and all students had accounts that provided access to Google Docs. The district also maintained a learning management system, Haiku, for all staff and students. Classrooms were equipped with Apple TVs so that staff and students could mirror their devices for whole group presentation. PDF Notes, an app that allows students to annotate PDF documents directly, were used consistently for the majority of worksheet-type assignments. ExplainEverything, a collaborative whiteboard application, was used by fifth grade students, while third and fourth grade students used the ShowMe application as an interactive whiteboard. Other apps, including iMovie and Pages, were used by a small number of teachers with a small number of students. Chromebooks in kindergarten through second grade were used by students to access web-based resources, including the district intervention program. Second grade teachers used Google Classroom to share links and documents with their students.

The following vignettes, based on classroom observations conducted in March, 2016, are indicative of the ways in which teachers facilitated student use of technology in math instruction at Grandview:

> In Ms. Johnson's fourth grade classroom, students participated in math rotations, working in small groups to solve problems related to equivalent fractions, decimals, and money. A variety of physical manipulatives were available to every table group, and students used the manipulatives to solve the problems they had been given. Once the group agreed on a solution, a member of the team would use their iPad to capture images to explain their work and their responses. At one table, the discussion centered around how best to arrange the manipulatives to show their understanding. When a student proposed using annotations over the photos within Google Slides, the group agreed they could use that approach, and rearranged their manipulatives so that they would have room in the picture to add a text box. One student took the picture with his or her iPad and the group huddled around to direct the placement of the text boxes on the image. When they

were unable to find symbols for greater than or less than on their keyboards, a student wrote the symbol on a small piece of paper and inserted it into the arranged manipulatives. This time the group deemed the photo sufficient to meet the objective, and added it into a Google Slide presentation, sharing it with the group. As the group proceeded through the math rotations, different students took charge of taking the necessary image and adding it to the shared presentation. Because the group could not agree upon who should submit the final product, two of the four group members submitted the presentation to the teacher through Google Classroom.

Math rotations in Mr. Hill's third grade class involved small groups working on different assignments. One group met with the teacher for individualized support, using a chalkboard application on their iPad to write and erase answers. Another group uses an online leveled curriculum called Moby Max to watch instructional videos and practice math strategies and algorithms individually on their iPads. One group of students used fraction tile manipulatives as they collaborated on their responses to workbook questions. The fourth group accessed virtual manipulatives on their iPads, working on problems that could not be represented using the physical manipulatives available in the classroom.

Staff

Grandview Elementary has 27 general education teachers, two special education teachers, two part-time intervention teachers, and a certificated instructional coach. The average class size for all grades is 30 students. Many members of the staff have been at Grandview for their entire teaching careers. Of the 27 full time teachers, five are probationary (less than two years of experience in the district). The mean number of years of experience is 11.4, with the newest teacher having taught for four months and the most experienced teacher in her thirty-third year.

Historically, teachers have worked collaboratively as grade level teams. Lesson plans are written as a group, and grade level teams make decisions about materials to purchase. In addition, grade level teams write new or adapt existing curriculum units to better meet the demands of the Next Generation Science Standards (NGSS). Four staff members have bilingual certification, and five have certificates in the teaching of Gifted

and Talented Education (GATE). Five members of the teaching staff have presented at national conferences in the past three years. All staff members are daily users of email, and all teachers administer district benchmark assessments online. In addition, all grade level teams keep their grade level lesson plans either in Haiku, the district adopted learning management system (LMS) or in Google Docs.

Professional development related to the integration of technology has occurred in both formal and informal settings. A review of staff development agendas over the past three years indicates that there has been technology training included in approximately 60% of the meetings. During the 2015-2016 school year, the district provided two additional days of professional development for teachers as a part of their contract; one of these days included sessions on use of GAFE tools and Haiku. Site monthly newsletters include a "tech tip" introducing a productivity, organization, or interaction application. That application is then modeled in the monthly staff meeting in a way that gives teachers opportunities to use the application as a student might.

Introduction to AVID

Policy Context

In January 2016, the Liberty Unified School District announced that all schools in the district would implement AVID programs. After gathering stakeholder input, the district had determined that college-readiness, in the form of successful completion of college preparatory classes and advanced placement (AP) classes, was a need for our students. Because the AVID program had shown success at the high school and middle school level, implementing AVID Elementary across the district was determined to be an appropriate action step and was written into the Local Control Accountability Plan

(LCAP). At the district level, significant resources were allocated to support the implementation, and administrative staff were instructed that implementation of the program would be a regular part of Principal meetings and evaluations.

Three elementary schools had already begun piloting AVID Elementary, and the Superintendent and his Cabinet said that they were pleased with the changes they were seeing. Per a presentation at the monthly elementary principals' meeting, attendance was up, grades were higher, and there were fewer parent complaints about homework and communication. The three principals were also pleased with the results. According to one principal, having AVID Elementary as a base philosophy helped to drive a more rigorous writing program across her school, even among teachers who had not attended the AVID Summer Institute in July 2015 (A. Garcia, personal communication, November 3, 2015).

Site Reaction

In discussions with the leadership team at Grandview Elementary, teachers immediately raised concerns. Every member of the team was familiar with the concept of the three-inch AVID binder, and there was significant push-back on the concept. Our site had moved beyond a paper binder, according to the leadership team, and implementing that particular strategy, more than anything else, would be a huge step backwards for Grandview's STEM program and school culture of integrated technology and paperless assignments. After speaking with district leadership and principals implementing the program that year, I was able to reassure staff that our implementation of AVID could become largely paperless and staff could adapt some portions of the AVID Elementary model to better fit the site focus on digital communication and student agency. Although still unclear about exactly how the program would look at our site, teachers became

intrigued by the idea. I provided additional professional development about the goals of AVID, aligning the AVID goals with the elements of practice that had earned Grandview Elementary the designation of P21 Exemplar School. In addition, I provided them with the AVID Elementary Crosswalk Tool (AVID Center, n.d.c), delineating the overlap between the Common Core State Standards, the Framework for 21st Century Learning, and the AVID core program elements. Regional AVID staff expressed a commitment to coaching our site through the reinvention of the AVID program to ensure program compatibility while also meeting the needs of staff and students. In addition, the Liberty Unified superintendent expressed his support for site implementation of the AVID Elementary program in a way that met local needs.

In requiring the program at all sites, the district allocated significant resources, slightly more than ten thousand dollars, to each site expressly to support sending cadres of teachers to the 2016 AVID Summer Institute. The district paid each sites' AVID registration fee, AVID site library costs, and the annual AVID membership fee of approximately four thousand dollars out of centralized Title I funds. In addition, I allocated approximately six thousand dollars in site funds to send additional staff members. My goal was to ensure that all teachers that desired to attend the AVID Summer Institute would be able to do so. Although teachers were not paid to attend the summer institute, their travel and registration were paid for by the district and/or site.

At Grandview, the leadership team began to discuss how to ensure that the AVID program was designed and implemented in a way that was tailored specifically to Grandview. Interest in attending the AVID Summer Institute grew, and the site ultimately registered seventeen staff members, including the instructional coach and myself, the

principal. Every member of the fifth-grade team wanted to attend, specifically stating that they felt they were the most important group to be trained so that they could prepare students for middle school AVID routines. At every other grade level, at least two teachers asked to participate. Three additional teachers were unable to attend during the dates of the 2016 Summer Institute due to other commitments but asked to be part of the implementation team so that their input could be included in the design of the program at Grandview.

In February 2016, I appointed an interested teacher to be our site AVID lead teacher. Her role included overseeing the data collection, organizing "WICOR Walks," and consulting with staff as they implement the program. She became part of a district team as well, meeting with site AVID lead teachers from the other elementary schools in the district to analyze results and explore best practices. The work of the district team was overseen by a district leader, as well as a regional AVID representative. The site AVID lead teacher and district AVID Coordinator provided important perspectives to inform this case study.

CHAPTER FOUR: METHODOLOGY

Ethnographic case study is a qualitative research methodology that uses close, prolonged observation to create a thick description of dynamic phenomena through the lens of a researcher's involvement in the group (Schensul, Schensul, and LeCompte, 2013). In this chapter I provide a description of and rationale for the methodology of the study, and explain the structure of the data collection and analysis process. Given that this study is situated at a school site, an ethnographic case study was the best methodology to capture the complex interactions of people and processes in play during the implementation of the new AVID Elementary program. As both a principal and a researcher, I have a unique access to the staff at the site, an embedded interest in supporting the collaborative culture in place, and a deep understanding of the program being implemented. Over the nine-month study period, I attended AVID Elementary training as a participant, conducted formal and informal classroom visits, and observed teacher interactions. In addition, I interviewed a convenience sample of eight teachers to gain an understanding of how they perceived the implementation of the AVID Elementary program.

Qualitative Research Methodologies

Qualitative research methodologies allow one to explore a phenomenon when the specific variables are unknown, gaining a detailed understanding using an emergent process (Creswell, 2012). This study took the form of a case study, using an ethnographic lens to tell the stories of individuals and shed light on the process taking place at the site

(Creswell, 2012). There is significant overlap between case study and ethnography (Angers & Machtmes, 2005; Nunan, 2010). By using an ethnographic lens, this study allowed for deep exploration of the actions and perceptions of a bounded group of teachers over time, providing a rich understanding of the implementation of the AVID Elementary program.

Bhatti (2012) suggested that ethnographic methods rely on researchers' involvement in and commitment to the setting they are studying. As principal of the site being studied, I am deeply committed to the setting and the participants. According to Schensul, Schensul, and LeCompte (2013), "ethnography seeks to understand the human world and its internal and external phenomena from the perspective of the people being studied rather than solely from the researcher's own perspective or a specific theoretical lens" (p. 2).

As schools are social learning contexts, the study reflected the ways in which teachers at the site learn from and with each other, situating the narratives in the social and cultural context of the site (Parthasarathy, 2008). In addition, the ethnographic lens helped to situate the study in space and place, providing the reader with the context necessary to determine the study's generalizability (Beaulieu, Scharnhorst, & Wouters, 2007). This study was chronological, documenting and analyzing the experiences as they occurred. It used a narrative voice, enhancing the reader's sense of verisimilitude through vignettes and the personal stories of participants and of myself. According to Creswell (2012):

> Narrative research is a literary form of qualitative research with strong ties to literature, and it provides a qualitative approach in which you can write in a persuasive, literary form. It focuses on the microanalytic picture – individual stories – rather than the broader picture […]. (p. 502)

Because my central question asked how a process occurs in a particular environment, qualitative case study was an appropriate design choice. Although the literature revealed a theoretical model for the ways in which the innovations developed within the AVID Elementary program may diffuse, the specifics of how the innovations may be adapted or reinvented could not be predicted. My purpose in this study was to develop an in-depth understanding of the process of adaptation and reinvention of AVID Elementary within a technology-rich elementary school and to provide the reader with a detailed understanding of what occurred that could be generalized to other contexts. Therefore, a narrative case study design was the most appropriate research design for my purpose.

Design of the Study

> Case studies focus on a particular situation, event, program, or phenomenon. The case itself is important for what it reveals about the phenomenon and for what it might represent. This specificity of focus makes it an especially good design for practical problems – for questions, situations, or puzzling occurrences arising from everyday practice. (Merriam, 2009, p. 43)

According to Merriam (2009), "a case study is an in-depth description and analysis of a bounded system" (p. 40). A case study is the focus on the one versus a focus on the many and is specific to the case rather than generalized (Stake, 2000). Providing the foundation for Merriam's definition, Stake stated that a case study is a "specific, unique, bounded system" (p. 436). Case study research begins with determining the specific case to be examined (Creswell, 2013). By looking at a specific case in depth, the researcher can document, describe, and analyze a situation in a way that makes it more understandable. Selection of a case in a case study should be based upon that which provides the greatest opportunity to learn (Stake, 2000). The unit of analysis in this study

was a particular instance of a process, bounded by the timeframe of adoption and initial implementation, as well as by the participant group (Merriam, 2009).

Merriam and Simpson (2000) emphasized the sociocultural nature of case study, with the social group being the unit of study. The sociocultural aspect of this study led me to use an ethnographic lens as I sought to understand the implementation process from the point of view of those being studied rather than solely from my own perspective (Schensul, Schensul, & LeCompte, 2013). Angers and Machtmes (2005) operationalized ethnographic case study as "prolonged observations over time in a natural setting within a bounded system" (p. 777). According to Parthasarathy (2008), in ethnographic case study, the researcher looks for patterns within a given context, and explores relationships and understandings that are part of the culture. An ethnographic lens is an appropriate tool to document a process within a specific, dynamic context (Angrosino, 2008). Mosley-Howard and Evans (2000) suggested that, because ethnographic case studies explore a phenomenon from the perspective of participants, they "lend themselves to a richer, more in-depth understanding of the findings" (p. 435).

This study explored the evolving shared patterns of behavior and belief within the context of implementation of an AVID Elementary program at a specific school site, one in which students' use of technology is already part of the established culture. The case was bounded by the introduction, adaptation, and first phase of diffusion of the adaptations of AVID Elementary program components at the school site. Because the staff at the school site being studied had been implementing technology consistently for teaching and learning for the past three years, this study provided a greater opportunity to focus primarily on the implementation of an AVID Elementary program, rather than

primarily on the technology skills. Following recommendations by Yin (2014), because this study was an "extensive and in-depth description" (p. 4) of a phenomenon taking place is a specific context, case study was an appropriate methodology. Consistent with Bogdan and Biklen (2007), this study provided rich descriptions of the places, people, and interactions, representing the complexity of the context in a way not easily addressed using quantitative statistical procedures.

According to Creswell (2013), the term "thick description" was introduced to case study research by anthropologist Clifford Geertz. A thick description details both behaviors and context through observational data and prompts researchers to understand what makes the behavior or interactions meaningful (Dawson, 2010). Mills, Durepos, and Wiebe (2010) stated that a thick description should include "details, context, circumstances, meanings, significance, motivations, emotions, social relations, history, and other such descriptive and interpretive elements of the case" (p. 288). This study contextualized and situated the implementation of AVID Elementary within the existing belief system, knowledge, and skills. In weaving together the narrative for this ethnographic case study, I created a thick description that provides the reader with a clear illustration of the events, the process, the people, and the setting being studied. Quotations and vignettes were used to reinforce and clarify information being presented. My goal in using thick description was to provide the reader with sufficient data to determine the applicability of this research to the reader's own educational context and to "provoke new insights, understandings, connections, and explanations" (Coe, 2012, p. 6).

This study was conducted over a seven-month period, beginning in June 2016 and concluding in January 2017. Table 4.1 illustrates the date ranges for the three planned

phases of the study: (1) adoption of the AVID Elementary program, (2) initial implementation phase and (3) innovation and adaptation phase. All critical activities in each phase of the study are identified, along with the dates in which they occurred.

Table 4.1 Adoption and Implementation Timeline

Adoption Phase (Summer 2016)	• Attend AVID Summer Institute • Identify priority areas for implementation • Develop initial lessons for students • Identify initial innovations to AVID strategies to best meet site needs
Initial Implementation Phase (Trimester 1)	• Implement lessons • Begin monthly AVID Leadership Team meetings • Begin data collection for certification • Identify successful strategies for replication • Identify additional innovations to AVID strategies to best meet site needs
Innovation and Adaptation Phase (Trimester 2)	• Adapt lessons as needed • Conduct ongoing AVID Leadership Team meetings • Continue data collection for certification • Implement revisions and innovations to strategies • Disseminate successful strategies across grade levels

Theoretical Framework

This study was an embedded single-case observational design, focusing on several units of analysis (Yin, 2014). Within the case of the implementation of the AVID Elementary program, each grade level had a degree of autonomy in determining how best to apply the priorities that had been agreed upon at the site level. In addition, teachers were able to choose to adapt or adopt strategies individually, providing another unit of analysis. Observation, supplemented with unstructured interviews, provided the data for

the study (Merriam, 2009). In order to ensure a cohesive picture, this study focused on both the subunit level and the larger unit of analysis, the site (Yin, 2014). Because there were three levels of innovation and implementation decision-making, I chose to focus on the macro level of the school site, the meso level of grade level teams, and the micro level of individual teachers.

The purpose behind conducting the case study influences the way in which it is presented (Creswell, 2013). Stake (2000) claimed that the intent of the case study determines if it is intrinsic or instrumental. According to Stake, intrinsic case studies are those that seek to understand only the case, with no intent of generalizing or generating a theory. Instrumental case studies are those in which the case is studied in order to better understand a phenomenon or pattern. Flyvbjerg (2007) argued that a case study produces context-dependent knowledge and develops the researcher's worldview and depth of understanding of a topic through deep understanding of a case. He went on to say that, if a case is well chosen, it will produce appropriate generalizations. This study was instrumental, in that the case was examined in order to better understand a phenomenon or pattern, with a goal of providing a model or lessons that may be helpful to other schools in the future. The ethnographic lens of this study provided a focus on the lived experiences, or direct first-hand accounts, of teachers implementing the innovations (Clandinin, 2006). It endeavored to acknowledge the valuable insight they developed as they implemented, adapted, and dealt with challenges that arose.

Yin (2014) suggested that case study research benefits from the "prior development of theoretical propositions" as a framework for data collection and analysis (p. 17). Schensul, Schensul, and LeCompte (2013) recommended that researchers

develop “ideas, concepts and preliminary research models” in order to frame the ways in which data is explored (p. 82). In this study, diffusion of innovation theory (Rogers, 2003) and innovation implementation theory (Klein & Sorra, 1996) were used as interpretive models for the ways in which the AVID Elementary program components were reinvented and adopted at the school site. In addition, research regarding affordances of specific Web 2.0 tools informed my predictions about the types of tools that teachers would choose to use in their innovations of the AVID components. As the study evolved and documented the decisions teachers and teams made about tools and strategies, the review of literature regarding the particular affordances of selected tools were expanded to include the ways in which teachers took advantage of the tools. These theories provided a framework that guided data collection by identifying what to look for, what to examine in detail, and what to omit during data collection (Schensul, Schensul, & LeCompte, 2013).

Goals of the Study

According to Mills, Durepos, and Wiebe (2010), case study research in education serves the functions of highlighting good instruction through two means: “development and implementation of policy, and gaining experience through exposure to a particular phenomenon” (p. 99). Isaac and Michael (1981) stated that case study research can provide a “complete, well-organized picture” of the phenomenon (p. 48). This study used a chronological narrative style, providing the reader with sufficient history and detail so that the situation could be clearly understood. This was accomplished through the inclusion of multiple views and multiple data sources, including contextual information such as the mission and goals of the case being studied (Mills, Durepos, & Wiebe, 2010).

The goal of this case study was to provide the reader with a deep understanding of the case (Creswell, 2013).

The primary research question to be answered through this study was "How is AVID Elementary implemented in a technology-rich environment?" Creswell (2013) noted that a high-quality case study must include assertions or generalizations that emerge during the study of the case. Because AVID's roots are in the high school setting, and because its strategies and philosophies were identified prior to easy access to collaborative technologies, answers gleaned through this study are likely to be instrumental to other technology-rich sites implementing the AVID Elementary program. Further, existing research about AVID has focused on the outcomes of the program such as student achievement, high school dropout rates, and college acceptance and persistence. This study addressed a gap in the literature regarding the ways in which implementation of an AVID program influences school culture. The lessons learned through the lens of diffusion of innovation may also prove valuable to schools implementing any new initiative. In the final analysis, it was important to identify which elements in the implementation might enable other sites to implement a similar program more effectively and which were highly specific to the school site being studied (Gilman, 2013).

Data Collection and Analysis

Simons (2009) suggested that context is a key component of data analysis. She noted that the researcher must be careful not to extrapolate a history or context based on decontextualized experiences provided by isolated interviews and observations. Angrosino (2008) further indicated that multiple data sources are necessary when using

ethnographic methods to ensure that the researcher's biases or perspectives do not unduly influence the results. In order to ensure a comprehensive context, I used multiple sources of data and triangulated those data throughout each phase of the data collection process.

This study began with an historical review of the site, addressing the ongoing role that technology has played in shaping school culture. As the school began the transition to AVID Elementary, observations, field notes, and further interviews with staff informed the documentation of the implementation process. I conducted eight unstructured interviews about expectations and needs, consistent with my role as principal. Notes from additional interviews conducted by the AVID site lead teacher were included as field notes of the implementation process. All data were related back to the context in which it was collected to reveal the meaning (Angrosino, 2008; Mills, Durepos, & Wiebe, 2010). Field observations were used to capture a holistic view of the phenomenon, whereas interviews illuminated the realities experienced by the participants in the process.

To accomplish the goals of this study and appropriately document the implementation of AVID Elementary at Grandview Elementary, I obtained district permission and collected a variety of data (Table 4.2). In addition to the formal observations and interviews, data collection at times reflected more of a continuous observation of the program implementation. Although I was a visitor in classrooms and held a supervisory position, the frequency of my classroom visits led me to believe that teachers and students were not doing something out of the ordinary just because I was there. In longer observations, I endeavored to take detailed field notes that captured "sensory impressions, nascent thoughts, and snippets of conversation" (Sunstein & Chiseri-Strater, 2012, p. 82). I primarily used double-entry field notes, with a column for

observations and a column for my response to those observations. I further refined my field notes with comments, questions, and impressions that emerged in the days following observations. As I reflected on my field notes, I applied Sunstein and Chisteri-Straters' three questions: What surprised me? What intrigued me? What disturbed me? The authors claimed that these questions help researchers to illuminate preconceived notions, to identify subjective responses, and to reveal the "blind spots, stereotypes, and prejudices" that may skew interpretation (Sunstein & Chisteri-Strater, 2012, p. 87).

Multiple classroom observations were conducted through the AVID WICOR Walk process, and the walkthrough data informed this study. These 5- to 10-minute classroom observations were led by the site AVID lead teacher, and frequently included another teacher in addition to Angelica and myself. The observation form was a modified version of the AVID WICOR Walk form, and was structured with check boxes as well as fields for longer observer notes (see Appendix A). The form was created with Google Forms, and results from all observations by all observers were collected in a single spreadsheet.

Throughout the process, observation data was triangulated with my personal reflections and with observation data collected by the site AVID Leadership team. Documents provided through professional development by the AVID Center guided the initial organization of data collection. Field notes from the site AVID lead teacher were cross referenced for similarities and differences, helping to reduce bias and ensure a more well-rounded interpretation. At each stage of the data collection and analysis process, I methodically triangulated my findings to look for anomalies or contradictions.

I interviewed staff who elected to participate in the study during the AVID Summer Institute regarding their expectations for implementation, their priorities, and their expected challenges, consistent with my role as principal. Throughout the trimester, the site's AVID lead teacher conducted additional informal interviews, focusing on what was working well, what teachers were in the process of adapting, and what challenges they were facing in order to glean insights into the implementation of the AVID Elementary program at the school site. Staff were not required to participate, and there were no rewards or consequences attached to the choice of participation. Throughout the study, a small number of interviews were recorded. However, a significant source of data came from the notes of conversations and meetings taken by AVID staff, the site's AVID lead teacher, and myself. Because these less structured interviews by other parties removed the likelihood of answers being influenced by my institutional role, I believe I gained more authentic data in a trade-off of quality over quantity. I obtained a similar picture of the implementation of the program whether I was observing classrooms, interviewing teachers, analyzing lesson plans, or listening to teacher conversations, and this picture was consistent with the one reported by AVID staff and the site AVID lead teacher.

Table 4.2 Sources of Evidence

	Researcher records	Field notes and interviews	Archival records and documentation
Spring & Summer 2016	Reflections on informal conversations regarding AVID at site and district	Notes from AVID Certification meetings Notes from AVID informational meeting with interested staff	School Accountability Report Cards (SARC) District professional development records Single Plan for Student Achievement (SPSA) goals and actions
Summer Institute June 21-23, 2016	Daily personal reflections	Notes from AVID team meetings Agreements regarding implementation	AVID Program materials AVID Site Team Plan
Site Professional Development August 8-9, 2016	Personal reflections	Grade level team meeting notes	AVID program materials Professional development agenda
Trimester 1 August through November 2016	Personal reflections	Grade level team meeting notes AVID site team meeting notes	AVID program materials Student work sample analysis AVID site walkthrough responses
Trimester 2 November 2016 through January 2017	Personal reflections	Grade level team meeting notes AVID site team meeting notes Teacher interviews	AVID program materials Student work sample analysis AVID site walkthrough responses

Angrosino (2008) suggested a number of best practices when using ethnographic research methods. High quality data collection methods provide the level of detail

required in order to provide a “thick” description of results. Table 4.3 below details the ways in which I applied these best practices throughout the data collection process.

Table 4.3 Application of Ethnographic Best Practices

Best Practice	Addressed in this Study
Date, time, location of observation	Tagged all notes with the date and time of the conversation or observation.
Verbatim verbal exchanges	Captured as many words and phrases as possible within the setting. Used ellipses when specific words or phrases are not captured. Summarized conversational key points immediately afterward.
Pseudonyms or codes	During the data collection process, staff were assigned codes based on their classroom number. Pseudonyms were assigned to each individual or composite featured in vignettes.
Chronology	Developed a timeline of data collection activities to ensure that key events are captured. Converted notes into narrative frequently and regularly. Allowed narrative to unfold over time.
Objective descriptions	Recorded what was happening without inferring with what participants are thinking or feeling. Captured setting and demographic detail as part of observational data.

Schensul, Schensul, and LeCompte (2013) referenced the volume of data that is collected through ethnographic methods and suggested that careful organization of data, both during and after the field study, is critical to ensure valid and reliable results. They further indicated that early study findings should be written while in the field, which can help to identify gaps in knowledge that are best addressed immediately. For this study, I wrote daily notes during the data collections windows and conducted initial analyses of

the data. Data collection, data analysis, and data reporting took place in cycles as events occurred. At times during the study, there was overlap between these components.

Data Analysis and Reporting

Consistent with best practices in qualitative methods, data analysis occurred concurrently with data collection (Yin, 2014). In order to best analyze the data, I wrote field notes during and after each observation and interview, and adhered to the best practices described in Table 4.3 by including context, quotations, and chronology in my notes. As professional development, AVID Site Team meetings, and interactions with staff regarding the implementation of the program occurred, I wrote reflections and notes based on my experiences and memories as a participant (Collins & Gallinat, 2010). I frequently used more than one method of gathering data, including observation, recording verbal interactions, and photographing evidence of different degrees and styles of implementation (Vogt, Vogt, Gardner, & Haeffele, 2014).

Once I had completed the process of data collection and had added my impressions and summary of each event, I conducted a descriptive analysis of the data, identifying patterns and themes that emerged (Angrosino, 2008). The data were further parsed into three units of analysis: (a) individual teacher, (b) grade level team, and (c) school-wide (Yin, 2014). Each of these units of analysis corresponded to the macro, meso, and micro levels, as explained below.

1. At the macro level, the AVID leadership team made decisions about which of the AVID Essentials to prioritize for the first year of implementation and determined what elements would be non-negotiables across the site during Year 1. These were written as goal statements with attendant action steps. As principal, my

institutional role was to ensure that those goals are being addressed by each team and each individual, providing training, coaching, and resources as needed. As researcher, my goal was to identify the many ways in which these goals were communicated and disseminated across the site.

2. Many innovation decisions were made at the meso level, that is, within grade level teams. Working together in both formal professional learning time and informal hallway discussions, teachers on the team determined which adaptations to the AVID strategies and tools they would implement across the grade level. These teams considered the affordances of various technology tools that were available and identified gaps that might be met by different technologies or approaches. The meso level also became a proving ground for innovations that individual teachers had developed in their classroom, as grade level teams implemented and then further revised strategies. Not all grade level teams made innovation decisions at the meso level; teams containing newer teachers or those with lower levels of agency were less likely to move into this level.
3. The majority of innovation decisions were first made at the micro level where individual teachers created innovations to meet the goals set forth by the site AVID Leadership team. Within their individual classrooms, teachers experimented with innovations and revisions based on moment-to-moment conditions, including technology functionality and student skills and needs. Some of these experiences at the micro level looped to the meso level as teachers planned, tested, revised, and tested again various strategies in collaboration with their colleagues.

To report the data, I conducted a theoretical analysis that looked for patterns and irregularities (Angrosino, 2008). Data were reported primarily in chronological, narrative format, with parallel story lines that provided details about the various innovations that were being implemented concurrently among different grade levels and teachers, as well as different themes that emerged during the same period. As recommended by Coe (2012), I included extensive data including context, excerpts from conversations and interviews, and details of methodology in order to provide evidence for my analysis and conclusions. I chose to incorporate vignettes and storytelling strategies to bring a sense of verisimilitude, or the appearance of truth, to the narrative. Angrosino (2008) recommended the use of such writing techniques in order to "draw the reader into the world that has been studied so as to evoke a mood of recognition" (p. 60).

In the process of collecting and analyzing data, I uncovered themes that were unexpected. As themes emerged, I explored the research and then added terms to my analysis taxonomy that were consistent with existing research. This made my review of literature a living document as I proceeded through the study, adding sections and striking through sections that were not supported by my findings. For example, I initially coded some interactions between teachers as reflecting self-efficacy. In researching the concept of self-efficacy, I found that the definition I held in my head was inaccurate, and the theme I was seeing was actually agency. I revised my taxonomy to include terminology specific to teacher agency, including autonomy, beliefs, experience, experimentation, activism, and peer support. Some of the components I had included in my dissertation proposal such as the strategy of blogging were not born out by my data

collection and analysis, and were therefore refined or generalized to match the actual results.

Table 4.4 Example of Theme Development

Initial Code	Expanded Codes	Theme
Self-efficacy	Self-confidence – tech (beliefs) Self-confidence – content (beliefs) Experimentation Autonomy Activism Peer support	Teacher agency

Credibility and Reflexivity

As a participant observer with an institutional leadership role, I moved back and forth on the spectrum between observation and involvement (Bodgdan & Biklen, 2007). In my observations captured in field notes and in my personal reflections, I attempted to include details about the tone of interactions, the way the data were collected, and the role I adopted while in the classroom or in meetings (Bhatti, 2012). I endeavored to distinguish between my impressions as an impartial observer and my judgments as principal of the school and to illuminate those differences as reported in my results. Throughout the data collection process, I paid close attention to my own role and behavior. I kept reflexive notes about my perceptions of events as they occurred and analyzed my personal beliefs, experiences, and expectations as I interpreted events (Sunstein & Chiseri-Strater, 2012). I have included my own perceptions and reflexive questions in this study in order to provide necessary information for readers to interpret my findings, and I have provided a broad picture to the reader in a way that allows them to draw their own conclusions and generalizations (Simons, 2009).

As with all forms of qualitative research, there are some underlying principles of respect for the subject and researcher reflexivity that must be addressed in the study. Creswell (2012) suggested that researchers must self-disclose their role in the study and examine their personal intentions. The implementation of AVID Elementary is a district mandate; however, as principal of the school being studied, I have significant ability to influence the ways in which the program is implemented at the site. Consistent with recommendations by Creswell (2012), I openly discussed my role in the study, and clearly delineated my position and point of view in the narrative. As a participant observer, I recognize that my involvement in the activities studied "inevitably" altered the phenomena (Vogt, Vogt, Gardner, & Haeffele, 2014, p. 106).

Throughout this study, I increased credibility through a thick description that demonstrates the inclusion of multiple perspectives and by highlighting areas of inconsistency (Mills, Durepos, & Wiebe, 2010). By providing several parallel stories of implementation and adaptation at the individual, grade, and school-wide levels, I provided the reader the opportunity to find his or her own meaning in the narrative, along with the ability to apply the lessons to their own context. Results from outside data collection instruments and observations conducted by AVID regional staff and by the site AVID lead teacher helped to illuminate additional themes and viewpoints. Throughout the implementation process and embedded in this study, I attempted to illuminate my biases and personal perspectives (Merriam, 2009). However, my self-reflexive data provided an additional resource that, when viewed through an ethnographic lens, further informed the study (Collins & Gallinat, 2010).

As Flyvbjerg (2007) noted, it is critical for researchers to be aware of their preconceptions. This case study has at its foundation my personal belief that AVID Elementary can be implemented with philosophical fidelity in a technology-rich environment. It is bolstered by my superintendent's stated belief that the program should be adapted to fit site culture and needs. As site administrator, one of my leadership roles has been to ensure that the reinvention of the program is consistent with the research underlying AVID methods and strategies, and adheres to four AVID Elementary essentials. These are instruction, culture, leadership and systems, and are described in detail in Chapter 2. The superintendent of the Liberty Unified School District has stated his goal for all elementary schools to be certified in AVID Elementary (M. McCormick, personal communication, October 22, 2015). Therefore, it is my goal to ensure that the program at my site does so. As technology-based innovations are developed and implemented by teachers, I am ultimately responsible to ensure that they are sufficiently aligned with AVID expectations to complete the certification process. Although I began the study with the belief that it is possible to implement AVID strategies and materials in a school with a culture of technology integration, I did not have preconceived notions about a single correct way in which that implementation would occur. Nonetheless, the mandate of implementation leaves me with limited ability to share in the skepticism that Grandview staff may experience.

Flyvbjerg (2007) noted a history of expectations of verification bias in case study research, but argued that case studies are the least likely of qualitative methods to allow for verification bias because of the in-depth study involved in the case. Simons (2009) particularly noted the challenges with analysis of observational data, as it is impossible to

record everything that is seen. What then emerges is the researcher's interpretation of what is most important, which may mean that things outside of his or her expectations are missed. In order to address construct validity (Yin, 2014), multiple data sources were used and catalogued appropriately in order to construct a chain of evidence. I used a variety of strategies to verify and expand field notes and observational data, relying on my leadership team, instructional coach, and AVID Center personnel as member checkers. When possible, I video recorded grade level meetings in order to validate my field notes and reduce the possibility of verification bias. Because AVID team walkthroughs are performed by the AVID team itself and not the site administrator, the data from those observations provided an important triangulation point for possible researcher bias in collecting observational data as noted by Simons (2009). In addition, the AVID team walkthrough data had the benefit of being nonreactive because data were collected through an unobtrusive process that is part of a regular, transparent system of classroom walkthroughs (Isaac & Michael, 1981).

Because case studies have "an intense interest in personal views and circumstances," appropriate protection of the individuals or settings being studied was critical (Stake, 2000, p. 447). Pseudonyms were used in both the data collection and the narrative of the study. However, as Mills, Durepos, and Wiebe (2010) remarked, the level of detail that make a case study valuable are also the details that make it identifiable, and it seems likely that those connected with the case will be able to determine the identities of all concerned.

Because this study focused on the experiences of one elementary school, the generalizability of the study may be limited. The school being studied is not necessarily

representative of other school sites. Its local recognition as a STEM site and national recognition as a P21 Exemplar School demonstrates the commitment of site staff to the use of technology and their experience with adopting new innovations. However, one-to-one technology is becoming increasingly common, and thus this study may provide guidance for other elementary schools that have made substantial investments in the integration of technology prior to or concurrently with the adoption of the AVID program. This study focused on both the unique aspects of the school and culture, as well as the more generalizable findings that may serve to demonstrate the value in the lessons learned.

Summary

A qualitative case study methodology was the best fit for the goals of this study, providing a deep understanding of the case (Creswell, 2013). This study employed an ethnographic lens to answer the question, "How is AVID Elementary implemented in a technology-rich environment?" In this study, I explored the ways in which site culture and experience shapes innovations and the ways in which the implementation of the AVID Elementary program was influenced by the values-fit of specific components. As an instrumental case study (Stake, 2000), this study provided generalizations that may inform other sites as they integrate technology in the implementation of an AVID Elementary program. With little research currently available about the diffusion of innovations within an AVID Elementary program and the use of AVID strategies in a technology-rich environment, this study addressed a gap in the literature and ultimately lead to further questions for research. The study was framed as a chronological narrative,

providing a sense of story with rich descriptions that allowed the reader to experience the case as if he or she were seeing it first-hand.

Given that this study was situated at a school site, and given my institutional role as principal of the school, ethnographic reporting methods provide the best structure to ensure a complete understanding of the case. Observational methods were used early in the study to study the phenomena as they occurred, without intervention or alteration. My purpose throughout the study was to "gain a closer, insider perspective on the phenomena" (Vogt, Vogt, Gardner, & Haeffele, 2014, p. 106).

CHAPTER FIVE: RESULTS AND DISCUSSION

Overview

The purpose of this study was to document and examine the ways in which the AVID Elementary program was implemented in a technology-rich environment. In this chapter, I explored the following phases in the chronological arc of implementation:

1. The introduction to the AVID Elementary program during the Summer Institute.
2. The resistance that occurred at the beginning of the school year as teachers negotiated the adoption of new curriculum.
3. The crisis that arose during mandated data collection.
4. The initial implementation stage in which teachers began to use AVID Elementary programs in the format with which they had been presented during the Summer Institute.
5. The innovation and adaptation stage wherein teachers appropriated and revised strategies and tools.

The narrative of each of these phases was arranged to provide the reader with the details necessary to determine the study's generalizability. As is recommended in ethnographic case studies, description of each phase opens with the context, including a clear description of space, time, and the factors in play during that particular phase (Beaulieu, Scharnhorst, & Wouters, 2007). The narrative is further arranged to highlight the patterns of events that occurred during the course of the study (Stake, 2000).

AVID Summer Institute: Introduction to AVID Elementary

Three June days and three nights in San Diego – it wasn't a hard sell. Sixteen teachers and the instructional coach volunteered to attend the AVID Summer Institute with me. Surely most attendees hoped that the eight-hour days in an oceanfront conference center would be interesting and valuable, but they also probably anticipated a welcome mini-vacation from the 100 degree temperatures of Oak Valley.

The evening before the Summer Institute, teachers began arriving and checking into the hotel, with rooms overlooking the Pacific Ocean. Many had carpooled, and others had been texting with their colleagues to make plans for dinner. Relaxed from three weeks of vacation, wearing sundresses, shorts, and sandals, the teachers gathered in small groups and strolled along the marina, chattering about their summer adventures so far and plans for the remainder of the year. Some voiced anticipation for the days of learning ahead, but most simply enjoyed the company of colleagues they had not seen since summer vacation began.

Context

The AVID Elementary Summer Institute was a three-day program, which ran from 8:00 a.m. to 4:00 p.m. daily. During the site team meeting on the first day, all team members were in the same room to hear the same information regarding a framework for the AVID Elementary program and the certification process. Next, the group was divided into different strands led by AVID regional staff members that provided substantial time to explore the tools and strategies recommended by the AVID Elementary program. Only four staff members were in strands with other people from Grandview, which caused some initial grumbling among teachers who wanted to be with their colleagues and grade level teams. With other principals from the district, I attended a leadership strand, which provided a slightly different curriculum, focused primarily on administrative and management strategies that would facilitate program implementation at the site.

At the end of the second day, two hours of site team meeting time was devoted to writing goals and action plans. Based on the information they had received in their

strands, members of the team were tasked with deciding which elements to implement as priorities and what action steps were required to meet the particular needs and expectations of the site. I was the first of our team to enter the room, followed shortly by site AVID lead teacher Angelica. One of the facilitators brought Angelica a flash drive of the required forms, and she began to fill out the required forms with basic demographic information, such as school phone number and address. As staff continued to arrive for the meeting, they clustered around the table that Angelica headed and began chatting about the strategies that had been presented.

The mood was positive and cheerful as staff members related the strategies they had learned to processes already in place at the site. Third grade teacher Marc summed up the mood, saying, "Rigor, engagement and, college going culture are things we are already doing," which the team agreed would make implementing the program and meeting site goals much easier. This impression of values compatibility (Rogers, 2003) was repeated in many different ways as the teachers shared ideas and resources with one another. Although this alignment with existing structures and beliefs at the school might appear to make the training redundant or irrelevant for the teachers, in fact the opposite was true; teachers said they felt the AVID Elementary training validated their philosophies and beliefs while also providing new strategies or tweaks that might work better for specific students.

Goal setting

Angelica got the attention of the group and began to facilitate a conversation about the first goal for the site. She focused the conversation by saying that the regional AVID team had suggested that we focus on two goals and that their recommendation was

that our goals address organization and college-going culture. Initially, several teachers nodded their heads and seemed in agreement with the plan of writing goals in the areas of organization and college-going culture. However, there were also some furrowed brows and side conversations in which participants conveyed the belief that these were things that were already in place at the site and thus not really goals. While a small group began a discussion of the merits of different digital organizational tools, the remainder of the group began to talk about whether it would be more appropriate to focus attention on more challenging areas, such as reading, writing, or inquiry. Although a college-going culture was consistent with the group's beliefs, it was not consistent with the value of tackling more challenging and meaningful goals. Al said he thought it would be good to focus on writing in the first year while the team researched good digital organizational tools. The team became more energized and engaged in the conversation; side conversations dwindled as teachers listened carefully to the discussion.

Guillermo, a fourth-grade teacher who also served as a site trainer for the implementation of the Next Generation Science Standards said that he thought a focus on writing made sense as that was an identified weakness across the district. He said that the NGSS training he had attended earlier in the summer had included a major focus on writing in the content area. As heads around the table began to nod in agreement, Vicki, one of the site math trainers, agreed that the training she had attended had addressed the same weakness and had focused on writing in mathematics. Jamie suggested that we could use the same language as the sample goal in our training materials, and the team debated the merits of phrases such as "increase student writing strategies," and "use three-column note-taking strategies in science journals." Vicki advocated for focusing on

writing strategies in math and science only, as the district had just adopted a new language arts curriculum, and it was not yet clear what relative strengths and gaps the new materials might contain. There was a growing sense of excitement as side conversations started up again, with teachers discussing the changes they would be making to their practice to better meet the goal.

As three group members arrived late, several members of the team helped Angelica to summarize the discussion and share the draft goal. While Dorothy expressed reservations about the goal, focusing solely on math and science, Guillermo noted that by writing a goal that addressed literacy skills within math and science, we would be able to maintain a focus on the elements that had led to Grandview being perceived as a model STEM school. That argument seemed to win over the newly arrived members of the group and elicited a nod of approval from Dorothy.

Angelica got the group's attention again to verify a consensus that note-taking strategies in math and science would be relevant and measurable; the nods and thumbs-up signs around the group were unanimous. As Angelica wrote the goal into her form, the group again reverted to excited side conversations about how they would implement note-taking strategies as soon as school resumed. The choice of goal seemed to be appropriate to the staff, and their demeanor reflected a sense of ownership. It was consistent with existing needs for improved writing instruction and with the message delivered through professional development in the district that writing should be embedded in all curricular areas. The focus on writing within science and math reinforced the site STEM focus. As Al noted, implementing AVID would help Grandview be even better at what it was already doing well, by focusing on better note-taking and review

skills and incorporating explicit instruction in collaboration. As teachers discussed the strategies they had learned, they referenced strategies already in place, and drew connections between new terminology and existing practices.

During the conversation about goals, Marc suggested that Grandview might focus on organization and said that the staff might look at digital organization, our existing planners, or both. Grace shared two applications that had been presented in her strand and began a side conversation with Al. The two technologically savvy teachers debated whether each application would work on both Chromebooks and iPads. Grace suggested a goal in which all students would create digital portfolios. She and Al then continued to discuss which tool or tools might work at different grade levels as the group listened. Marjorie, a teacher who struggled with technology, rolled her eyes at the discussion about which tool might work best. Whereas Grace and Al seemed to be energized by the debate about specific technology tools, several other teachers began to express reservations about digital organization goals, citing the need to test the new tools prior to adoption. It became clear that the complexity factor involved in selecting and then implementing a digital organization tool was a sizable barrier. The team agreed that postponing an organization goal until the second-year goal was agreed upon would give some motivated teachers the opportunity to explore various tools prior to a site-wide adoption.

Following the Rules

During the course of the discussions, there was a level of concern by some members of the team about writing relevant goals. For example, Heidi asked if we would get into trouble with our regional AVID team if we did not write the goals they had recommended. There was also some concern about not being able to do anything with the

areas in which we did not write goals. Marc asked if we could continue to use our existing planners as organizational tools while we focused on writing. I clarified that we could choose our goals and our tools based on our own particular needs and that we could implement the program over a period of three years. That seemed to reduce the anxiety of the group, and almost everyone seemed to be able to release their concerns about compliance.

At the conclusion of the final group meeting, there was a sense of contentment. The team had developed goals that were different from the norm but seemed right for Grandview. Most teachers expressed satisfaction with the training and seemed comfortable delegating responsibility for writing detailed action steps to Angelica based on the feedback they had already provided. There was a sense of camaraderie among the Summer Institute attendees, and I was optimistic that AVID Elementary would become a strong component embedded in school culture and instruction.

Resistance

> "We still don't have Teacher's Editions?" The cry of frustration was echoed by several teachers as they stopped by my office near the end of the summer. The main thing on teachers' minds was the lack of materials for the new language arts adoption they were expected to implement. Any excitement that they felt leaving the AVID Summer Institute was now replaced by the stress of missing materials and an unfamiliar curriculum. There was no time to think about how to incorporate AVID strategies; the primary concern of every teacher was how to implement the new curriculum.

Context

Just prior to the 2016-2017 school year, all elementary teachers in the Liberty Unified School District were given a new English Language Arts (ELA) curriculum and provided with two days of professional development on how to manage and implement it. The Teacher's Editions of the textbook had only arrived the day before teachers reported

for the year, so no one had had the opportunity to spend time making sense of the pacing and expectations. During their training, teachers were told to implement the curriculum with fidelity for the first year to best understand the components and their place in supporting student learning. It was a stressful time as teachers attempted to make sense of their teacher's edition. Dorothy summed up the feelings of many teachers when she came to me to say that we needed to reduce our expectations in our AVID implementation because teachers were struggling just to "keep their heads above water" with the new language arts program.

In the first site staff meeting of the year, Angelica presented the AVID goals for the year to the staff. I then facilitated an activity to unpack the AVID essentials and the quality indicators that would inform the site certification process. In the preliminary exploration of the quality indicators in the areas of instruction, many teachers noted that they were already doing some of the things called for in the rubric. Questions were raised about whether they needed to focus on AVID right away, given that they were trying to implement a newly adopted curriculum. Angelica began by saying that we could begin implementing AVID at the same time because the AVID strategies could be used with any content area of subject, but several teachers began to protest that it would not be implementing the ELA program with fidelity if we did that. As Angelica turned to me for support, I clarified that our priority was implementing the ELA curriculum. However, I knew that as professionals they would be modifying and supplementing the publisher's curriculum to best meet the needs of their students. Further, I noted that our first AVID goal was about note-taking in math and science, and changes to the ELA curriculum would not affect our ongoing implementation of math and science. The furrowed brows

and murmured side conversations made it clear that the staff were not completely satisfied with that explanation, and I recognized that I would need to work with Angelica to adjust our timeline of professional development. In a conversation after the staff meeting, we agreed it would be initially important to highlight AVID strategies only in math and science in order to reduce the anxiety that teachers were feeling about the ELA adoption.

Frustration and Doubt

At the beginning of the school year, Grandview teachers felt a sense of dismay as they mentally grappled with finding time to master two programs that they perceived as new. Dorothy noted that, “There's way too much content to deliver it all, and there's a lot of stuff that's a little ambiguous.” While many teachers at Grandview generally had confidence in their own abilities, implementing two new programs concurrently reduced the sense of self-efficacy and agency (Tschannen-Moran, Hoy, and Hoy, 1998). Conversations in the staff lounge, in grade-level meetings, and in informal gatherings in hallways after school affirmed the sense of self-doubt, as teachers alternatively complained and supported each other. Discussions centered around where to find specific resources in the new adoption, how to access the digital teacher’s edition, and what page they should be on each day, rather than centering on student learning and instructional strategies. Several teachers said they felt incompetent when they could not find the resources called for in the Teacher’s Edition, or when they did not have a firm grasp on the arc of the unit. This led to frustration and anxiety among a staff accustomed to feeling confident in their instruction. The lack of control and knowledge teachers were experiencing with the new ELA adoption seemed to reduce their sense of self-efficacy

and contribute to their anxiety (Priestley, Edwards, Priestley, & Miller, 2012). For the first three weeks of school, implementing AVID strategies simply was not a priority, as teachers' mental energy was consumed with the new ELA adoption.

Crisis: AVID Student Assessment Process

> The handout at the staff meeting felt formidable, even to me. It consisted of two pages of questions for every student plus a cover sheet with a table for tallying the student data collected on the forms. The AVID Elementary student assessment was a part of the certification process that I had looked at but had failed to recognize as one more straw on teachers' already overloaded backs. For each student, teachers were asked to rate components of their organization and note taking. They were then expected to transfer all the data onto one cover sheet for easy consumption by the principal, the district AVID Coordinator, or by AVID staff.
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> Before I had even finished passing the forms out, I heard the grumbling from side conversations. Voices began to rise. "We don't even do this!" exclaimed Marsha, looking at the checklist section calling for binder dividers, supply pouch, and extra paper. "This part isn't even relevant!" added Guillermo. "Can't we do this as a Google doc?" asked Jim. The frustration in the room was clear, and soon Dorothy spoke up. "This is a lot of extra work," she said, "I don't have any more time I can take away from instruction to do this!" The level of hostility in the room was palpable and far greater than I had ever before experienced with the Grandview staff. I knew I had crossed some invisible line and that I needed to figure out a way to make the student assessment process work for teachers.

Context

As part of its certification process, AVID expects teachers in grades 3-5 to complete an Agenda/Planner Assessment Tool, Organizational Tool Assessment, and Three-Column Notes Assessment Tool for each student, three times per year. The form is designed so that a student can bring up their three-ring binder, and the teacher can check off each of the elements in each section. Because Grandview was not using binders, the form had elements that were difficult to capture by simply having students show certain materials to their teacher. In addition, the section about organizational tools contained

elements, such as the pouch for pencils and tabs for content areas, that were so specific to three-ring binders as to be completely irrelevant to Grandview.

The initial student assessment was required within the first few weeks of the school year. During the Summer Institute Leadership Strand and in subsequent principal trainings, AVID staff made it clear that we could adjust these checklists in such a way as to represent our goals and systems. However, the district AVID coordinator ultimately told the site AVID lead teacher that we should assess student implementation on the paper form during the first data collection cycle. When the form was distributed at the staff meeting, there was an immediate negative reaction. Not only were teachers upset about the additional workload that the data collection represented, they were offended to be asked to complete a form that was not appropriate for site needs and goals. Since the first introduction of AVID Elementary at Grandview, I had assured teachers that we would implement the program in our own way, with the culture of the site and the needs of our students always in mind. Nevertheless, I had given them a generic form with irrelevant sections and a format that was incompatible with how teachers prefer to work. In my reflection that evening, I wrote the following:

> I should have predicted that reaction. Telling them to ignore the [organization] section and just use the generic form was offensive, and I get that. They're right about the tallies, too – who does that? If the data can't be used, then it's a meaningless form. If it's meaningless, it's a waste of their time. If I'm asking them to do it anyway, I'm not honoring their time and professionalism. Yikes! Note to self – run this stuff past the leadership team first! (Personal reflection, September, 2016).

As I reflected on the student assessment rollout, I realized that I should have been more proactive in ensuring that the assessment tool reflected our site goals and needs, and that teachers were prepared to implement it. I had let Angelica take the lead on the

process but had failed to recognize the level of resistance that teachers might feel. I therefore felt it was my responsibility to put the student assessment form and summary into a digital format that could be applied quickly by a teacher and would better honor their concerns about the process.

The next day, I asked teachers to postpone administering the student assessments and requested advice from members of the site leadership team about ways in which we might continue to be compliant with the intent of the student data collection while also honoring our site culture and needs. Unequivocally, Jim said the form must be digital or it would not get done. Grace agreed, and Dorothy added that the data had to be accessible to everyone and had to be collected in a way that teachers could easily compare results from the different data collection windows to determine progress. I contacted AVID regional staff for a digital form that I would be able to customize to site needs. They responded by sending a PDF of the same document.

I created a Google Form (see Appendix A) that had many of the elements of the paper student assessment tool, but not all. Things that we had not agreed to as a staff and grade level teams had not embraced, such as pencil pouches and binders, I eliminated from the form. I created a back-end that aggregated the responses in a single spreadsheet with worksheets for each teacher. When I shared it with the leadership team on Monday morning, they all seemed relieved. As Jim shared, “I can get my team to do that.” The following day I began to hear from teachers who were completing the student assessment using the online form. It was unanimous that the form was less time-consuming and more easily completed than the paper form.

Angelica, Jim, and Marsha all came to me at different points during the week expressing their appreciation for the digital form. As I reflected on the experience, I noted that I had violated the trust of my staff by failing to predict the challenges in the paper form of the student assessment. I wrote, “It’s hard to regain trust. But they know how hard I worked over the weekend to fix it; hopefully that’s considered atonement.” I also recognized that addressing the values of the teachers at the site, particularly the site opinion leaders, would be vital to the dissemination of the AVID program. It seemed clear to me that any component, whether for students or for purposes of data collection, must be consistent with the ways in which my staff would use the technology for teaching, learning, and management.

Jumping Through Hoops

The extreme reaction that teachers had to the student assessment was not simply because teachers were resistant to the additional workload of filling out forms and then tallying results. A large portion of the resistance was due to the perception that the task was meaningless; doing it for the purposes of certification did not hold value for the teachers, particularly when compared to the work involved in collecting the data. In addition, teachers were uneasy with the suggestion that they leave certain sections blank; they were concerned that the data would be used in a way that would reflect poorly on Grandview. The fact that the data were not in a format that could be easily analyzed made it particularly unwelcome among a staff that valued the use of data to inform instruction and intervention. Because the student assessment process was a requirement imposed by someone from outside of the organization, many teachers saw the process as a requirement without any resultant value.

After the meeting, Dorothy came to my office and said she realized that she had come across quite strong, but that she felt it was important to speak up to express the frustration that others were feeling but not saying. She added, “This is why we really didn’t want to do AVID. There’s just a lot of work that takes away from time we should be spending on the curriculum.” She noted that the elementary schools that had piloted the AVID Elementary program the prior year had made little progress in their state-mandated test scores and said that she believed that was because they had allowed the AVID Elementary data collection and implementation of meaningless elements to detract from a strong curricular focus. At first, her attitude surprised me somewhat. Although she had been resistant to the concept of the AVID binder before we began the process, I had been under the impression that she had appreciated the strategies and tools from the Summer Institute. However, I knew that Dorothy felt a strong sense of personal responsibility for the reputation of the school as a leader in test scores, STEM implementation, and awards. I realized that her hesitation to implement anything that might be construed as taking time or focus away from building a strong curricular base for our students did indeed fit her sense of purpose.

At the same time, I was experiencing my own personal struggles with justifying the mandated certification activities. I had attended a regional meeting and sat with teachers and an administrator from another school, both of whom indicated they were feeling a lack of support from the AVID regional team. They had already had their initial meeting with the regional representative and said they had sensed from here comments that there was a predetermined correct way to do things. Although the superintendent of Liberty Unified School District had been clear that we needed to adapt the program in

whatever way was necessary to fit the unique needs of our site, the regional representative had expressed far less flexibility. I was somewhat relieved to know that the student assessment process had been poorly received at the other site as well. I felt better knowing that it was not just the way in which I presented the process that created such a negative reaction.

The need to find relevance in mandated activities is one that I share with my teachers and influenced the way I responded during my meeting with the regional AVID representative the following week. After explaining all the evidence and artifacts we would need to assemble in order to receive AVID certification, she went on to say that this first year was "practice." She announced that we would not be going through the pre-certification process this year because there were too many schools for the regional staff to work with. When I asked why we should invest the time and energy into collecting materials that would not be used, she retorted, "Don't you want to share?" For me, that was a tipping point. Although I still believed that the strategies and tools provided during the Summer Institute represented relevant and powerful pedagogy, I vowed to myself that I would let my staff and site needs drive the implementation process for the remainder of the year. Dorothy's words rang in my head; it was critical that our student learning needs be the primary consideration in how Grandview implemented the AVID Elementary program.

Compliance

Angelica now found herself in a difficult position. She was torn between wanting to make sure that we did exactly what we were required to do for our AVID certification and honoring the way things were done at the site. As a developing teacher leader, she

felt comfortable with asking questions but not with challenging the suggestions put forth by district personnel. Although she felt powerless to change it, Angelica recognized that the student assessment form did not reflect most of what we do. She hoped that it would be sufficient to tell teachers that they were not required to complete the areas that did not apply. Although ultimately the site's AVID certification rested on my shoulders, Angelica, as the site lead teacher, felt a sense of responsibility for doing everything necessary to make it happen. For Angelica, the perceived requirement for the paper version of the form was more powerful than her expectation that the program should be tailored to site needs.

Making the compliance issue more fraught was a report by one of the teachers who had attended a training early in the school year that the presenters had made an implicit threat that certification would be withheld if Grandview did not adopt the recommended goals and priorities. Olga conveyed that one of the regional staff had said that an organizational goal was required in the first year of implementation. Further, she recounted to her grade level team that the AVID staff member had indicated that any site where teachers insisted on writing their own goals risked certification. Rather than serving as the cautionary message I am sure it was designed to transmit, this implicit threat created a defensive backlash among many Grandview staff members. Even among teachers who were enthusiastic immediately after the Summer Institute, the idea began to spread that AVID was not a good fit for our site. There was a perception that Grandview was being asked to change its culture to match AVID requirements, rather than the site adopting AVID in a way that fit its culture.

In conversations with my leadership team, I found that compliance was not a motivator for the majority of them. They challenged the necessity of doing tasks that met AVID's needs rather than our own. Most of them brought up the "Grandview way," which seemed to involve questioning mandates, and having at times been exempt from district expectations in certain program implementations. It was clear that the culture and values of the site were not conducive to authority-decision models, and I learned that they had experienced some success in avoiding district authority decisions in the past. As AVID staff continued to promote a specific route to certification that was incompatible with site needs, Grandview staff began to push back against the idea of certification. Even as they began to implement some or the WICOR strategies, the teachers made it clear that AVID certification itself did not hold value to them.

Analog Strategies in a Digital Environment

> After approximately six weeks, life at Grandview began to settle into a familiar pattern. Teachers, while not yet feeling like experts with the new adoption, were at least beginning to be comfortable with the pacing and structure of the curriculum. Four additional teachers attended an AVID workshop, coming back with enthusiastic plans to implement a strategy or two. They all had a positive experience with AVID staff and felt they were respected as professionals. As they shared experiences with their colleagues, ideas from the AVID Summer Institute began to percolate back into teachers' consciousness, and they started to experiment with some of the note-taking and collaboration strategies.

Context

As teachers became more comfortable with the new language arts adoption, their interest in exploring the use of AVID strategies increased. I met with Angelica one afternoon in my office to talk about the AVID implementation. She was excited, leaning in, a big smile on her face:

> I'm so happy about the way that the AVID strategies just lend themselves to working with the [ELA] curriculum. The philosophical chairs, well, the book was

> talking about collaborative conversations, and I just thought why not do philosophical chairs? It wasn't like I planned it out, I just did it because it lent itself to it!

Angelica's experience was not unique. In my informal and formal classroom observations, I was hearing AVID terminology and seeing evidence of AVID-style note taking. Teachers who had attended the Summer Institute were beginning to integrate some of the AVID ideas and strategies into their instruction in math, science, and even language arts. There was a distinct lack of consistency. Teachers were implementing at the micro level (Yin, 2014), applying strategies and tools that they had found most interesting or relevant to their classroom setting. Although I was not yet hearing structured conversations at grade-level team meetings about the merits or challenges of specific strategies and tools, I was starting to see teachers share informally when outcomes exceeded their expectations.

Initial Self Study

Grandview was required to submit our Initial Self-Study (ISS) to the AVID Center. This self-assessment was validated by our first "WICOR Walk," in which at least two people walked through every participating classroom to document the level to which teachers were incorporating the AVID Essentials in teaching and learning. The ISS is not an evaluative process. Because it takes place during the early part of implementation, it is designed to be a gauge of what is and is not occurring at the site so that the team can accurately measure growth and make plans for appropriate professional development based on teacher needs. Nonetheless, teachers were a bit nervous about it and asked for the walkthrough to happen at a specific time in order to display a particular strategy they were using.

The purpose of the walkthrough was to collect evidence of writing to learn strategies, inquiry strategies, collaboration activities, organizational tools and strategies, and reading to learn strategies (WICOR). The data collection form was broken into five sections with checkboxes for specific strategies within each area. In addition, there was an area for notes for each of the WICOR areas. Although we discussed creating a digital version of the form for our first WICOR Walk, Angelica asked that we use the paper forms provided by AVID to collect data and notes. She wanted to experience the process in the way it had been presented to her before making any decisions about modifying the form. Angelica and I each carried a clipboard with a form for each classroom, as well as our smartphones to collect visual evidence of the strategies in place.

Angelica and I conducted the walkthrough together, visiting every classroom at every grade level, whether teachers had attended AVID training or not. The process required us not only to examine classroom walls for evidence of anchor papers and student-created materials, but also to talk to one or two students per classroom to determine their level of implementation of student indicators in organization and note-taking. In comparing our notes and our photos post-walkthrough, we found that differing impressions of the levels of implementation were often based upon which students we spoke to.

As we conducted our walkthrough, the lack of consistency of implementation between classrooms became more apparent. For example, in one first-grade classroom, students cut out flash cards from their consumable math book, pasting them into their math notebooks as part of a three-column note structure. In a second-grade class, students wrote writing weekly summaries of what they had learned, what they felt confident

about, and what areas they felt they needed to work on in math. One third-grade teacher had made use of the DLIQ (what I did, learned, found interesting and questions) structure to have students write weekly reflections. Although there was a lack of consistency in terms of products that students were creating, many teachers had anchor charts of two- and three-column notes posted on their walls for students to reference, particularly for vocabulary. Jamie, a kindergarten teacher, said with a laugh, "Our students can't all write their names yet, so it's best if I do the three-column notes for them!"

The vast majority of implemented strategies we observed during the first WICOR Walk were analog. The following vignettes illustrate some of the ways in which Grandview teachers used and adapted AVID strategies to support the needs of their students.

> Olga's third grade students were creating a document called a "one-pager," a visual representation of thinking and learning about a specific topic. Students were spread throughout the room, leaning over tables or hunched over writing mats, working in pairs to respond to the directions they had been given. Each team wrote their assigned key word in large print in the middle of the page, then worked together to determine how best to create a frame around the page with topic-themed artwork, write three interesting facts, write one higher level question and its answer, and draw a picture that connected the theme to their own lives. As students discussed and debated the optimum image or agreed upon roles for each partner, Olga roamed the room providing positive reinforcement of both process and product as they occurred.

> Leroy's first grade class was creating collaborative three-column notes. In each table group, students had written a two-digit numeral in the first column. In the second column, they were busily gluing Cheerios to their charts, arranging them in ten-frame format and using markers to circle their groups of tens. In the third column, they wrote the numeral in expanded notation and drew arrows back to their tens groups and ones in the prior column. As Leroy coached students, he reminded them that every person in their group needed to write and every student needed to glue.

Although the one-pager strategy had been presented as one in which individual students displayed their knowledge, Olga had adapted it into a collaborative activity. Similarly, collaborative two- and three-column notes had been introduced during the AVID Summer Institute session, but Leroy's use of the process to work effectively for conceptual math understanding, including the practice of using cereal to capture mathematical processes, represented an innovation. Even if many adaptations of AVID strategies were small, I noted that most teachers who were implementing AVID strategies had begun to make changes to best address their teaching style and the needs of their students.

After the first WICOR walk, Angelica and I attempted to make sense from the sixty pieces of paper we had used to collect data. We began to tally our responses but quickly abandoned that strategy in favor of a more holistic reading of our comments. We also discussed the many photos we had taken and selected some images that clearly showed teacher or student implementation of various strategies to share at our next staff meeting. After using the paper format of data collection and finding the results too complicated to analyze, Angelica asked if I would create a Google Form for the next WICOR walk. She suggested that it would be easier to review site data and look for patterns if we rendered the data in a format that could more easily be manipulated. She further requested that another teacher join us on the WICOR Walk, partly to have an additional set of eyes to look for evidence of implementation and partly to be able to better share the strategies that were in place.

Stealing and Building

In the first WICOR Walk, many teachers asked for the walkthrough to happen at a specific time in order to highlight a particular strategy they were using and pointed out anchor charts and student work on the walls as evidence of implementation. As the tenor of the WICOR Walks changed from one of AVID certification to one of professional learning, teachers became even more invested in showcasing the strategies being implemented in their classrooms. Angelica noted that a large part of the value of the walkthrough for her came from seeing the many different possible ways to implement the various strategies and the unique ways that individual teachers focused on and adapted specific strategies and tools. Although the AVID model calls for only one person to conduct the site WICOR walk, Angelica agreed to share her perceptions of the walkthrough with the leadership team, and ask them how they thought we might capitalize on the experience by including other teachers.

Following the recommendation of the site leadership team, additional teachers were invited to participate in subsequent WICOR Walks. In debriefings after each WICOR Walk, participating teachers excitedly shared strategies that they had seen and now could adapt for their own classrooms. Each teacher came to me within days following their participation in the walkthroughs to tell me they had implemented a strategy they had observed. In the third WICOR Walk, teachers who had participated in the second one were particularly excited to showcase strategies they had "stolen" from other teachers. "I got this from Leroy!" said Marjorie, proudly showing student-created posters with beans glued down to show place value in numerals. "We've all done one-pagers now because of Olga. My kids love them!" gushed Heidi. Strategies had begun to

spread from the micro level to the meso level (Yin, 2014), and teachers were starting to find ways to implement AVID that matched their teaching style and their student needs.

Innovation and Adaptation Phase

> In Jim's classroom, students were eager to show off their *eBinders*. Their colorful collections of folders and tabs in Google Drive were organized by subject, with nested folders inside. One student demonstrated how she had created subfolders for writing, comprehension, and grammar within her language arts folder, opening each folder with a flourish. She enthusiastically displayed a photo she had taken of the word bank created on the whiteboard during a brainstorming session, and explained how she referred to the photo to help her check her spelling or get additional ideas for her essay. In addition to the photo, her writing folder contained a diagram created in Google Draw, and a draft of a persuasive essay written in Google Docs. As Jim had taught her, this student saw her digital writing folder as a collection of artifacts, all of which were resources available to help her complete her assignments whether at school or at home.

Context

As the second trimester began, teachers began to discuss their efforts in using various AVID strategies with digital tools in grade-level meetings. Third-, fourth- and fifth-grade teachers all began to have students take pictures of their three-column math and science notes, so they would have them for reference at home if desired. Several teachers shared with their grade level teams how they were using Google Slides to facilitate student collaboration during activities they had learned at the AVID Summer Institute, and Google Classroom became an increasingly common way to share organizational templates with students. Teachers began to adapt the strategies they had learned, combining strategies and tools in different ways and using technology in the delivery of instruction or production of student work.

Ready for Risk-taking

As Angers and Machtmes (2005) pointed out, "Changing teaching requires more than just time to investigate new methods. It also involves a personal commitment and

courage to try new things" (p. 774). As teachers began to experiment with different AVID strategies and tools, a divide emerged between teachers who considered themselves comfortable with technology and those who considered themselves less technologically savvy. The teachers with greater technology skills or with a higher tolerance for risk-taking began to experiment with different technology tools and applications. Most of the experimentation happened in third through fifth grade, as those grade levels tended to have teachers with greater comfort and experience with the technology tools in one-on-one environments.

Dorothy, Jim, and Marsha all considered themselves to be fairly technologically savvy, with the ability to troubleshoot most issues. In addition, all three were confident in their content and instructional expertise, with a sense of self-efficacy that lent itself to risk-taking (Buchanan, 2015). Dorothy stated,

> there's certain people who are just naturally more comfortable with venturing into the unknown. I don't know what I'm doing when I start something sometimes, or I certainly don't know how it's going to turn out, and I haven't had to sit in a training on how to use Google Forms on how to make a test. I'm figuring it out as I go, but there's more hesitation sometimes with trying to do that, so if you're waiting for someone to teach you, you won't try as many things, so there's that. I think it's just a personal characteristic.

At each grade level, teachers began to share with their colleagues the AVID strategies that were working in their classrooms. Staff meetings every two weeks included a short segment related to AVID implementation, with photos of teacher and student products. Perhaps most importantly, more and more teachers had the opportunity to participate in WICOR Walks, and thus see examples of implementation in practice. Many of the adaptations and innovations teachers made were not digital; they adapted AVID strategies or processes to fit with the ELA adoption or the science units of study.

However, several teachers, primarily in the upper grades, began to innovate with digital tools that provided unique affordances to support the intent or processes of AVID strategies without the same analog format.

Getting Organized (Digitally)

Approximately three months into the implementation of AVID Elementary, Jim and Marsha began to discuss how they might use Google Drive as an eBinder. They presented the eBinder concept to their students as a collection of work in which everything could be accessed from anywhere through the web. Many of the students already had saved Google documents and presentations from third grade. The first step was the creation of a folder called "third grade," into which all the prior year's documents were dragged. As Jim explained, "The idea is that they'll have all their work, organized by grade level." Marsha added, "I keep telling my students it's to keep organized, and if you're at home you can log in, or if you lose your notes in class..."

In each of the two classes, students created a folder for each core subject area and began to take photos of their handwritten notes in math and science that they then moved into the appropriate folder. In their language arts folder, students collected photos of things such as graphic organizers and brainstorming notes done with their group. Marsha noted that many of her students took pictures of her notes rather than their own "because the pencil is too light or it's messy." In addition, students kept their writing, typically done in Google Docs, in the folders. The hierarchical framework of folders dictated by the teachers provided a clear definition and purpose for each label, making it easy for students to organize their work (Jones, 2007).

Students quickly began to customize their folders, using color to provide additional visual cues or just to make their screen more interesting. Some students began to create hierarchical folders. For example, one student divided her Language Arts folder into subfolders labeled vocabulary and reading, with an additional subfolder inside the reading folder labeled comprehension. Some students took pictures of their math tests, saying that they could look back at them and also share them with their parents. Both Jim and Marsha actively encouraged student customization of their folders within the broad organizational structure of subject headings, acknowledging that each individual student must find a process that worked well for them to efficiently retrieve information when it was asked for (Park, 2011).

At approximately the same time, Grace began to experiment with OneNote, a Microsoft product with documentation available on the AVID website for use as an eBinder (AVID Center, 2015). She provided direction to students to set up their organization by subject and then by lesson. In a December observation, Grace demonstrated the way in which she had one student each day project OneNote from their iPad onto the screen, explain their organization and naming, and ask the rest of the class for any necessary technical assistance. She noted that naming structures were an area that the class identified as a need. Every student named their documents differently based on their own perceptions of what would make it easier to find. In addition, the organizational tabs could be arranged vertically or horizontally and colored, providing some degree of personal choice in terms of aesthetics.

Grace acknowledged that accessing OneNote from home was sometimes a challenge, even when internet access was available. For example, students needed to be

logged out of OneNote at school to be able to access it from a different device. Android devices seemed to work poorly with OneNote, and Grace had tasked students who had Android devices with supporting one another as they found fixes and solutions. Consistent with her philosophy of student agency and problem solving, she encouraged students to both identify issues and propose solutions.

Student Collaboration

Student collaboration is one of the key components of AVID, and the modeling of social learning strategies was a significant focus of the AVID Summer Institute. Strategies such as philosophical chairs and Socratic seminars are designed with structures to facilitate student collaboration. By December, some teachers began to experiment with the use of collaborative documents and presentations shared with students through Google Classroom to mimic traditional collaboration strategies promoted by AVID. For example, Angelica designed a digital version of the philosophical chairs strategy. Like the traditional strategy, students critically read an article or series of articles and took notes. They then took a position to respond to a teacher prompt, providing evidence from their notes. Rather than keeping their notes in their hands and selecting a physical location in the room to designate their position, students shared their positions on a given slide in a presentation.

Guillermo took the strategy Angelica had piloted and expanded it to provide additional opportunities for students to collaborate. Groups were created based on the positions students took and they were tasked with expanding on their argument. The digital structure allowed students to build upon each other's work and easily exchange ideas as they created them (Hsu, Ching, & Grabowski, 2014). According to Guillermo,

> they started to add their own twists. Someone added a YouTube video, and suddenly they all wanted to find YouTube videos that proved their point. They inserted images and charts and links to additional information. [One student] added comments to other groups' slides, but that got out of control pretty quick.

Guillermo also noted that students tended to ask each other for technical assistance rather than him, and that recognized experts in various skills seemed to emerge. He said that the vast majority of student-to-student technical support was done in a face-to-face format, but that he was aware of at least three instances in which students used the comments or speaker notes feature to collaborate remotely both during and after school hours.

Many teachers began to use Google Docs for peer editing. Dorothy, for example, assigned students to triads and had each student read and respond to the two other students' work with grammatical edits, points of clarification, suggestions for elaboration, and a specific statement of praise. Using essentially the same process and prompts that she would have used with paper and pencil peer editing, Dorothy nonetheless felt that editors were far more likely to provide meaningful suggestions and the writer was far more likely to clarify, elaborate, and build upon the areas the editors recommended when working in a digital format. She noted that her students found great satisfaction in marking comments as resolved as they worked through their drafts. Because Google Docs allowed her to see the comments students made to one another, Dorothy felt confident that she could monitor and provide intervention in any issues that arose.

Pushing Back

Even as some teachers began to explore innovations and adaptations to AVID Elementary strategies using technology, one conversation that repeated itself across grade

levels was that of barriers to implementation. The most common perceived barrier was the belief that students would not have access to digital materials at home. Vicki worried, "Well, what if they don't have internet access at home? Then they're in trouble." Olga added the following:

> I just don't know what they have at home. That's my issue… Some may have all of those things [technology devices], some may just have their mom's iPhone. So that's what I get nervous about. I know we're headed in that direction, but especially the district that I work in, it's not there yet. Not everyone has a computer at home. If they can't afford lunch every day, I don't know if they have a computer at home, you know?

Teachers in the primary grades frequently cited students' lack of ability with technology as a barrier to adapting AVID strategies to take advantage of technology. "It takes them forever to log in," complained Leroy. "I can't take the time to have them type in their writing." Marjorie was more specific: "I need my students to be able to write. I don't have time to teach them writing and also teach them to keyboard. We do some of the note-taking strategies, but I don't think using their Chromebooks [to write] is helpful to second graders."

Learning from Failure

Jim's team had all agreed to have students create one-pagers for their January science unit. Jim, however, felt that a digital format for the same process might be more interesting. He suggested to his team that they could have students create a presentation or video with the same set of prompts. Although no one else on the team felt confident assigning that format, they encouraged Jim to try it with his students and share the results. He edited the one-pager directions so that they no longer indicated where on a page to write the required elements but instead, simply directed students to create a

presentation or video that contained the main idea, a quote from the reading, five critical vocabulary words, and a connection to the real world.

Jim's students had prior experience with Google Slides, Keynote, and iMovie, so he gave students their choice of tool. Students were invited to work individually or in small groups and quickly got to work inserting text. The students who were using Google Slides were able to all work simultaneously on their products, and one group delegated tasks to be most efficient. The groups using Keynote and iMovie were less efficient, with two or three students attempting to view one iPad screen as another person typed. One of the groups using iMovie soon split, with all three students creating their own movies. They collaboratively discussed which vocabulary to include and agreed upon which quotation from the text to include, but each student created their own product.

The directions for the project instructed students to include images that supported each of the vocabulary words, as well as the theme of the text. This element proved to be challenging for all students. Most began by searching Google images for each vocabulary word and then inserting one of the first few images that appeared into their presentation or movie. However, not all of the images that appeared were relevant to the vocabulary word. The word *lift* was particularly problematic, and most students simply colored their slide or screen when searching for the word did not provide them immediately with an appropriate image. In one group, using Keynote, a student used a triangle shape for a wing and an arrow to indicate lift. In general, however, Jim said that he felt he would need to explicitly teach keyword searching for images if he were to do a similar assignment again.

Despite the uneven products and the challenges with separating the work of different team members for the purposes of grading, Jim and his grade-level team were enthusiastic about the opportunities afforded by this alternative format. Although expressing a personal preference for using paper and colored pencils, Olga noted, "some kids learn best this way." Marsha shared with the team that one student in her class frequently quit when drawing was part of the expectation, but she thought he might complete the project if he were able to use images from the web.

Going Public

As the second trimester ended, Grandview teachers were excited to share the ways in which they were using and adapting the AVID Elementary strategies to a team of visitors during a horizontal articulation walkthrough. In this walkthrough, AVID lead teachers from two other schools and a district AVID coordinator came to visit one classroom at each grade level that had volunteered to showcase their AVID Elementary implementation. Angelica developed a schedule for the visitations and assigned fifth-grade student ambassadors to walk with the group and keep it on schedule. After conducting the walkthrough at Grandview, all four teachers would move on to the other sites and conduct a similar walkthrough at each. In this way, the district hoped to encourage sharing of best practices between sites. In addition, the district was hoping to identify some common strategies that would be easy to incorporate in district-wide professional development, thus developing some normed strategies across the district.

Rather than following the WICOR Walk data collection format, the horizontal walkthrough asked observers to record what stood out in terms of classroom environment, teacher actions, student actions, classroom routines, and communication.

Some of the team members recorded their responses in a Google Form, whereas others wrote on paper. After walking through all of the Grandview classrooms, the team met briefly to discuss their observations.

Each of the six Grandview classrooms modeled note-taking techniques during the walkthrough. In kindergarten, students followed teacher directions to write vocabulary words into sentence frames. Observers also noted the many anchor charts and organization charts posted on the walls as evidence informing models for students. First-grade students were transferring information from their three-column vocabulary notes in their science journals to flash cards and then hole-punching their flash cards and stringing them onto individual necklaces. Leroy told the group that he did not feel that simply reviewing three-column notes was the best learning strategy for young students. Instead, he had them interact with the vocabulary in multiple ways throughout the unit. In Marjorie's second-grade classroom, students were filling in the third column of a note-taking document with the location in the text they had found a main idea or detail. They had annotated their reading packet by numbering the paragraphs, labeling the headings, circling key vocabulary, and highlighting key concepts.

In both third and fourth grades, students were documenting the steps of a scientific experiment. The teachers in each of these classrooms were monitoring students, providing clarification, and redirection as necessary, but all students seemed to have a clear understanding of what notes to take as well as the format. The observers specifically noted that students seemed able to work independently and support each other collaboratively without teacher intervention, commenting that the behaviors they saw had to have been the result of practice and repetition. Students in Angelica's classroom were

taking notes on an informational text. Like students in second grade, they identified key concepts and wrote supporting details. However, both their text and their notes were digital. In addition, their third column asked them to make connections and compose questions, so some students had an additional window open as they searched for web pages that they could reference. As students flipped between tabs on their iPads to locate and record information, one of the observers commented that doing so might help students put ideas into their own words. Another teacher said that she did not think the students at her site had the skills to navigate between windows the way that Angelica's students were doing.

After the horizontal walkthrough was complete, the district AVID coordinator said with a laugh that she had seen some great AVID strategies, but they had a distinctly Grandview lens. I thought that the teachers from the other sites were less convinced that they were seeing AVID strategies in action. They noted that it was hard for them to capture some of what they observed because it was so different from the organization strategies they were focusing on at their sites. I was unsure if they were just trying to be polite and in fact did not think our activities fit the expectations for note-taking. I wrote the following that evening:

> I'm not sure how that went. They seemed a little uncomfortable. [The district AVID coordinator] seemed to have a great time and get what we were doing, but I'm not sure about the others. They liked the lessons but did they think it was AVID? As long as it doesn't add fuel to the fire of [Grandview] being different in a bad way, I'm not sure it matters. But I still wish it was a wow moment, especially [Angelica's] room. The flipping around on the iPad was cool AND appropriate. (Personal reflection, January, 2017).

After completing the horizontal walkthrough and visiting the other sites, Angelica had concerns that were similar to my own. When we met the next day, she worried that

Grandview's implementation of AVID Elementary was too far outside of the norm. She expressed concern that we would be unable to be certified because we did not follow the same pattern as the other schools. She noted that the other schools were implementing similar strategies in marking the text and in note-taking and that she felt the most significant difference was in the types of organizational tools the others focused on. As we talked, we justified to each other the areas that Grandview was focusing on, and I think we both walked away feeling that we could be proud of what the horizontal walkthrough had revealed about our implementation.

Next Steps

After five months of implementation, Grandview staff had become comfortable with the data collection requirements of the AVID Elementary program. The mid-year student assessment process took place without complaint or discussion, and some teachers expressed interest in seeing a comparison between the first and second sets of data points. At the end of the second trimester, time at a staff meeting was devoted to creating a progression chart showing the expectations for note-taking at each grade level, and teachers began to collect student work as exemplars reflecting the different levels of implementation. Although progression charts for various WICOR strategies are required as part of the certification process, the activity was presented as a way for Grandview to be internally articulated and consistent. Guillermo sighed, "I wish we had started with this," reflecting his belief that clear models would have made implementation far easier. Other teachers noted that they needed to have the time to implement in order to really understand what students could and should do with their note-taking. Jim laughed and said that if we had created the progression last year, the site would not have needed to

attend AVID. That comment caused a brief pause, and then Olga said tartly, “Then it’s good we went to AVID because it made us do something we should have done already!”

As the third trimester began, there was a waiting list of teachers who wanted to participate in site WICOR Walks. True to the collaborative culture of the site, teachers were consistently sharing AVID reading and writing strategies with each other, both formally and informally, and continued to adapt and innovate the strategies to fit student needs. However, as the time came to register for the AVID Summer Institute the next summer, less than half as many teachers chose to attend. Leroy said that he felt that he had gotten enough information the prior year to keep working and improving and that additional training at this point would be overkill. Guillermo remarked that he had learned much more from his team than he had from the AVID Summer Institute and that he was looking forward to having Olga share her learning, given that she had opted to attend again.

Summary

This chapter told the story of the implementation of the AVID Elementary program as it proceeded through five distinct phases. Implementation of the AVID program initiated changes in teacher practices at the site, and provided a context for conversations about teaching and student learning. The implementation process began with the initial exposure to the AVID Elementary during the Summer Institute, and proceeded through the resistance at the beginning of the school year and the subsequent crisis that occurred during mandated data collection. As the first trimester progressed, teachers began to use elements of the AVID Elementary program, consistent with the ways in which they had been presented during the Summer Institute. During the second

trimester, teachers began to innovate and adapt the AVID Elementary program as they appropriated and revised strategies and tools. As the third trimester began, the innovations and adaptation that teachers had been experimenting with were shared across grade levels and across the site, and conversations about best practices and consistent application of strategies were beginning. Throughout this chapter the thick description of events and richly detailed vignettes have served to provide a strong basis for the analysis and conclusions presented in Chapter 6.

CHAPTER SIX: ANALYSIS

> An organization that is systematically able to identify, capture, interpret, share, reframe, and recodify new knowledge; to link it with its own existing knowledge base; and to put it to appropriate use will be better able to assimilate innovations. (Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004, p. 604)

This chapter analyzed the complexities associated with the diffusion and implementation of AVID Elementary strategies and resources in a technology-rich environment. Specifically, it responded to the following research questions and subquestions:

- How does AVID Elementary get implemented in a technology rich environment?
    - What specific aspects of the AVID program and materials were modified and how?
    - What were the challenges encountered as teachers adapted and/or reinvented the traditional AVID materials and strategies?
    - In what ways did teacher perceptions of AVID and of technology change during the implementation process?

In this study, diffusion of innovation theory was used as an interpretive lens to examine the many decisions individuals and teams made as they developed, implemented, and adapted innovations to address program requirements, using the technology tools and resources available to them at the school site to best meet the needs of their students. Throughout the implementation, teachers determined which tools and

strategies of the AVID Elementary program to prioritize and which to adapt or reinvent to take advantage of the technology resources and skills at the school site.

This ethnographic case study examined the process through which teachers in a technology-rich environment adopted and innovated strategies during the implementation of the AVID Elementary program. It explored the themes that emerged as teachers progressed through various stages of exposure, experimentation, and adaptation of AVID strategies and tools (Yin, 2014). In doing so, it shed light upon ways in which diffusion of innovation theory might inform adoption and dissemination processes (Rogers, 2003). Multiple sources of evidence, including researcher observation, external observer notes, interviews, and field notes, were analyzed in the development of themes. Stake (2000) recommended that a case study researcher use triangulation to search for accuracy of interpretations and uncover alternative explanations. Therefore, Table 6.1 reflects codes from analysis of all sources of evidence and the themes that were developed based on the codes.

Table 6.1 Themes

Phase	Initial Codes	Themes
Planning phase- AVID Summer Institute	Self-confidence Peer support Technology tools Technology affordances Compliance	Agency Values compatibility Complexity and trialability Compliance
Resistance phase – beginning of school year	Self-doubt	Agency Complexity
Crisis phase – Initial student assessment	Efficiency External change agents Purpose Identity	Values compatibility Culture
End of Trimester 1: Initial implementation	Experimentation Compatibility Autonomy Identity	Agency Values compatibility Culture Barriers

Phase	Initial Codes	Themes
	Professional Support Digital equity Student tech skills	
Trimester 2: Experimentation and innovation phase	Experimentation Risk-taking Autonomy Activism Identity Student tech skills	Agency Values compatibility Trialability Culture Barriers

This chapter is organized to highlight the three major themes along with their respective sub-themes as identified during data collection. Teacher agency emerged as a theme at every stage of implementation, although its manifestation was different at different times. Early in the implementation, concepts of self-efficacy and self-confidence predominated, whereas later in the implementation, autonomy, professional support, identity, and activism emerged. A second major theme reflected Rogers (2003) theory of perceived attributes. Within that theme, values compatibility was a significant sub-theme, as were complexity, trialability, and observability. A third major theme that emerged across implementation was that of school culture and identity. Distinct from values compatibility, it manifested itself in statements such as “WE do it this way” and in products that eliminated the AVID emblem in favor of the Grandview logo. Compliance and barriers were minor themes in that they were elicited only during certain periods or in certain types of data collection. Although important, they were not as pervasive as the themes of agency, perceived attributes, and culture.

Change and Teacher Agency

Teacher agency was a recurring theme throughout the implementation process, with ebbs and flows that were related both to AVID Elementary and to factors having nothing to do with AVID. O'Sullivan, Carroll, and Cavanagh (2008) suggested that there

are three logical stages a teacher will go through when implementing a new curriculum. First, teachers feel a loss of control and have doubts about their existing professional expertise. Next, they feel a sense of disorientation as they attempt to integrate new knowledge or materials into their frame of reference and prior teaching practice. At this point, they may also feel a sense of cynicism related to the lack of control they feel over their own instructional choices. Finally, teachers tend to reach a stage of acceptance, at which point they can work with peers to tailor the implementation to their own needs and style.

Campbell (2012) stated that the "capacity of teachers to use professional discretion in their pedagogical and curricular practices" (p. 183) is not necessarily compatible with externally imposed actions or outcomes. Grandview teachers were told to implement the ELA program with fidelity, while concurrently being told to experiment with AVID strategies. They saw these two perceived mandates as contrary to one another. When implementing a new curriculum, teachers tend to "cry out for more space and time to discuss learning and methodology" (Mellegard & Petterson, 2016, p. 190). At the beginning of the school year, teachers appeared to feel that there was insufficient time to discuss both the new ELA curriculum and the AVID Elementary program. Participants perceived the language arts program as a logical priority and the AVID implementation as a secondary priority in relation to student learning. Although teachers made a conscious decision to focus on the new ELA adoption and to delay implementation of AVID Elementary, they felt anxious because they were resisting a district mandate.

For many teachers who had displayed high levels of self-efficacy the prior year, the beginning of the new year created a sense of powerlessness as they implemented a

new ELA adoption without sufficient time to explore it in depth. The lack of control and knowledge teachers were experiencing with the new ELA adoption seemed to reduce their sense of self-efficacy and contribute to their anxiety (Priestley, Edwards, Priestley, & Miller, 2012). Consistent with findings by Mellegard and Pettersen (2016), teacher conversations during this phase revealed "feelings of losing professional control" (p. 187) and concerns about their ability to successfully manage the ELA program. AVID Elementary was seen as just "one more thing" (Dorothy), and teachers lacked the motivation to implement both programs at the same time. Following Rogers' (2003) innovation-decision process, teachers stalled at the decision stage, rejecting the implementation of AVID Elementary for the time being.

Although they were aware that AVID Elementary was a district mandate, their understanding of the implementation window made teachers feel they had the freedom to halt the implementation process. However, even as teachers were focusing primarily on the ELA program, Dorothy suggested that teachers would be able to incorporate AVID strategies as part of the routine once they better understood the flow of their ELA lessons. "Some of those AVID strategies, such as a one-pager or like two-column notes could start to come in on a consistent time as part of our routine… If it's informational text, we're doing two-column notes," Dorothy stated.

Agency and Self-Efficacy

Despite the initial angst teachers experienced related to implementing the AVID Elementary program while also implementing a new ELA adoption, self-efficacy and agency quickly re-emerged. Teachers adapted the AVID Elementary strategies in ways that took advantage of available technology and engaged in a systematic process of

innovation and adaptation through collaboration. They built on prior tools and strategies in use at the site so that they could determine the relative advantage and compatibility of the AVID strategies they had learned (Rogers, 2003). As they collaborated with peers and experimented with implementation of AVID and the ELA adoption, they developed the knowledge and skills that allowed them to feel more confident. Reflecting Mellegard and Pettersen's (2016) notion of growth in knowledge and skills and in one's personal efficacy, participants believed their own knowledge formed "crucial building blocks in the implementation process" (p. 193). This led to a greater sense of agency.

Buchanan (2015) suggested that teachers with more experience and greater skills are more likely to experiment and collaborate with peers on new ideas. This was borne out in the findings of this study, as teachers who had more years of experience were quicker to adapt the AVID strategies. In addition, those who were already experienced and adept with one-to-one devices in their classrooms were more likely to innovate using technology to implement AVID strategies.

Opinion Leadership

There were several site opinion leaders (Rogers, 2003) who attended the AVID Summer Institute. Some opinion leaders had recognized and respected expertise in a given area. Grace and Jim, for example, were recognized by most teachers at the site as leaders in the use of technology. Leroy was an acknowledged literacy leader, and Guillermo was considered the resident science expert. Others had expertise in a variety of areas and were generally perceived as reliable sources of information on a wide variety of topics. Teachers routinely went to Al, Latoya, Vicki, and Angelica to answer questions or concerns about a variety of topics throughout the school year. Still others were budding

leaders, younger staff, or newer to the site, but all were beginning to build a reputation as a source of quality information. Dorothy may have been the most influential site opinion leader; she had close ties across several grade levels and was often seen as the champion of the "Grandview way." The currents of conversation at the Summer Institute reflected the influence of these unofficial leaders, particularly as Dorothy's approval was the final stamp needed in order to finalize the goals. Although all of these opinion leaders expressed initial satisfaction with the Summer Institute and said that they felt the strategies were in alignment with Grandview norms, the demands of the certification process and their interactions with AVID staff seemed to have caused a change of heart later in the school year. In particular, Dorothy became disenchanted with the AVID organization and grew increasingly vocal in her opposition to the certification process.

Some teachers, such as Dorothy, Marsha, and Jim, felt comfortable questioning mandates that they did not feel were consistent with site culture or were burdensome without being useful. In my experience, these teachers put in many extra hours to support student needs but abhorred inefficiency. They were committed to high levels of performance and were dismissive of things that they perceived as lacking value. These teachers considered themselves to be advocates for site culture, teacher interests, and student needs. As site opinion leaders, these teachers influenced others with their "technical competence, social accessibility, and conformity to the system's norms" (Rogers, 2003, p. 27). As these opinion leaders pushed back against the certification process, the tenor of staff conversations about AVID changed, with several teachers across grade level teams repeating Dorothy's contention that the AVID certification process was similar to a pyramid scheme.

Olga was also a site opinion leader and considered herself an optimistic pragmatist. Her response to her grade level team's complaints about jumping through hoops was, "Well, welcome to education. There's a lot of them [hoops], so just smile and jump!" Olga's opinion leadership relied more on the social and interpersonal networks she had developed than on her innovativeness (Rogers, 2003). She participated in several committees and enthusiastically led community-building activities at the site. Rogers (2003) noted that social participation creates accessibility, which enables opinion leadership to share a message. The relationships that Olga had developed with other teachers across all grade levels allowed her to provide a counterpoint to the negative view of AVID that Dorothy had adopted.

Peer support

Grandview teachers had a strong belief in the value of peer support networks; systematic collaboration time was prioritized in the site budget and was a norm of school culture. They routinely worked together to share information and strategies, and were proactive about scheduling collaborative professional learning meetings. They engaged in classroom demo cycles and were largely comfortable sharing their teaching with each other. Shared lesson plans were developed in Google Docs or in the district LMS. All teachers had the ability to use or customize the grade level plans by simply making a personal copy.

After Olga experimented with some AVID strategies, she shared her student handouts with her grade level team via Google Docs. When the team met the following week, they used her student handouts as a starting point and developed directions that were not specific to a particular subject or unit. She explained that teachers on her team

did not want to have to edit the directions every time to fit the topic. According to Olga, the team asked themselves an important question:

> What's something that we can pull out that would work with any reading strategy, or any informative or literature text? And so we made a generic one-pager, and we saved that… We want to start moving towards having those in our back pocket, like taking those strategies, putting them together, so that they're easily accessible.

By the middle of the second trimester, many grade level teams began to discuss the issue of consistency with implementation of the AVID Elementary program. Conversations during professional learning time began to shift from low-level instructional questions about where to find resources in the ELA adoption to higher-level conversations about which strategies were most effective and should be prioritized. Teachers who had begun experimenting with AVID strategies shared examples of student work so that the team could discuss and suggest further adaptations. In second grade, for example, teachers saw the value in a weekly writing prompt in the math journal focusing on what students had learned and what they found challenging and agreed to implement it across the grade level.

Values compatibility

> If the foundation of AVID, as far as how we implement it here, is really the WICOR acronym, there is no reason why writing, inquiry, collaboration, organization, and reading can't be technology-based because that's how we interact with those things in the world as professional adults right now. We utilize binders very little. We're moving further and further away from hard copies of things. We collaborate as professionals digitally… There's no reason to believe teaching them those skills, those analog skills, is going to be the thing that helps them in their profession, but will they need to know how to organize digital files? Probably. Will they need to know that when you collaborate digitally with other people, your work affects their work? They definitely need to know that. The foundations of AVID lend themselves and match with the digital world, but the tools that AVID physically is promoting don't. (Dorothy, December, 2016)

From the first announcement that Grandview would be implementing the AVID Elementary program, teachers had concerns that it would be incompatible with the ways in which teaching and learning occurred at the site. Throughout the implementation, there was a discordancy based on relationships and interactions with AVID staff, conflicts with the Grandview sense of identity, and a mismatch between AVID Elementary tools and the technology-enabled products and processes for students. At the same time, there was a respect and appreciation for the strategies themselves as tools that would allow Grandview teachers to better support student needs.

According to Rogers (2003), those implementing an innovation can be "active participants in the adoption and diffusion process, struggling to give meaning to the new idea as the innovation is applied to their local context" (p. 187). This meaning-making was evident throughout the goal-setting phase as teachers worked to integrate new terminology and concepts with established goals, values, and practices. The goal of improving writing within math and science represented all three critical elements of the compatibility of an innovation (Rogers, 2003). First, it was consistent with existing needs for improved writing instruction as identified by the district and confirmed in site team meetings that analyzed student writing scores. Second, the goal was consistent with the message delivered through professional development in the district that writing should be embedded in all curricular areas. Finally, the goal was compatible with Grandview's socio-cultural values and beliefs, including the self-perception that the site has an exemplary STEM program. As Al noted, implementing AVID would help Grandview be even better at what it already did well by focusing on better note-taking and review skills and incorporating explicit instruction in collaboration skills.

While the AVID Summer Institute left participants feeling that the strategies and tools were a good values-fit for Grandview, subsequent interactions with AVID staff did not confirm that impression. Nevertheless, implementation and adaptation of the strategies continued to progress throughout the school year.

External Change Agents

External agencies that are responsible for managing a change in an organization must maintain a positive and supportive relationship with adopters and demonstrate "common language, meanings, and value systems" (Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004, p. 612). During the AVID Elementary Summer Institute, there was a degree of immediate loss of credibility in some strands when the presenters told participants to turn off their devices. In my personal reflection at the end of the first day, I wrote, "Close my laptop? WTF! How do I take notes?" I also noted my belief that banning the use of technology during the training was going to alienate some of my staff. In discussions during the Summer Institute and throughout the implementation, several teachers expressed the belief that AVID staff did not know or understand the needs of the site. For example, Jim said, "I do feel like AVID is way behind in that [the use of technology]. There was no use of technology at all, in the training, by any teacher or presenter other than the PowerPoint presentation."

The perceived lack of credibility among the AVID Regional Staff was reinforced in trainings and meetings throughout the year. Different teachers received different information about certification, which led to further loss of credibility. One group of teachers returned from a training indicating that there had been an implicit threat given during their training that if they adapted the strategies to utilize technology, Grandview

might not be able to be certified. To these teachers, the threat was also a condemnation of the ways in which they regularly used technology in their teaching and a repudiation of the identity of which Grandview staff were very proud.

Rogers (2003) noted that change agents employed by external agencies must have credibility and a shared sense of purpose with potential users to facilitate dissemination of any new program. The way in which Grandview's staff responded to the student assessment survey implied that the tools and instruments used by external agents must also be compatible with end user's needs. Several teachers used the term "archaic" when describing the ways in which AVID collected data, and this further reduced their credibility. In a school that valued 21st century skills (P21, 2016), teachers felt a sense of resistance in working with an organization that seemed to have no awareness of modern technology tools. Further, the slow response time and limited contact with staff diluted AVID's ability to be credible change agents at the school site. Adaptation and innovation of the program occurred without oversight or involvement from the certifying agency.

As Rogers (2003) noted, unexpected results occur when external change agents relinquish their role in shaping the ways in which an innovation is adapted to meet local needs. Although Grandview staff believed that the ways in which AVID Elementary was adapted and implemented at the site were consistent with the goals and expectations of the program, there was insufficient contact with AVID regional staff to know if they agreed. Site opinion leaders began to take on the role of change agents. They experimented with new strategies, evaluated their effectiveness, and then used a variety of communication structures to share their results with the grade level team and staff across the site. This experimentation process was concurrent with the growing sense of

dissatisfaction with AVID certification, which tended to increase the status of site opinion leaders.

Compatibility

Despite the many areas in which specific aspects of the AVID Elementary implementation were incompatible with site beliefs, teachers felt strongly that the core strategies had value. As Marsha said,

> there's not a letter in WICOR that you could argue against. If you go back to that acronym, those are all great things, and I don't think that there is a reasonable educator in the country that would argue that writing, inquiry, collaboration, organization, and reading are somehow bad, or not useful.

Teachers appreciated the opportunity to increase the number of strategies they would be able to apply to meet student needs.

Jim also noted a favorable aspect in having a large group attend the AVID Summer Institute and subsequent trainings, arguing that it ensured that a broad swath of teachers would have exposure to the same set of tools and resources. He was reminded of trainings in the past when only a small number of teachers at the site were able to attend:

> We kind of are trying to bring people along, but if you have this resource with a lot of good strategies that a lot of teachers need because they are new, then this is a good thing because we need good strategies and we don't always cycle back in our trainings to catch all the people up.

Dorothy summed up her antipathy towards AVID by saying,

> does that mean it doesn't have value? No. Does it mean we shouldn't do it? No. I think it does mean that we have to be intelligent about our implementation and make sure that we're tailoring it to what we know is best for our kids and making it about kids. Here it should be about kids.

Complexity and Trialability

> Technology integration requires the highest level of expert teaching skill because it requires teacher selection of strategies. A teacher must draw on a repertoire of curriculum knowledge, knowledge of student abilities and needs, and knowledge of technology resources in deciding how to integrate technology into any given lesson. (Angers & Machtmes, 2005)

Grandview staff felt strongly that regular use of technology tools to consume and produce information is required for student success. Liberty Unified School District supported and reinforced that belief, ensuring that there was one-to-one technology available at every grade level. Many teachers at Grandview espoused the belief that technology was a tool and that they should find the right tool for each given task. However, they also wanted to ensure a low accessibility threshold for students by limiting the number of interfaces and passwords students had to master. Dorothy remarked,

> our kids are young and they're very adaptable and they can learn a lot of things, but you have just a bigger variety of passwords or login specific formatting. We use the same type of formatting for everything, but Edmodo doesn't accept the dot, so they can't do their first name dot three letters of their last name because they don't take the dot. The [ELA adoption] has to have a capital letter in their password, so the password is a little bit different. Even though we try to keep it consistent as possible, the more different things you're using, it gets confusing for our younger kids and they don't know which one to pick.

Complexity was a concept that related not only to students but also to teachers. The complexity of using any new tool or strategy is negatively related to its rate of adoption (Rogers, 2003). Jim noted the difficulty for both students and teachers in working with multiple different apps and platforms. He said,

> you go to [a national education technology conference] and you see all these different testing and quizzing... I sat in one session and I came out with ten great apps. But how do you reconcile those in your classroom because I have all these? I can choose one, but it's going to be kind of specific to this one use and I'm still going to need this one and I'm still going to need this. You only have X number of minutes to deal with all of these things.

The term “trial and error” came up repeatedly in grade level meetings, staff meetings, and interviews. Because there were no models for teachers to follow for embedding AVID strategies into the ELA adoption or for using the strategies in a digital format, teachers felt that they needed to constantly “reinvent the wheel” (Olga, December, 2016). Rogers remarked that “the personal trying out of an innovation is one way for an individual to give meaning to an innovation” (p. 238), exploring the ways in which that innovation works in the user’s environment. In discussing her team’s move to digitize certain documents and formats, Dorothy said,

> for us, it's trial and error as far as digitizing different components that we want to use frequently and Google Docs, Google Classroom, Google Forms seems to be the best avenue for that because it's easy to create a template that I can share an individual copy per student. It comes back to me through Google Classroom. That seems to be the most streamlined way to do it

Affordances of Technology Tools

As technology tools update or change, their affordances change as well. Jim and Dorothy both noted that changes in Google Classroom and in Google Docs had changed the ways in which they were able to use the tools. For math, Jim felt that sending a PDF document to students through Google Classroom provided the best way for students to solve a problem and show their work. He asked students to annotate the document using their finger to show the long division algorithm but had them use the text tool to type out their rationale for the process they used. He noted, “They could do both, so it was kind of handy and personal and right in the app.”

Teachers utilized technology tools in sharing strategies and tools with each other, as well. After Olga returned from training enthusiastic about the one-pager strategy, she typed up the student directions in a Google Doc to share with her team. In illustrating the

value of using a shared document, Olga explained, “Because I made that on Google Docs, [Marsha] has used it several times for different things, like make a one-pager about Thanksgiving.”

Identifying the optimal structure for teaching organizational skills in a digital environment was a priority for teachers of fourth- and fifth-grade students. Consistent with recommendations by Bergman, Beyth-Marom, and Nachmias (2008), Jim and Marsha had begun their foray into the use of digital organization by having students eliminate visual clutter by moving all of the prior years’ files into a single folder. In grade-level meetings, teachers discussed the relative merits of broad and shallow versus narrow and deep file structures (Jones, 2007). However, each teacher had different strategies that they used personally for information management, and there was no consensus about the most effective strategies. While Grace, Jim, and Marsha had students experiment with different structures and layers of folders, Angelica, Olga, and Guillermo were content having their students create a flat structure containing a folder for each subject

Observability

When ideas are observed and communicated to others, the rate of adoption increases (Rogers, 2003). In the first WICOR Walk, many teachers asked for the walkthrough to happen at a specific time in order to highlight a particular strategy they were using. In addition, during the classroom visit, several teachers pointed out posters and student work on the walls that provided evidence of implementation for a range of AVID Elementary strategies. Angelica noted that a large part of the value of the walkthrough to her came from seeing the many different possible ways to implement the

various strategies and the unique ways that different teachers focused on particular strategies and tools. She viewed the walkthrough as an opportunity to witness good ideas in practice, supporting her informal network of professional learning (Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004).

Inviting a second teacher to be part of the monthly WICOR Walk was partially driven by my personal desire to speed up the diffusion of quality practices by ensuring that more teachers had the opportunity to see and share those practices in action. When the value of an innovation is visible to adopters, that innovation is more likely to be assimilated and adopted (Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004). Following the recommendation of the site leadership team, in subsequent WICOR Walks, a primary grade teacher participated in the walkthrough of kindergarten, first- and second-grade classrooms, while an upper elementary teacher walked through third-, fourth-, and fifth-grade classrooms.

Culture

School culture is a term that is used frequently when talking about educational reform, high-quality school systems, and effective school leaders. However, school culture is rarely defined. There are many definitions of culture as it relates to a school environment. Hoy (1990) defined culture as the "belief systems, values, and cognitive structure" of an organization (p. 151). For the purposes of this analysis, I will follow Deal and Peterson's (2009) characterization of culture as comprised of values, traditions, unwritten rules, vocabulary, and expectations. Like most school sites, Grandview's culture encompasses a collection of programs and beliefs that are layered on top of the required curriculum elements. For example, when it implemented a positive behavior

intervention system (PBIS) several years ago, Grandview designed their own customized set of expectations for students, developed a comprehensive system for ensuring that all students have the knowledge and skills to achieve those behavioral expectations, and created a call and response chant that students would use daily to reinforce the expectations. Each of these elements then became part of the Grandview culture

Much of Grandview's culture was built around risk-taking, autonomy, and agency in STEM education. This culture was reflected in site beliefs and values and made apparent in the ways resources were allocated (Bower & Parsons, 2016). Student agency was a norm embedded in every unit of study at every grade level and was visible in a variety of activities within and outside the school day. All staff members were proud of the fact that the school had substantially better achievement levels than its demographics would predict. Teachers at the site and around the district referred to the "Grandview way" when they talked about cultural norms of teacher empowerment, STEM-integrated instruction, hands-on learning, and student engagement.

Nevertheless, at the AVID Summer Institute, presenters encouraged Grandview to change their culture to one centered on AVID. For example, they recommended that Grandview change their existing, successful PBIS strategy to one that used the letters of AVID. They assumed that Grandview aspired to be an AVID school, adopting the AVID name and banner as a symbol of success. To many teachers, this suggestion felt like a repudiation of Grandview's culture, and it created a sense of hostility towards the AVID staff. Hoy (1990) noted that "culture is manifest in norms, shared values, and basic assumptions" (p. 157). Bower and Parsons (2016) further clarified that culture is a process as much as an object. The ways in which AVID staff assumed wholesale

adoption of the AVID identity reflected a lack of understanding of both Grandview's culture and of the culture development process. Rogers (2003) stated, "Change agents may seek to generate needs among their clients, but this must be done carefully or else the felt needs upon which a diffusion campaign is based may be a reflection only of the change agent's needs, rather than those of the clients" (p. 246). It became clear that only AVID staff felt a need to brand Grandview with the AVID logo.

Communication systems within a culture reflect formal and informal paths that form a "hidden hierarchy of power within a school that communicates the basic values of the organization" (Hoy, 1990, p. 160). This is similar to Rogers' (2003) description of opinion leaders and interpersonal communication channels that they use to spread a message. The side conversations, grade-level meetings, and hallway encounters all provided opportunities for Grandview staff to make sense of new programs and tools and to coalesce around certain beliefs and attitudes. As opinion leaders at the site began to refer to the AVID certification process as a pyramid scheme, trust in AVID as an organization began to wane. When the interest form for the next AVID Summer Institute was distributed, less than half as many staff members expressed an intention to attend. Although this lack of interest may have also reflected busy schedules and other outside factors, Dorothy remarked, "I don't need the Kool-Aid again this year."

Positionality

One challenge in applying ethnographic case study methodology is the turns that the research can take as the data is collected and analyzed (Bhatti, 2012). Despite my initial supposition that digital organization and the affordances of technology tools would be the primary points of discussion, I found that the Grandview teachers were much more

interested in a focus on student learning needs. As I coded my notes from the Summer Institute, I found that teacher agency and opinion leadership were much more appropriate themes for consideration. Like Bhatti (2012), “I had to consider the world I was facing rather than the world I had hoped to encounter” (p. 82).

Because I recognized the importance of teacher agency in implementing new programs and models (Bangs & Frost, 2012), my intent was to ensure that my preconceived notions about priorities were not obvious to the group (Culver, 2009; DuFour & Eaker, 1998). I was also committed to ensuring that decisions were made by consensus of the group rather than by my dictate (Johansen, 2012). During the Summer Institute planning meeting, I sat in the middle of the seating, ensuring that the focus could be on Angelica at the head of the table. Although the team looked to me for direction for compliance information, I was humbled by how little my input was sought for the actual goal writing. As I reflected on the experience at the time, I noted that it was Dorothy’s approval, rather than my own, that cemented acceptance of the two goals.

Practical Implications and Recommendations for Further Study

> We want the kids to have all those strategies and we're going to say, "Oh, that's a good strategy we can use.” Then we're just trying to find out how can we make them work the best with us and technology. We need AVID to match with technology. We need it to match with [our ELA adoption], and we need things we can just pull. It takes a little bit of time, but I think we've made progress, and we will continue to make progress. The better we get with [our ELA adoption] and the better we get with technology, the better off we'll be. (Jim, December, 2016)

This study utilized diffusion of innovation theory and the theory of perceived attributes (Rogers, 2003) to explore the authority-driven adoptions of new programs and strategies. It used an ethnographic lens to create a clear picture of culture and values compatibility as evidence of the significant ways in which a given program is innovated

and reinvented. As an instrumental case study, it represents a potential cautionary tale of the process that may occur as a traditionally paper-and-pencil program is applied in a technology-rich environment. It also presented opportunities for innovation for those who are following a similar process of adoption.

There are three main findings that provide both practical implications and areas for further study:

- In a technology-rich learning environment, programs that do not capitalize on the affordance of technology tools may be perceived as limited.
- Matching the affordances of technology tools to site goals is an ongoing task.
- Collaborative tools can help facilitate a relationship between experienced teachers and those still learning the profession.

One finding of this study was that teachers in the technology-rich environment of Grandview believed that programs that fail to incorporate the promise of digital tools are self-limiting and are not consistent with the stated school vision of college and career readiness. Although this study was small and represented only a single case, actions of curriculum publishers and vendors of school instructional materials imply that there is widespread belief this is true. Certainly, there are multiple autopsy-style analyses of companies and organizations that failed to adapt to new technologies. However, one possibility for future research might be to focus on the ways in which organizations adopt or fail to adopt programs that are primarily reliant on non-digital resources and strategies.

As technology evolves, there is an ongoing need to match the affordances of the tool to the needs and priorities of the site. Interoperability between systems, consistent platforms, and ubiquitous access all function to ensure that students are able to use

optimal tools for each particular task. Although I located studies that explored the relative advantage and user satisfaction related to use of single sign on (SSO) and interoperability features within college, healthcare, and technology environments, I did not find anything related to young students in schools. Further study of the affordances of various Web 2.0 tools and the ways in which they interact with each other may provide valuable insights.

This study found that collaborative technology tools have the potential to facilitate a consistent, equitable curriculum as teachers with greater knowledge and skills share with less experienced instructors. I was intrigued by the peer support that was provided at times in a purely digital format. At Grandview, such digital sharing was typically followed by a face-to-face conversation and occasionally by an offer for the more novice teacher to observe the practice or strategy in action. Areas for further study might include the ways in which collaborative digital tools can facilitate mentor-mentee relationships and the effectiveness of sharing digital resources without subsequent personal interaction.

Conclusion

> In education and beyond, innovation is usually the result of iteration rather than central planning. In schools that succeed in implementing real instructional improvements, teachers figure out how to improve teaching and learning by journeying through multiple passes of a cycle of experiment, reflection and adjustment. (Reich, 2017, para. 2)

The path to implementation of any program has many twists and turns, and the implementation of AVID Elementary in a technology-rich school environment is no exception. Even though the initial planning phase and professional development were generally positive experiences for participating staff, additional pressures at the beginning of the school year stalled implementation of AVID strategies. Self-efficacy

dropped as teachers struggled with a new curriculum adoption, and their sense of agency to experiment with AVID strategies reduced concomitantly. An externally imposed data collection requirement in a format that ran counter to the school's culture created a crisis point and a subsequent refocusing on the elements of AVID Elementary that were meaningful to staff at the site. This study examined the system as a whole in order to best understand the ways in which the AVID Elementary program components, site culture, and the technology integration strategies in place at the site overlapped, meshed, or resulted in a disconnect for teachers implementing the program.

Diffusion of innovation theory, as described by Rogers (2003), provided a useful lens for examining the arc of implementation. The implementation of AVID Elementary at Grandview was largely driven by its perceived attributes and the ways in which teachers felt sufficient agency to adjust program elements to meet their students' needs. A foundational element of the AVID program is the philosophy that students must be responsible for their own learning. Note-taking strategies empower students by providing them a structure for capturing information, adding to it as their understanding develops and reviewing the information in various ways in order to help move it into long-term memory. Concepts of student agency and empowerment were embedded in the Grandview site plan and valued by staff. Therefore, building upon the writing and note-taking strategies already in place at the site was not considered a change of cultural focus.

Innovations to the AVID Elementary program were primarily small digital adaptations of strategies and materials. However, the digitization of organizational tools involved significant experimentation and trialability. AVID operates under the belief that organizational strategies provide a foundation for effective and efficient work habits. As

Park (2011) noted, having a repertoire of strategies to manage digital information items has become increasingly important as the amount of digital information grows. Among a staff already using digital tools to help students organize information, raising questions about structure and purpose of different ways of labeling and sorting files was a logical next step, albeit one they had not previously considered.

When the AVID Elementary program was deployed at the school site under study, it was influenced by school culture. In order to make the program align with school values, teachers developed innovations that took into consideration the AVID Elementary program requirements, the needs of their students, and at times the affordances of Web 2.0 tools. Teacher agency played a significant role in who innovated and when. As innovations were implemented, diffusion was influenced by the perceived attributes of the innovations. After being shared across and between grade levels, the innovations often went through a process of reinvention as feedback from other users suggested possible improvements. Ultimately, the goal was for the innovations to be vertically articulated at the macro (site) level and be applied consistently at the meso (grade) level (Yin, 2014).

School culture was a consistent mediating factor in how the AVID Elementary was perceived and subsequently implemented. Site cultural beliefs about efficiency and the value of data came into conflict with a data collection and certification system that appeared archaic. External change agents believed their system to be one Grandview should adapt itself to, whereas the culture of the school was to take the best elements of the program and weave them into the "Grandview way."

CHAPTER SEVEN: REFLECTION

> It surprises me how much my opinions have changed. I really thought AVID was a good fit for us and would be an easy addition. I guess it's hard to predict what will happen with so many moving parts. I may be the leader of the site, but I'm not the opinion leader, even to myself. I'm not the culture leader – [Grandview's] culture was built long before I arrived and will endure long past my time. (Personal reflection, November, 2016)

Throughout the dissertation process, I have learned a great deal about myself as a school leader and as a researcher. I have faced some hard lessons when my preconceived notions did not match with reality. Most importantly, the dissertation process has provided me a lens through which to view the implementation of a program at my site, and forced me to critically reflect upon my values, my interactions with others, and my strengths and challenges in managing change. This chapter explores the ways in which I have grown as both a leader and as a researcher as I asked myself Sunstein and Chisteri-Straters' (2012) critical questions: What surprised me? What intrigued me? What disturbed me?

As both a leader and as a researcher, my interactions with other principals in the district also implementing AVID Elementary were a great source of support. I was relieved to find out that most sites had experienced a crisis with the Student Assessment process, as Grandview had. The other principals and I commiserated about the paper data collection methods and shared with each other the various strategies we had implemented to facilitate the process and make data analysis more manageable. I found that Grandview's journey through the implementation process mirrored that of other sites

with differences based on personalities and goals, but similarities in points of conflict, areas of resistance, and speed of adoption. I was reassured as a leader that the implementation challenges I was facing were normal, and reassured as a researcher that the results and themes I was capturing were valid expressions of the process.

Learning as a Leader

As referenced in the introduction, I serve as the site administrator for the elementary school at the center of this case study. Although the implementation of AVID Elementary was a district mandate, my history with and knowledge of the program over the past decade had been substantially positive, and I was personally and professionally eager to see the program implemented in a way that honored the culture of my school site. Prior to this study, I held two assumptions about the way in which AVID Elementary would be implemented at Grandview. First, I anticipated that the program would have a high degree of values compatibility and would thus be an easy fit at the site. Second, I believed that adapting strategies to work with technology would be a much higher priority than the results indicated it to have been.

As a leader who values individual reflection and growth, I recognized the value of coaching to help teachers find their own solutions to challenges they encounter in their practice. At the same time, as both an administrator and a researcher, I found myself wanting to provide answers or strategies that I thought would work more effectively and efficiently. I felt that the research I had done and the articles I had read had given me some insight into certain quality practices that would be a good fit for Grandview teachers and students. Although the use of technology tools to support student writing, editing, and publishing became more developed over the course of the study, blogging

was never used. Two teachers discussed blogging as a way for students to share their learning but ultimately decided that a discussion forum was a more appropriate venue for the interactions they wanted to foster among students. In two classes, teachers had students compose daily tweets as a reflection of their learning, but publishing the tweets was solely under the teachers' Twitter handle.

Throughout the process, I asked myself what surprised me as I reflected on my field notes and interviews (Sunstein & Chisteri-Straters, 2012). One significant surprise to me was the way in which values compatibility was such a critical element in the administrative side of the program. It was not sufficient that the student activities matched school culture and values; the analog format of required data collection was an area of widespread staff resistance.

When considering what intrigued me, I pondered what outcomes would have occurred had I taken advantage of the Grandview cultural self-perception of leader rather than maintaining a follower position. I wrote,

> if AVID had embraced [Grandview] as a test bed, would things have been different? If teachers had felt valued partners rather than puppets? Tell them they are piloting it and they take off. Tell them the decision has already been made and they resist. I tried to pose this as their chance to customize it, but interactions with [AVID regional staff] sure don't feel that way. (Personal reflection, November, 2016)

The ways in which staff embraced and adapted the strategies while rejecting the AVID name seemed to be directly related to two factors, namely, the archaic forms of record-keeping and paper-based strategies and AVID's rigid interactions with staff. Veteran school staff members did not feel that their experiences were valued by the professional development and certification process, which caused them to resent the organization. Although I was comfortable mentally discarding ideas that I felt were a

poor fit for our students and staff, teachers did not necessarily feel they had that authority. I frequently questioned what outcomes and attitudes might have emerged if I had been more skillful in framing AVID implementation as a set of skills from which they could select at will.

Again, following the recommendations of Sunstein and Chisteri-Straters (2012), I reflected on what disturbed me throughout the process. In this area, my focus was often more on my role as site administrator than on my role as researcher. I was disturbed by things that threatened my relationship with my staff and by events that made me question my professional expertise. At one point, expressing doubts about whether the path I had taken was the correct one in terms of compliance, I wrote the following:

> I've made the choice to support the culture rather than support AVID as designed – we'll see what the repercussions are. If our scores go down or we lose kids, I'm toast. I know I mentioned cherry-picking in my interview. Hopefully that philosophy won't get me fired! (Personal reflection, December, 2016)

In reflecting on the process of implementing AVID Elementary, I have asked myself if I would do it again if there were no district mandate to do so. I think the value of this implementation has been the development of a shared language, along with a set of resources and strategies that the vast majority of teachers know and understand. I believe that an innovation can more easily occur when teachers have a shared instructional language about quality teaching and learning and go through an articulation process that examines the ways in which a strategy is applied at different grade levels. I believe that the conversations that emerged from the AVID Elementary training and the common vocabulary it created will continue to benefit students as teachers have a consistent language for pedagogy, instructional strategies, and classroom management techniques.

Learning as a Researcher

Throughout the proposal, data collection, and initial writing process for this study, I believed that Grandview Elementary School was in a prime position to implement the AVID Elementary program while adapting and reinventing program strategies to fit an innovative, technology-rich culture. The strategies of writing to learn, inquiry, and reading to learn were already embedded in site culture, although not necessarily using the same terminology. Opportunities for teacher collaboration and experimentation were common at the school site, providing a scaffold to support risk-taking and innovation. Nevertheless, as the program implementation unfolded there were significant challenges related to teacher agency, values compatibility of the program and the change agents, and school culture.

Throughout the process, I was surprised at how difficult it was to be skeptical about what I was hearing, seeing, and thinking. I found it taxing to think about other possible explanations or interpretations. Although I often told myself that skepticism was difficult because I knew the cast, I recognized that as a conceit from which many ethnographic researchers must suffer. Because researchers using ethnographic methods are so deeply embedded in the context and may, in fact, be participants, maintaining an objective point of view is challenging. I was intrigued by the value of using audio only to help analyze conversational data. When I analyzed transcripts of interviews looking only at the statements without names attached, I was able to discern themes that I had missed when listening to the voice of someone I knew well as I marked the document. Going back to listen to the interviews again after coding the transcript occasionally allowed me

to have a slightly different perspective than the assumptions and interpretations I had originally made.

This recognition of the difficulty in maintaining an unbiased perspective led me to a concept that disturbed me. From a researcher perspective, one thing that frustrated me was the lack out external validity I was able to incorporate in the study. Because the AVID regional staff never participated in site walkthroughs, I was unable to garner the perspective of the outside pair of eyes I referenced in my proposal. As the observation and data collection process evolved, I noted instances where walkthrough participants updated their forms based on what I or the other teacher had marked rather than relying solely on what they observed. I found that the photos taken by the other WICOR Walk participants were often more telling in terms of what the observer found significant and provided a good basis for a follow-up conversation.

Another area that disturbed me was the question of whether my role as a researcher affected the ways in which teachers adopted or adapted AVID strategies and tools. I wondered whether there was a perception that some of the data collection processes were for my personal benefit, rather than being requirements of the program. I know that there are many conversations and frustrations that staff express that I am not privy to simply by virtue of my authority position. I am sure that few teachers would be willing to directly express doubts about my motives, which makes it difficult to know for sure whether such conversations occurred. However, there are a small number of teachers on the staff who have felt comfortable confronting me with issues that are being discussed by the staff; I think it is likely I would have heard from one of them had such conversations occurred.

Conclusion

This process has been a humbling journey for me as a leader and as a researcher. It is easy to assume that one knows what an outcome will be, based on experience and theory. It is difficult to let a process unfold in a way that will be sustainable and relevant to the participants. Although I believe strongly in shared leadership, particularly for strategic decisions, I sometimes misjudged which elements of the implementation required teacher decision-making in order to be successful. Although I felt that certain decisions were obvious, logical conclusions and thus not necessary to debate or discuss, I failed to consider the importance of the process of debating and discussing.

I do not know whether Grandview will become certified as an AVID Elementary. For now, I am content with the fact that the AVID Elementary implementation has given teachers a shared vocabulary and set of strategies for note-taking and student collaboration. I am eager to see the ways in which staff adapt inquiry and reading and writing strategies to maximize the affordances of available technology. Furthermore, I look forward to sharing these ideas and strategies with other schools that are on the same journey.

> Yesterday I was clever, so I wanted to change the world. Today I am wise, so I am changing myself. (Rumi, 1207-1273 CE)

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APPENDIX A

Grandview WICOR Walk Form

AVID Elementary WICOR Walk

* Required

Grade *

Choose

Teacher

Your answer

Writing to Learn

- [ ] Reflection tools utilized to enhance comprehension
- [ ] Writing goals
- [ ] 2- or 3-column notes - Science
- [ ] 2- or 3-column notes - Math
- [ ] DLIQ (what did you do, what did you learn, what interested you, what questions do you have?)
- [ ] Learning Log
- [ ] One-pagers
- [ ] Quickwrite
- [ ] Stretch Journal (how can I use this in the real world, in next assignment, in other area)
- [ ] STARring notes

Writing to Learn: Notes

Your answer

Inquiry

- [ ] Teacher models level of thinking
- [ ] Students demonstrate understanding of levels of thinking
- [ ] Level 1 (Answer found in text)
- [ ] Level 2 (Answer inferred from text)
- [ ] Level 3 (beyond the text, multiple reference sources, application of information)
- [ ] Inquiry incorporated intentionally
- [ ] Socratic Seminar
- [ ] Philosophical Chairs

Inquiry: Notes

Your answer

Collaboration

- [ ] Collaboration incorporated into core subjects
- [ ] Layout and organization of classroom promote collaborative learning
- [ ] Study buddies, study groups, and/or focus groups
- [ ] Use of scholarly language
- [ ] Call and response
- [ ] Activity: Team Huddle
- [ ] Activity: Helping Trios
- [ ] Activity: Four Corners
- [ ] Activity: Numbered Heads
- [ ] Activity: Line ups
- [ ] Activity: Jigsaw
- [ ] Activity: World cafe
- [ ] Other: _____

Collaboration: Notes

Your answer

Organization

- [ ] Teacher models expectations of organized materials, environment, and thinking
- [ ] Agenda/planner/assignment calendars used as academic and communication tools
- [ ] Organizational tools enhance academic success
- [ ] Graphic organizers used to organize thoughts
- [ ] Time management skills embedded and modeled
- [ ] Teacher incorporated time management behaviors (homework plans, backwards mapping, etc)

Organization: Notes

Your answer

Reading to Learn

- [ ] Teacher models a variety of reading to learn strategies
- [ ] Word Wall
- [ ] Reading Strategy: Personal connection to text
- [ ] Reading Strategy: Summarizing
- [ ] Reading Strategy: Visualization
- [ ] Reading Strategy: Making predictions
- [ ] Reading Strategy: Marking the text
- [ ] Reading Strategy: Writing in the margins
- [ ] Reading Strategy: Posing questions about text
- [ ] Comprehension Strategy: Learning/Word walls
- [ ] Comprehension Strategy: Frayer model
- [ ] Comprehension Strategy: Analyze new idea
- [ ] Comprehension Strategy: FLIP strategy (friendliness, language, interest, prior knowledge)

Reading to Learn: Notes

Your answer

SUBMIT

APPENDIX B

IRB Approval Form

Research for this project was done under the approval of the Instituional Review Board of Boise State University, protocol #104-SB16-114.