

A CASE STUDY OF JOB-EMBEDDED PROFESSIONAL DEVELOPMENT FOR
IMPLEMENTATION OF 21ST CENTURY SKILLS

by

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Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

The purpose of this collective case study was to understand the successes, challenges, and lessons learned when secondary school administrators implement job-embedded professional development to change the teaching and learning of 21st century skills. The theories guiding this study were Lev Vygotsky's social constructivist paradigm, Malcolm Knowles' adult learning, Abraham Maslow's hierarchy of needs, and the Partnership for 21st Century Skills (P21) framework. Four Virginia secondary schools were studied. Based on the research questions, there were four data-gathering methods for this study: (a) focus groups, (b) individual semi-structured interviews, (c) documents, timelines, and budgets, and (d) researcher's memos and journal. All data collected were coded and organized into themes. In-case and cross-case analyses provided a thorough description and understanding of the problem. After a review of the results gathered from the three teachers and the administrators at each of the four school sites, a collection of data generated recommendations for school administrators on ways to implement 21st century skills in their schools. The findings revealed successful practices, challenges, and lessons learned for school administrators to consider when developing a plan to implement job-embedded professional development for 21st century skills. Two main implications suggested for administrators were to review the information provided on the successful practices shared and to examine the lessons learned presented by the participants from this study. Further research is needed to compare high-performing schools against low-performing schools; schools from differing geographical locations, demographics, and grade levels; leadership impact; and standardized test results.

Keywords: job-embedded professional development, 21st century skills or education, professional learning community, research-based best practices, school leadership

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List of Abbreviations

4Cs (communication, collaboration, critical thinking, and creativity)

Adequate Yearly Progress (AYP)

Communication, Collaboration, Critical thinking, and Creativity (4Cs)

Elementary and Secondary Education Act (ESEA)

Every Student Succeeds Act (ESSA)

National Association of Secondary School Principals (NASSP)

No Child Left Behind (NCLB)

Partnership for 21st Century Skills (P21)

Problem-based Learning (PBL)

Professional Development (PD)

Professional Learning Community (PLC)

CHAPTER ONE: INTRODUCTION

Overview

School administrators are faced with the pressures of initiating a change toward addressing 21st century skill implementation in the classrooms. Some school administrators have been effectively able to elicit change in their schools, while others have not been able to overcome the challenges in their path (Partnership for 21st Century Skills, 2006; Partnership for 21st Century Skills/ Professional Development, 2009; Willingham & Rotherhan, 2009). This collective case study examines the challenges, successes, and lessons learned from the implementation of ongoing teacher job-embedded professional development in four secondary schools to successfully promote 21st century skills. The chapter begins with the background related to the major topics impacting this study. Next, I detail my relation to the topic of study along with the foundation of the problem and why this study is necessary. This is addressed through the problem statement, purpose statement, and significance of the study sections of this chapter. The research questions for this study are presented, followed by the definitions of terms significant to the study and the chapter summary.

Background

Public education in America is still based on an industrial model that was designed to support the needs of the 20th century such as manual labor and skills that can now be performed by machines or a less expensive job market (Pacific Policy Research Center, 2010; Partnership for 21st Century Skills, 2002). According to the Pacific Research Center (2010), information and communication technology have been transforming over the last century from manufacturing to an emphasis on information and knowledge services because of an unprecedented growth in technology. Today students need to “communicate, share, and use information to solve complex

problems, in being able to adapt and innovate in response to new demands” (Pacific Policy Research Center, 2010, p. 1) needed to create new knowledge. Now, schools continue to function the same way, even though new technologies are introduced at a rapid pace and the students are growing up with more advantages from technology than ever before Gentry, Baker, Thomas, Whitfield, & Garcia, 2014; Msila, 2011. Students have become accustomed to having needed information at their fingertips at all times. Schools need to be preparing students to enter the 21st century by teaching the skills for jobs that have not even been invented. The educational leaders in the United States are facing a crossroads where a decision must be made if an educational transformation is necessary to face the major challenges with the current economy and global competitiveness (Daggett, 2014; EdLeader21, 2016; Partnership of 21st Century Skills, 2015; Soule & Warrick, 2015). If this challenge is welcomed, school administrators must arm themselves with the knowledge and strategies to implement change in their schools.

Partnership for 21st Century Skills (P21)(2006) is an organization that serves as a catalyst for 21st century learning by supporting collaborative partners among leaders in education, business, community, and government in an effort to prepare today’s students with the knowledge and skills they need to thrive as tomorrow’s leaders, workers, and citizens. P21 (2006) suggests schools that promote the implementation of 21st century skills also find they positively impact other critical issues in their schools. Those issues include improving standardized test scores, engaging students in learning, reducing dropout rates, preparing students for college, improving technology use, revitalizing library media programs, strengthening after-school programs, improving out-of-school learning opportunities, and improving high schools. Transforming schools offer many benefits for schools and administrators who want to drive school improvement through the implementation of 21st

century skills.

Professional development is the primary vehicle school administrators use to provide teachers with the tools they need to be successful teachers in their classrooms: “Professional development is about teachers learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students’ growth” (Avalos, 2011, p. 1). Teacher professional development is a process that involves teachers understanding their own personal cognitive views and their willingness to make an improvement in their teaching: “Professional development norms are shifting toward collaborative practice. It is posed that passive and individual practices are inadequate to prepare teachers to integrate the academic skills that learners need for both workforce and college readiness” (Stewart, 2014, p. 28). Reformers have been searching for better ways to provide teacher professional development that will improve student outcomes.

Job-embedded professional development is a type of teacher professional development that closely connects the actual work of the teachers with their current students through collaboration and support of colleagues and instructional coaches. Job-embedded professional development is the day-to-day teaching practice that occurs in the classroom or school regularly and consists of teachers analyzing students’ learning and finding solutions to problems of practice that are aligned with student standards and school goals. Teachers assess and problem-solve for authentic and immediate problems of practice as part of ongoing improvement (Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality, 2010). Research-based practices of job-embedded professional development may include mentoring, coaching, book studies, peer observations, examining student work, and reflective or critical friends (Rock,

Gregg, Gable, & Zigmond, 2009). These practices can best be supported through the framework of a professional learning community (Hord, 1997).

School administrators encounter many challenges with the implementation of 21st century skills in schools. The literature addresses several obstacles that many school administrators must overcome for effective implementation. One challenge is the need for support and a vision provided by leadership from the state and the district levels. Partnership for 21st Century Skills/A State Leaders Action Guide to 21st Century Skills (2006) suggests (1) that state and district leaders need to recognize that education must change to meet the needs of today's students, (2) that content knowledge and 21st century skills should redefine curriculum, and (3) that leaders develop a plan to implement a 21st century skills initiative that reflects a vision that supports preparing every student for success in the 21st century. The district level leadership must also support the costs associated with the technology resources needed to promote learning in the 21st century. Technology is essential for allowing students to develop communication skills, using digital tools, to allow them to stay connected to the world of information that is changing constantly (Cross, 2006; Greenhow, Robelia, & Hughes, 2009; Partnership for 21st Century Skills, 2009; U.S. Department of Education, 2010). Another challenge is how to overcome a potential lack of commitment from school administrators and teachers. School administrators must demonstrate a total commitment to the process of 21st century skills implementation and must design common language and best practices that are supported through professional development for both the school administrators and teachers (Croft, 2010; National Institute for Excellence in Teaching, 2012; Partnership for 21st Century Skills/Professional Development: A 21st Century Skills Implementation Guide, 2009).

Professional development for administrators and teachers takes time and money to implement effectively (National Institute for Excellence in Teaching, 2012). School administrators struggle with providing teachers with enough time during their workday for professional development. Job-embedded teacher professional development still requires administrators to provide teachers with time, space, and supports needed to be effective (Education Resources Strategies, 2009; Hawley & Valli, 1999). State and district leaders must work together to find ways to fund professional development needed to support the implementation of 21st century skills: “Creating a system to support high-quality job-embedded professional development requires common effort across all three levels: states, districts, and schools” (Croft, Coggshall, Dolan, Powers, & Killion, 2010, p. 12). With available resources and funding, schools and school divisions could pay for substitutes to allow teachers time to collaborate and observe other colleagues. Funding could also help pay for consultants to support the professional development efforts. Instructional coaches could also be supported through available funding to help drive schools and school divisions toward accomplishing their job-embedded professional development goals.

Another challenge administrators must overcome is how to balance content knowledge with the implementation of 21st century skills while still maintaining good performance on standardized test scores (Partnership for 21st Century Skills, 2012; Silva, 2008). Schools are judged on how they perform on standardized tests, so school administrators must be willing to take a risk that the best practices for implementing 21st century skills will also support content knowledge needed for passing test scores. When leaders place the primary focus on standardized test scores, so do the teachers. Teachers who teach to the test will struggle to make room for the implementation for 21st century skills (Partnership for 21st Century Skills, 2012; U.S.

Department of Education, 2016). According to the archives of the U.S. Department of Education (2004), the following changes are examples of federal statutes and case law that have changed since the 1950s. The principle understanding behind No Child Left Behind (NCLB, 2004) began nearly fifty years ago with the case *Brown v. Board of Education* when the U.S. Supreme Court outlawed racial segregation in public schools. The Civil Rights Act became law in 1964, and shortly afterwards, the Elementary and Secondary Education Act (ESEA) was passed in 1965 by President Lyndon Johnson. Both laws supported the continual commitment to equal opportunity for all students by implementing and enforcing desegregation. In 2002, President George Bush signed the NCLB Act of 2001 into law. This law was designed to ensure accountability and increased federal support. NCLB had an ambitious, if unattainable, goal of ensuring that 100% of students pass rigorous reading and math tests by 2014. According to the Virginia Department of Education, changes in ESSA have shifted the power back to the states and the districts, giving them more flexibility in school standards, assessments, and accountability. ESSA is the 2016 revision of the Elementary and Secondary Education Act, just like the NCLB was the 2001 revision. ESSA also allows states to create their own teacher evaluation systems. The new law also removed the penalties imposed by the federal government on underperforming schools. ESSA requires schools to increase the English proficiency for the English language learners. One change in ESSA that impacts this study is how ESSA addresses 21st century skill building through Title IV funds for 2017. School leaders can use these funds to help promote 21st century skill development in their schools.

The NCLB Act was a standards-based reform effort designed to measure goals set to improve education. Schools were held accountable for teaching all students and were regulated based upon Adequate Yearly Progress (AYP), also adopted by the United States Department of

Education, as a means of ensuring all students are performing well on standardized tests. School leaders have placed most of their efforts over the past decade in helping to support teachers to teach to the test to acquire favorable results. When teachers teach to the test, this could mean that teachers narrow the curriculum and/or teachers spend a considerable amount of time focusing on multiple choice test-taking skills. State accreditation for schools hinges on standardized test performance. Because schools are held accountable at the federal and the state levels, leaders did not have a choice but to use all their resources to support their efforts in improving standardized test results.

Educators are beginning to realize that as the world continues to change, so must the educational system (Reimers & Kanter, 2014). The 21st century necessitates a transformation in public education that supports the shift from an industrial age to an information age driven by communication, collaboration, critical-thinking, and creativity (Partnership for 21st Century Skills, 2011; EdLeader21, 2016). NCLB began with a focus on student achievement, and unintended consequences have resulted. NCLB actually forced states to lower their standards by focusing more on punishing failure rather than rewarding success, placed more focus on test scores than on growth, and prescribed one intervention for all failing schools (U.S. Department of Education, 2016). The NCLB law became unworkable for schools, and in 2010, the Obama Administration worked to create a better law with a focus on preparing students for college and career readiness. President Obama signed the Every Student Succeeds Act (ESSA) on December 10, 2015. This reauthorized the Elementary and Secondary Act (ESEA):

Now more than ever, the American economy needs a workforce that is skilled, adaptable, creative, and equipped for success in the global marketplace. America's ability to

compete begins each day, in classrooms across the nation—and President Obama knows we must comprehensively strengthen and reform our education system in order to be successful in a 21st century economy. (The White House, Barack Obama, 2016)

The social constructivist learning theory (Vygotsky, 1962) supports learning that is based around social interaction with others and how meaning is made from new knowledge. Job-embedded professional development involves teachers working with colleagues to improve teaching and learning in the classroom. When teachers collaborate regarding best practices and ways to problem-solve together, they learn and grow through the sharing of knowledge. Job-embedded professional development encompasses colleague mentoring, coaching, motivation, and providing feedback and support in an effort to improve the practice of teaching (Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality, 2010). According to Partnership for 21st Century Skills (2007), teachers should focus on the 4Cs which are skills students will need to be successful in the 21st century, and they are (a) collaboration, (b) communication, (c) critical thinking, and (d) creativity. These are the same skills that teachers need to practice during job-embedded professional development, and collaboration is a key element that is found in all of the theories supporting this study including Malcom Knowles' adult learning theory (1984). This theory (Knowles, 1984) speaks to how adults learn and what engages and motivates adult learners. Solving real-world problems that are relevant to their work in the classroom, collaboration, support, and motivation are all components that support this theory, and the same components are found in job-embedded professional development designed to support 21st century teaching and learning (National Comprehensive Center for Teacher Quality, 2010).

Maslow's hierarchy of needs theory (Maslow, 1943) is based on the idea that humans are motivated to satisfy five basic needs arranged in a hierarchy. The theory suggests that once the lowest level of the hierarchy is satisfied, employees will seek to satisfy the next level. This theory supports school administrators in understanding how to motivate their teachers to get the most productivity. Once the basic needs such as physiological and security needs are met, the second level they strive for is the belongingness level, then esteem needs, and finally self-actualization. This theory can help school administrators form a leadership style that supports the needs of their staff that will allow administrators to motivate staff to perform at a higher level.

The literature is saturated with support for the need for educators to make the transformation toward 21st century skill implementation (Bellanca, 2015; Daggett, 2014; DuFour, 2015; EdLeader21, 2016; Kay & Greenhill, 2013). There are also numerous articles on how professional development and even job-embedded professional development can help school administrators in their efforts. The gap in the literature is found in how school leaders overcome challenges they encounter in the implementation of job-embedded professional development to support teachers in implementing 21st century skills in the classrooms.

This study looked at four secondary schools to determine the challenges, successes, and lessons learned that administrators encountered when implementing 21st century skills in the schools. The four schools chosen were in a school district with a strategic plan in place that expects all schools to implement 21st century skills in the classroom with a balance of content knowledge. The strategic plan was a very general plan that did not outline a plan of implementation, but spoke to the common 21st century ideals the division would like to see throughout. Within the division, I selected four schools to be studied, based on their participation

in job-embedded professional development over the past two years and their willingness to participate in the study. The choice of the four schools that are engaged in job-embedded professional development, was made with the assumption their administrators would also be the most active, knowledgeable, and supportive leaders in the division of the implementation of 21st century skills. The participants were school administrators of each school and teachers in each of the four schools, chosen by the school administrators based on their active and knowledgeable implementation of 21st century skills to help ensure the best data were collected for the study. As a result of the study, recommendations for strategies administrators can use to overcome the challenges were presented.

Situation to Self

As a veteran secondary school educator, I have experience serving as a teacher and a school administrator for over twenty-seven years. I have served as a high school principal for ten years in the same school division presented in this study and have led the school through the use of job-embedded professional development to implement 21st century skills. Currently, I am serving as the division Director of Secondary Instruction. I chose this study because as a school administrator, who has actively participated in the process of implementing 21st century skills, I have seen firsthand over the past three years, the positive changes this approach can make on a school's learning culture for both students and staff.

This qualitative study was based on a social constructivist paradigm because I believe in the importance of educators jointly developing understandings of the world that form the basis for shared assumptions about reality as can be seen through the lens of Malcom Knowles' (1984) adult learning theory. Knowles' (1984) adult learning theory supports adult educators in collaborative learning experiences that maximize learner motivation and engagement. As an

educator and administrator, I have seen firsthand how important social interaction and collaboration are and how they can help create a school culture based around learning, sharing, and reflection with peers. Constructivism is built upon the idea that people construct their reality through social experiences (Searle, 1995). An advantage to this approach was the close collaboration between researcher and the participants that allowed for participants to tell their stories or share their insights (Crabtree & Miller, 1999). My previous experiences provided me with significant insight into how school administrators can implement 21st century skills in their schools. To differentiate these experiences and address potential researcher bias, I immersed myself with the school administrators and teachers, consistent with an epistemological assumption that school administrators support and involvement are critical for effective teacher implementation of 21st century skills in a school.

My ontological assumption provided an understanding that the responses I received during the study from participants may be based on how well informed or experienced they were rather than based on the reality of what was actually happening in the schools. Teachers and school administrators who are less engaged may not be aware of all the efforts others are making to support a school initiative, and they may not clearly understand the reasons why change is needed. My epistemological assumption was that I would develop meaningful interactions with the school administrators and the teachers at the sites and would spend the time needed to lessen the objective separateness so that I could collect authentic data for this study (Guba & Lincoln, 1988). My axiological assumption would allow for the values I currently hold about education. I am passionate about the important task school leaders encounter in implementing 21st century skills because I believe this is the only way to adequately prepare students for their futures. My rhetorical assumption supported my passion to provide administrators, from the results of this

study, with suggestions how they can overcome obstacles that are preventing them from implementing the much needed 21st century skills in their schools.

Problem Statement

The problem researched was how many school administrators in the U.S. today are challenged with the task of incorporating 21st century skills into their classrooms while balancing necessary content knowledge (EdLeader21, 2016; Kereluil, Mishrra, Fahnoe, & Terry, 2013; Partnership for 21st Century Skills, 2008; Soule & Warrick, 2015). The problem in education today is that school administrators are expected to pave the way and support teachers in the implementation of 21st century skills through the use of best practices (EdLeader21, 2016; Partnership for 21st Century Skills, 2008; Pacific Policy Research Center, 2010; The North Central Regional Educational Laboratory, 2003), but the path is not clear on how job-embedded teacher professional development can be used to effectively support leaders in their efforts while facing a variety of challenges along the way. School administrators encounter many challenges to the implementation of 21st century skills in schools. Those challenges include (a) state and district level vision that supports 21st century skill implementation, (b) lack of commitment from school administrators and teachers, (c) lack of time and resources that are needed for teacher professional development, (d) how to balance content knowledge with the implementation of 21st century skills while also maintaining standardized test scores.

The National Staff Development Council (2010), which is now referred to Learning Forward, emphasizes the importance of ongoing, high-quality, job-embedded professional development that is school-based as an effective means to improving instruction. Research related to job-embedded professional development can be found in the literature as it pertains to technology integration (Skoretz & Childress, 2013); educator evaluation (Woodland & Mazur,

2015); teacher self-efficacy and student performance (Althausser, 2015); inclusion of students with disabilities (Strieker, Logan, & Kuhel, 2012); instructional coaches (Mundy, Ross, & Leko, 2012); teacher leadership (Ross, Adams, Bondy, Dana, Dodman, & Swain, 2011); and teacher mentoring (Templeton & Tremont, 2014). The problem found was that further study is needed to provide administrators with suggestions and strategies to help them overcome challenges of implementing 21st century skills through the use of ongoing, job-embedded professional development that supports best practices.

Purpose Statement

The purpose of this qualitative collective case study (Yin, 2009) is to understand the challenges, successes, and lessons learned when school administrators implement ongoing teacher job-embedded professional development, in four secondary schools to successfully promote 21st century skills by changing teaching and learning through the use of best practices. *Job-embedded professional development* (Croft, 2010) will be generally defined as teaching practice that occurs regularly and consists of teachers analyzing students' learning and finding solutions to problems of practice that are aligned with student standards and school goals. Job-embedded professional development is classroom or school based and is integrated into the school day. Partnership for 21st Century Skills (2015) supports teacher job-embedded professional development that allows teachers to share knowledge through collaboration and modeling that provide opportunities for integrating 21st century skills into their classroom practice. Teachers will assess and problem-solve for authentic and immediate problems of practice, as part of ongoing improvement (Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality, 2010). Job-embedded professional development activities may include mentoring, coaching, peer observation, Reflective Friends, protocols for peer feedback,

examining student work, lesson study, data teams, study groups, and support from professional learning communities (Croft, Coggshall, Dolan, & Powers, 2010).

The theories guiding this study were Lev Vygotsky's (1962) social constructivist paradigm seen through the lens of Malcolm Knowles (1984) adult learning, Abraham Maslow's (1943) hierarchy of needs, and Partnership for 21st Century Skills (P21) (2002) framework. Vygotsky's social constructivist theory explains the importance of learning in social settings and the impact of learning when assistance is provided by more capable individuals. Malcolm Knowles adult learning theory (1984) suggests five assumptions and four principles concerning the characteristics of adult learners that help promote more meaningful learning experiences by maximizing learner motivation and engagement. Maslow's hierarchy of needs (1943) suggests that administrators must be able to understand individuals' needs to motivate adults effectively. As individuals' needs are met, administrators can motivate them to the next level of the pyramid, pushing them to self-actualization. Partnership for 21st Century framework was designed by input from teachers, educational experts, and business leaders to define the skills and knowledge students need to be successful in work, life, and citizenship in the 21st century.

Significance of the Study

The contribution that this study made to the current body of knowledge was practical in that it provided school administrators with recommendations about ways to use best practices to implement 21st century skills in their schools. School administrators are tasked to implement 21st century skills in their schools (Croft et al., 2010; Partnerships for 21st Century Skills, 2008) and in many cases, they are not provided with the understanding of researched-based best practices to ensure their teachers have the skills to transfer this task to the students in the classrooms (Pacific Policy Research Center, 2010). This study focused on secondary school administrators because

the students in their schools are only a few years away from graduating from high school, transitioning to college, or entering the workforce and will be facing life in a 21st century world:

The urgency to prepare all students for the knowledge economy that demand innovation and creativity grow ever stronger as the day of the 21st century slip away, and there is little time to waste to ensure that the current generation is prepared to lead and succeed. (Soule & Warrick, 2015, p. 185)

The finding of this study presented an understanding for school administrators about how ongoing job-embedded professional development can provide teachers with tools and a culture of support to help them in the implementation of 21st century skills. In addition, recommendations were provided to help administrators overcome challenges using best practice strategies in the implementation of job-embedded professional development in secondary schools. The National Staff Development Council (2010) emphasized the importance of school-based, job-embedded teacher learning and coaching as necessary components of effective professional development. U.S. Department of Education officials stated in the National Archives and Records Administration (2009) that ongoing, high quality, job-embedded professional development is directly tied to improving instruction by directly connecting a teacher's work in the classroom to the professional development. This study addressed a gap in the literature by investigating how ongoing, job-embedded professional development can support secondary school administrators in the implementation of 21st century skills in their schools by overcoming challenges that stand in their way. There was very little empirical research that supported administrators in how to use research-based practices to overcome the challenges in implementing 21st century skills through job-embedded professional development.

The following theories were used to frame this study. Vygotsky's (1962) social constructivism places an emphasis on the critical importance of culture and how social interaction impacts cognitive development. Job-embedded professional development is supported through the development of a shared learning culture that is based on social interaction among teachers. Professional learning communities allow teachers to work together as a team to support both the learning and teaching efforts of the team and each individual.

Malcolm Knowles' adult learning theory (1984) focuses on the assumptions that through professional development, adults prefer learning in collaborative projects that allow them to learn on their own and at their own pace, professional development that addresses a variety of skill sets, an understanding of how the professional development will help them solve immediate problems, and they must see a valid reason for the professional development. Through this study, examples of adult learning demonstrated through job-embedded professional development were highlighted. These results added support to Knowles' theory (1984) by showing how job-embedded professional development, situated in a professional learning environment, created collaboration, motivation, and engagement of the learner.

Maslow's hierarchy of needs theory (1943) explains why basic needs must be met prior to moving to a higher level of exploration by both the teachers and the administrators. Leaders must assess where each individual teacher is on the hierarchy of needs in order to know how to motivate him or her to perform at a higher level. This also allows the administrators to help support the needs that are not being met and preventing them from moving forward. The same is true for administrators; they must first have their basic needs met prior to moving forward, and by looking through the lens of this theory, administrators will be pushed to determine the obstacles that are preventing them from implementing 21st century skills in their schools.

Partnership for 21st Century framework (2002) provides the structure to support administrators in the process of implementing 21st century skills into the classrooms. This framework provides the 21st century standards, assessments, curriculum, instruction, professional development, and learning environments needed to ensure 21st century outcomes in schools. Previous research has not been used to examine the obstacles administrators encounter when implementing ongoing job-embedded professional development using Maslow's hierarchy of needs theory, (1943) and Vygotsky's social constructivism, (1962).

Research Questions

School administrators are faced with balancing teaching content while also teaching the 21st century skills necessary in preparing students to succeed in college, career, and life (EdLeader21, 2016; Partnership for 21st Century Skills, Curriculum and Instruction: A 21st Century Skills Implementation Guide, 2009). Through ongoing, job-embedded professional development, school administrators provide teachers with the tools they need to support the implementation of 21st century skills into the classroom curriculum (National Comprehensive Center for Teacher Quality, 2012). This study provided school administrators with suggestions of ways to overcome obstacles that prevent 21st century skill implementation. This study was guided by research questions seeking to identify how ongoing, job-embedded professional development impacted school practices, effectiveness of the practices, support provided through professional learning communities, impact on school culture, and obstacles school administrators encountered.

Question 1: What are the practices secondary schools have successfully implemented through the use of job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom?

According to Kamehameha Schools Research and Evaluation (2010), in order for teachers to prepare students for jobs of the future that have not been created yet in an economy that values creativity, and innovation research suggests the following: (a) focus on real-world problems; (b) support inquiry-based learning, (c) support collaborative learning through projects, (d) show students how to learn rather than what to learn. This can be done through intensive teacher job-embedded professional development that focuses on 21st century skill development for both the teachers and the students (Croft et al., 2010; Partnership for 21st Century Skills, 2009). Thus, this research question focused on understanding the practices each school had implemented through job-embedded professional development to support teacher implementation of 21st century skills in the classroom.

Question 2: What are the challenges secondary school administrators encounter when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges?

In order for students to acquire 21st century skills, teachers must have expertise in the same skills (Kamehameha Schools Research & Evaluation, 2010). School administrators must focus on the importance of teachers' professional development to help support teachers in the development of these skills: "All of those involved in education need to be able to reflect and learn from each other's experiences as new methods and processes are piloted and implemented" (Kamehameha Schools Research & Evaluation, 2010, p. 13). Thus, this research question focused on identifying the challenges school administrators encountered when implementing 21st century skills through job-embedded professional development as well as explored what was needed to help overcome those challenges.

Question 3: What are the lessons learned by secondary school administrators during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom?

Partnership for 21st Century Skills / Learning Environment (2009) defines 21st century learning environments as “the support systems that organize the conditions in which humans learn best and is a system that accommodates the unique learning needs of every learner and support the positive human relationships needed for effective learning” (p. 3). Cornell (2002) suggested that 21st century learning needs to be supported by a group of teachers who practice collaborations with a focus on student learning. Thus, this research question provided the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom.

Definitions

1. *EdLeader21*. A professional learning network (PLN) of schools and district leaders across the nation focused on integrating the 4Cs (communication, collaboration, critical thinking, and creativity) into education (<http://www.edleader21.com/>).
2. *EnGauge 21st Century Skills*. The EnGauge 21st Century Skills framework was developed using literature and research reviews, input from educators, and workforce needs of businesses to help change school policy and practices and to provide students with the 21st century skills and knowledge they need to thrive in a global society (Burkhardt et al., 2003).
3. *Every Student Succeeds Act (ESSA)*. The reauthorization of the Elementary and Secondary Education Act (ESEA) signed by President Obama on December 10, 2015, as

law which shows of continual commitment to ensuring schools are providing equal opportunity for all students (<http://www.ed.gov/essa?src=rn>).

4. *Job-embedded Professional Development (JEPD)*. The day-to-day teaching practice that occurs regularly and consists of teachers analyzing students' learning and finding solutions to problems of practice that are aligned with student standards and school goals. It is classroom or school based and is integrated into the school day. Teachers will assess and problem-solve for authentic and immediate problems of practice as part of ongoing improvement (Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality, 2010).
5. *No Child Left Behind (NCLB)*. The 2002 reauthorization of the Elementary and Secondary Education Act (ESEA). The provisions of the NCLB presented significant change in the influence the federal government had over public schools and districts throughout the United States in the areas of assessment, accountability, and teacher quality (<http://www2.ed.gov/nclb/landing.jhtml>).
6. *Partnerships for 21st Century Skills*. A group of education, business, community, and government leaders who have built collaborative partnerships to serve as a catalyst to position 21st century skills at the forefront of K12 education in the United States (<http://www.p21.org/>).
7. *Professional Development*. Meaningful activities that provide educators with the knowledge and skills necessary to produce successful students. Professional development is sustained, intensive, collaborative, job-embedded, data driven, and classroom focused (Learning Forward, 2017).

8. *Professional Learning Community (PLC)*. Environment where educators are committed to working collaboratively in an ongoing process of collective inquiry and action research to achieve better results for students (DuFour, DuFour, & Eaken, 2008).
9. *21st century education*. The process that includes all aspects of teaching, learning, assessment, and implementation of a curriculum designed to support 21st century skills (P21, 2008; EdLeader21, 2016; Kay & Greenhill, 2013).
10. *21st century skills*. The skills students need to succeed in work, school, and life. They include core subjects (as defined by ESSA); 21st century content, learning, and thinking skills; information and communication technology literacy; and life skills. Communication, collaboration, critical thinking, and creativity are commonly referred to the 4Cs of 21st century skills (P21, 2009).

Summary

Review of the literature suggested that change was needed in public schools to provide students with the 21st century skills they will need to live, work, and thrive in the United States. According to Partnership for 21st Century Skills (P21) (2011), students need to be equipped with skills, knowledge, and expertise to succeed in work and life in a technology-driven world. Students must acquire lifelong learning skills such as collaboration, communication, critical thinking and creativity to thrive in work and life and as citizens of tomorrow. School administrators are in the midst of a significant paradigm shift in education. A change in the way standardized testing is viewed has initiated the loosening of the negative consequences schools face when they do not meet the requirements. This allows schools to shift their focus from standardized testing to a more balanced approach, promoting a shared focus with teaching essential knowledge and the implementation of 21st century skills. Schools must focus on

changing school culture through the process of job-embedded teacher professional development to provide teachers with the necessary tools to implement 21st century skills in the classrooms (Croft et al., 2010; Partnership for 21st Century Skills/Professional Development: A 21st Century Skills Implementation Guide, 2009). Many potential factors influence school leaders' ability to successfully implement 21st century skills into their schools, but very little research has been conducted that considers a synthesis of these factors and what meaning they may hold in the process of implementing 21st century skills using best practices. For this reason, a qualitative, collective case study research method was chosen for this research.

CHAPTER TWO: LITERATURE REVIEW

Overview

There are many reasons why school administrators encounter obstacles when trying to implement 21st century skills in their schools. This chapter presents the argument that job-embedded professional development provides teachers with the tools needed to implement 21st century skills in their classrooms. I have examined Lev Vygotsky's social constructivist paradigm seen through the lens of Malcolm Knowles adult learning and Abraham Maslow's hierarchy of needs (1896-1934). A second set of literature reviewed presents commonalities and differences among three 21st century frameworks and 21st century challenges and best practices introduced through ongoing, job-embedded professional development and structured within a professional learning environment to support 21st century skills implementation within the classroom. Together, the literature reviewed in this chapter supports the conceptual framework of this study and the need for ongoing, job-embedded teacher professional development to effectively implement 21st century skills.

Theoretical Framework

The approach to this study was based on a constructivist paradigm that recognized truth as relative based on one's perspective (Stake, 1995; Yin, 2003). This study was framed by Vygotsky's social constructivist learning theory (1962), Knowles' adult learning theory (1984), Maslow's hierarchy of needs (1943), and the framework of Partnership for 21st Century Skills (2002). These theories allowed for a comprehensive exploration into how school administrators successfully implement 21st century skills in schools.

Social Constructivist Theory

The social constructivist learning theory, a theory attributed to Dewey (1938) and Vygotsky (1962), is centered on the concept that learning is based around social interactions with

others and how the learner makes meaning by transferring knowledge discovered through the social interaction. Vygotsky (1978) studied how learning in social settings, with the support of more capable peers, had an impact on learning. He suggested that children rely on the example and skills set forth by adults or more competent peers to develop the ability to do certain tasks such as explaining concepts or solving problems. Job-embedded professional development provides an opportunity for teachers to work in a real-life classroom setting with the support of other professionals in the school. Meaningful professional development activities that are directly related to the teacher's classroom build deeper understanding. When teachers collaborate and work together in a culture of sharing and learning, they will gain the skills needed to effectively implement 21st century skills in their classrooms. This study supported the understanding of how school administrators and teachers work together to construct common knowledge around learning and teaching to support the implementation of 21st century skills in the classrooms.

Malcom Knowles' Adult Learning Theory

The notion of adult education has been around since the early 1900s when it was assumed adults learned the same as children (Zmeyon, 1998). The term *andragogy*, the study of adult learning, was first used by Alexander Kapp in 1833 to describe the educational theory of Plato (Zmeyon, 1998). Kapp referred to the term *andragogy* as “man-led” rather than *pedagogy* which means “child-led” (Zmeyon, 1998). According to Zmeyon (1998), John Dewey, Eduard Lindeman, and Martha Anderson all pursued theories of andragogy that were not noticed in the United States until the early 1970s. Malcom Knowles published his first article about andragogy in 1968. Malcom Knowles' (1984) adult learning theory is based on five assumptions and four principles that administrators use to drive adult-learner engagement and motivation. The five

assumptions are that adults learn best when (a) they are encouraged to explore a new idea on their own or in a collaborative setting without involvement from an instructor; (b) their needs are met for those from diverse backgrounds, experience, and skill sets; (c) they are provided with a social development benefit; (d) they are shown how information can be applied immediately and how it is going to help solve real-world problems; and (e) they are motivated by offering a reason for the need to learn. Knowles' (1984) four principles of andragogy are adults need the following: (a) to be involved in the planning and evaluation of their instruction; (b) experiences, including mistakes, as this provides the basis for the learning; (c) immediate relevance and impact to their jobs; and (d) learning that is problem-centered. School administrators who use Knowles' five assumptions and four principles when working with their staff during professional development opportunities will maximize learner engagement and motivation. Adults need to take an active role in their learning, and job-embedded professional development provides teachers with this opportunity (O'Toole & Sussex, 2012). Adult learning is heightened when the learning is personally meaningful and beneficial (Holton, Knowles, & Swanson, 2005). This study provided an understanding of how job-embedded professional development, that supports Knowles' (1984) theory of adult learning, can support school administrators in the implementation of 21st century skills in their schools.

Abraham Maslow's Hierarchy of Needs Theory

Abraham Maslow (1943) suggested that people are motivated to achieve certain needs, and once they have fulfilled one need, they will seek to fulfill the next need. The earliest version of Maslow's (1943) hierarchy of needs included five motivational needs (physiological, security, social, esteem, self-actualization). In the 1960s and 1970s, Maslow expanded the model to include seven and then eight stages (Maslow, 1970). Maslow (1971) designed a pyramid that

represented the hierarchical order of human needs that is most widely used today. The needs, starting from the bottom of the pyramid and moving upward, represent the most basic needs first, and then, once those needs are met, the person is capable of moving to the next level. The levels of needs are as follows: (a) physiological, (b) safety, (c) belongingness and love, (d) esteem, (e) cognitive, (f) aesthetic, (g) self-actualization, and (h) self-transcendence (Maslow, 1970). No person stays in one hierarchy for an extended period of time because of various forces outside of his or her control. This study provided school administrators with an understanding of how important it is to motivate teachers to obtain skills, knowledge, and the tools to help them move up the hierarchy. People who are higher in the hierarchy are better workers and are able to concentrate on tasks (Maslow, 1970). Administrators can motivate teachers to work toward the next level, but must first understand the needs and attitudes of each individual. The same is true for school administrators because, for them to meet the vision set for their schools, they must have their basic needs met, so they have the motivation to overcome the challenges they will encounter.

Related Literature

Partnership for 21st Century Skills / EnGauge 21st Century Skills / EdLeader21

The literature on the importance of school-based implementation of 21st century skills includes several theoretical frameworks. The three most frequently cited include the Framework for 21st Century Learning (Partnership for 21st Century Skills, 2007), EnGauge 21st Century Skills: Literacy in the Digital Age (Burkhardt et al., 2003), and EdLeader21: 7 steps and 4Cs for the 21st century implementation model (EdLeader21, 2016). The Framework for 21st Century Learning (P21) is the most widely accepted and used framework for 21st century learning (Partnership for 21st Century Skills, 2007).

P21's Framework for 21st Century Learning was developed with input from teachers, education experts, and business leaders to define and illustrate the skills and knowledge students need to succeed in work, life and citizenship, as well as support systems necessary for 21st century learning outcomes. It has been used by thousands of educators and hundreds of schools in the U.S. and abroad to put 21st century skills at the center of learning. (Partnership for 21st Century Skills/Framework, 2007, p. 1)

The EnGauge 21st Century Skills framework was developed through a process of literature and research reviews, workforce trends from businesses, and input from educators. This platform was designed to be used by educators to help change school policy and practices and to provide students with the skills and knowledge they need to thrive in a global society (Burkhardt et al., 2003).

EdLeader21 is a professional learning community (PLC) designed for 21st century education leaders across the nation. This organization grew through the need for educators to collaborate on ways to best implement the 21st century skills established by Partnership for 21st Century Skills (P21). School divisions have the option to join the EdLeader21 PLC by becoming members. As members, they become active participants in the PLC and can benefit from 21st century education tools and resources, networking and collaboration opportunities, professional development, and innovative 21st century education projects. EdLeader21 is built upon a seven-step framework for implementation along with the importance of the 4Cs – communication, collaboration, critical thinking, and creativity. The framework and the 4Cs skills help members plan and monitor their progress toward 21st century education implementation in their schools or school districts. Partnership for 21st Century Skills developed the Framework for 21st Century Learning (P21, 2002), and since then, 16 states have adopted this framework and have placed 21st

century outcomes into the curriculum standards, professional development, and assessments (Kay & Greenhill, 2013).

However given the Framework's breadth, educators and policy makers were often challenged with where to begin. To solve this challenge, P21 reached out to the education community and the public and identified four skills that were deemed to be the highest priorities for educators: the 4Cs – critical thinking, communication, collaboration, and creativity” (Kay & Greenhill, 2013, p. xiv).

EdLeader21 provides school divisions ways to work with the nation's top 21st century education experts, to network with like-minded educators, and to gain access to well-vetted best practices to integrate the 4Cs. It helps school divisions and school administrators face the challenge of how to implement the 21st century skills in their schools.

A synthesis of the three prominent frameworks presents commonalities and differences that all contribute to 21st century skill implementation in schools today. The frameworks focus on skills students need to be prepared for life and work and those themes fall into four categories, according to P21 (2002), that are known as the 4Cs:

- Critical thinking and problem solving
- Communication
- Collaboration
- Creativity and innovation

Deeper Learning

Educational experts from around the globe do not agree on one prescribed method to initiate change in the educational system, but they do agree that transformation is needed for students to achieve deeper learning through the implementation of 21st century skills (Bellanca,

2015). According to the Hewlett Foundation (n.d.), “The Hewlett Foundation defines deeper learning as the ability to master rigorous academic content through the application of higher-order skills, including critical thinking and problem solving, communication, collaboration, learning to learn, and the development of an academic mindset” as cited in (Bellanca, 2015, p. 3). Deeper learning is a process that allows students to develop meaning from curricular content and relate it to college and career skill development needed for the jobs of this century: “This process is made possible by students’ increased proficiency as self-directed, critical thinkers who apply their thinking , problem solving, collaborating, and communicating skills so they become more effective masters of the curricular content” (Bellanca, 2015, p. xii). As students become more proficient at applying the 4Cs, the more ready they are to have a confident mindset and a deeper understanding of the content (Bellanca, 2015).

Partnership of 21st Century Learning (2016) defines *deeper learning* as a growing movement emerging through K-12 education with a focus on a set of student outcomes that includes both essential knowledge of content and the 4Cs (communication, collaboration, critical thinking, and creativity). EdLeader21 addresses deeper learning through the Seven Steps Toward 21st Century Education (2015) that explain what deeper learning implementation would look like in the areas of deeper vision, deeper alignment, deeper professional learning, deeper curriculum, and deeper assessment to help move deeper learning forward in schools and divisions. Edleader21 supports the crucial importance of implementing the 4Cs into every aspect of the education environment for both students and the adults (EdLeader21, 2016). The consensus is clear that deeper learning happens when students use essential content knowledge and the 4Cs skill development to solve problems that are relevant to the real-world experiences they will

encounter as they enter colleges or careers. The 4Cs that support deeper learning are critical thinking and problem solving, communication, collaboration, and creativity and innovation.

Critical thinking and problem solving. Critical thinking and problem solving include reasoning, logic, and judgment that are useful cognitive skills in both school and the workplace (Partnership for 21st Century Skills, 2015). While the P21 framework and EdLeader21 use the terms *critical thinking* and *problem solving*, and EnGauge (Burkhardt et al., 2003) uses the terms *higher-order thinking* and *sound reasoning*, they both refer to the same skill set. According to the EnGauge 21st Century Skills framework, higher-order thinking and sound reasoning are “the cognitive processes of analysis, comparison, inference and interpretation, evaluation, and synthesis applied to a range of academic domains and problem-solving contexts” (Burkhardt et al., 2003, p. 33). EdLeader21 supports the idea that critical thinking is a skill everyone must possess because of three reasons. The first is that in a new economy, everyone needs to know how to improve continuously. The second reason is that critical thinking is a matter of survival. The third is critical thinking skills are necessary to be successful in college (Kay & Greenhill, 2013). These strategies can be used in the classroom to allow students to think in organized ways that will help with analyzing and solving problems. Developing these skills will certainly support students in making life decisions throughout their lives.

Communication. Communication is one of the key components of 21st century skills, but has not received the same research attention because it has been assumed that students will learn to communicate on their own (Partnership for 21st Century Skills/Communication, 2007). The P21 framework “emphasizes effectively using oral, written, and nonverbal communication skills for multiple purposes (e.g., to inform, instruct, motivate, persuade, and share ideas); effective listening; using technology to communicate; being able to evaluate the effectiveness of

communication efforts-all within diverse contexts” (P21 Framework/Creativity, 2007, p. 1).

The term *interactive communication* is used by Burkhardt et al., (2003) to represent how meaning is generated through exchanges of contemporary tools, transmissions, and processes. Employers today are constantly saying that students coming to them are deficient in written communication skills, oral communication skills, and the use of technology to communicate effectively (Kay & Greenhill, 2013). Students must learn a variety of ways to communicate through the use of technology, and this is becoming more necessary as technology continues to expand. Teachers can provide students with a variety of ways to communicate within the classroom, using a variety of tools, to help develop this skill that is so necessary for a successful future. Examples of how students can use technology to communicate include emailing, video conferencing, document sharing, teleconferencing, web chats, social media sites, SMS (texting), and mobile applications such as QR codes.

Collaboration. Many businesses and organizations are placing a greater emphasis on teamwork, and this requires individuals to work effectively with others. P21 Framework’s definition of *collaboration* emphasizes students’ ability to work effectively and respectfully with diverse teams, to show a willingness to make necessary compromises to accomplish a common goal, to assume shared responsibility for collaborative work, and to value all contributions made by team members (Partnership for 21st Century Skills Framework/Collaboration, 2007). The EnGauge 21st Century Skills defines *collaboration* and *teaming* as interaction between two or more people who are working to solve a problem, create a new product, or teach (Burkhardt et al., 2003). Also, according to Kay and Greenhill (2013), “Employers regularly comment that the individuals who are least successful in the workplace often fail as a result of an inability to work effectively with others” (p. 14). Schools must work to build a shared energy among the staff to

accomplish a common goal while providing them with the time and space to work and create together. Students should be afforded the same opportunities when working together in teams to solve a problem or create a new product. Teachers must find ways to provide students with the opportunities to gain collaboration skills to help support the need of this skill in future situations.

Creativity and innovation. P21 defines *creativity* as the ability to use a wide range of knowledge in ways that solve complex problems or design something new to be analyzed and improved (Partnership for 21st Century Skills Framework/Creativity). EnGauge 21st Century Skills defines *creativity* as “the act of bringing something into existence that is genuinely new, original, and of value either personally or culturally (Burkhardt et al., 2003). The workforce has shifted over time from needing basic manufacturing workers to needing more innovative workers who can find creative ways to solve problems. The knowledge-based age has shifted from the need to have physical materials to those who have intellectual capacity to create and produce knowledge (Burkhardt et al., 2003). EdLeader21 (2016) views creativity and innovation as essential ingredients to economic success: “You are either going to need to be creative and innovative yourself or be able to effectively be able to collaborate with someone who is” (Kay & Greenhill, 2013, p. 15). Teachers can help students develop the capacity to think more creatively by allowing them time to use their knowledge to solve problems by taking risks and not being afraid to fail.

Additional 21st Century Skills

In addition to sharing the themes outlined above, the frameworks place a great emphasis on the development of technology skills. Each of the frameworks also offers suggestions for additional skills that may coincide with the vision of the schools’ lists of desired student outcomes. Kay and Greenhill (2013) explain how many schools and divisions start with the 4Cs

as 21st century student outcomes and then expand their visions beyond these competencies by adding skills that support their individual missions.

The 4Cs are considered the learning and innovation skills in the P21 framework that increasingly are being recognized as those that separate students who are prepared for a more and more complex life and work environments in the 21st century, and those who are not. A focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future, (P21Framework Definitions, 2015, p. 3).

The P21 framework (P21Framework Definitions, 2015) also supports weaving 21st century interdisciplinary themes into key content such as (a) global awareness; (b) financial, economic, business, and entrepreneurial literacy; (c) civic literacy; (d) health literacy; and (e) environmental literacy.

Today's students must move beyond the content knowledge and thinking skills to be successful in life and work: "The ability to navigate to complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills" (P21Framework Definitions, 2015, p. 6). Those skills include (a) flexibility and adaptability, (b) initiative and self-direction, (c) social and cross-cultural skills, (d) productivity and accountability, and (e) leadership and responsibility (P21Framework Definitions, 2015). The P21 framework (P21Framework Definitions, 2015) can support school administrators to integrate 21st century learning through a blend of content knowledge, specific skills, expertise, and literacies. EdLeader21 supports the P21 framework and suggests that school administrators must decide which student outcomes match the visions of the schools or divisions (Kay & Greenhill, 2013).

All three frameworks provide a basis to help educators implement 21st century skills in their classrooms, while each also has differences and places a varying emphasis of skills within the framework. Visual literacy is added to the EnGauge 21st Century Skills framework which is the “ability to interpret, use, appreciate, and create images and video using both conventional and 21st century media in ways that advance thinking, decision making, communication, and learning” (Burkhardt et al., 2003, p. 24). Information literacy is added to the EnGauge 21st Century Skills Framework and is the ability to evaluate information across a range of media; locate, synthesize, and use information effectively (Burkhardt et al., 2003). This framework also included curiosity, risk-taking, prioritizing, planning, and managing for results that are not highlighted in the P21 framework. Together, the frameworks offer perspectives on ways to construct 21st century skills. Each one sets out to accomplish the same goal, and that is to prepare the students of today with the necessary skills to thrive in the digital world in which they will live and work. The frameworks also were designed to help education practitioners integrate skills into teaching to keep students engaged in the learning process and to prepare them for graduation.

Technology

Students in the 21st century have grown up using technology and living in a media-driven world. P21 framework and EdLeader21 support information, media, and technology skills to help students become effective citizens and workers of the 21st century. These skills include “(a) access to an abundance of information; (b) rapid changes in technology tools; (c) the ability to collaborate and make individual contributions on an unprecedented scale” (Partnership for 21st Century Skills Framework/Definitions, 2007, p. 5). The EnGauge 21st Century Skills framework engages “digital-age literacy that supports proficiency in science, technology, and culture, as

well as gain a thorough understanding of information in all its forms” (Burkhardt et al., 2003, p. 15).

Technology plays a significant role in the implementation of 21st century skills: “We can- and must-prepare all students with a 21st century education that will position them with the knowledge and skills they need to thrive, whether they continue their formal education or enter the workforce after high school” (Partnership for 21st Century Skills/Maximizing the Impact, 2002, p. 3). Because technology is always changing, it becomes difficult for educators to keep up with the pace of change: “It is important for teachers to be able to adapt a positive disposition to change. Teacher self-efficacy dispositions toward the use of instructional technology are the most crucial factors for meeting the challenges of the 21st century classroom” (Gentry, Baker, Thomas, Whitfield, & Garcia, 2014, p. 36). Msila (2011) suggested that school administrators would need to be sensitized around the demand of 21st century organizations because technology plays a crucial role in accelerating the transformation of schools. To support teacher self-efficacy with instructional technology, school administrators need to provide professional development opportunities that introduce current technology tools teachers can use to enhance instruction in their classrooms.

21st Century Education Challenges and Best Practices

The greatest challenge facing educators today is how to make the paradigm shift to 21st century education in school. Educators face the need for all students to succeed given the challenges of a shift to a,

global knowledge economy, workforce transitions, the diversification of the student body, and the need for a collective understanding of what it means to be ready for any postsecondary opportunities. The imperatives are economic, personal, and social, and the

potential impact is not only local, but also national and global in scope (Soule & Warrick, 2015, p. 185)

The need for change in schools is necessary to keep up with the changes educators across the globe are facing:

The rapid changes we see in the world around us are brought about by the forces of globalization and technological and cultural change often make it difficult to gauge what exactly it is that our students need to be learning in schools and how teachers are to be trained in order to prepare our student for the future. (Kereluik, Mishra, Fahnoe, & Terry, 2013, p. 133)

Partnership for 21st Century Learning recognized the challenge schools are facing and designed a framework for schools to use as a vehicle to implement 21st century skills: “Today’s education system faces irrelevance unless we bridge the gap between how students live and how they learn” (Partnership for 21st Century Skills/Learning for the 21st Century, 2009, p. 2). Educators must meet the call to action and change the way teachers are approaching education in their classrooms by combining both essential components of education, basic skills, and 21st century skills.

The International Center for Leadership in Education reported from its 22nd annual Model School Conference in June 2014 the five lessons learned from the nation’s most rapidly improving and transformative schools (Daggett, 2014). Those five lessons were (a) addressing today’s challenging issues within the context of emerging trends, (b) creating a culture that supports improvement, (c) allowing leaders to take control with short-term action plans, (d) taking a system approach to student performance, and (e) using data to make decisions. Each of these five lessons is a change agents on its own, but when all are implemented together, effective

schools see the most transformation. The results of this report reflects that school administrators who have the leadership skills to initiate change in their schools can transform their schools into 21st century school that are preparing students for the world they will inhabit.

The first lesson learned from this report addresses how school administrators must tackle the emerging trends of today's challenging issues such as the impact of digital learning, the demand for college and career readiness, emphasis on applied learning, the use of data to drive learning, and the need for students to develop personal skills. Administrators who keep a focus on emerging trends generate the most effective transformations by creating cultures that support change, create teams that focus on emerging trends, network with others to share best practice, are not afraid to take risks, and push for trend-aligned policy (Daggett, 2014). These are all the same trends that are addressed by Partnership for 21st Century Learning (P21) and EdLeader21 within their frameworks. Schools who use the P21 framework "with the necessary support systems-standards, assessments, curriculum and instruction, professional development and learning environments have students who are more engaged in the learning process and graduate better prepared to thrive in today's global economy" (P21, 2015, p. 1). The P21 framework provides supports for school administrators by addressing key subjects and 21st century themes and by implementing learning and innovation skills, information and technology skills, and life and career skills (P21, 2015). The EdLeader21 framework (Kay & Greenhill, 2013) provides school administrators a guide to 21st century education that involves seven steps:

1. Adopt your vision.
2. Create a community consensus.
3. Align your system
4. Build professional capacity.

5. Focus your curriculum and assessment.
6. Support your teachers.
7. Improve and innovate.

Clearly, there are many commonalities of focus among these three approaches to school transformation that school administrators can use to support their efforts in becoming effective schools with the focus on the implementation of 21st century learning.

The second lesson learned from the report speaks to one of the most significant lessons: how creating a culture is more important than the strategies used. The need for change must be established to support buy-in by the schools' stakeholders: "Schools need a systematic plan to communicate to all of their stakeholders that the human and economic consequences of not improving student performance and 'readiness' are far worse than the challenges and pain of bringing about needed change" (Daggett, 2014, p. 9). Ken Kay, CEO of EdLeader21, shares with school administrators that the "buy-in' phase for your vision is a lot of work, but it will enable you to co-create a vision for 21st century education that can create a supportive environment for the school or district" (Kay & Greenhill, 2013, p. 25). According to Kay and Greenhill (2013), school administrators must be intentional and purposeful in their leadership and showcase that commitment by highlighting support of the 21st century skills. They must also show consistent dedication to the work and must model outcomes for teachers, staff, and students. It takes time for schools to transform because "culture change requires altering long held assumptions, beliefs, expectations, and habits that represent the norm for people in the organization" (DuFour & Fullen, 2013, p. 2). Administrators must work diligently at setting the foundation for a strong culture in their schools, as this will serve as the backbone for the transformation into 21st century learning.

The third lesson learned explains the importance of leadership skills needed to manage change. The administrator must understand how “translating culture and vision into sustainable improvement involves more than just insight – it also requires strategy” (Daggett, 2014, p. 10). Administrators who have been successful with change choose their battles and empower the teachers who are eager for change by giving them leadership responsibilities (Daggett, 2014). Most schools have a group of teachers who are ready to face any challenge that involves improving student learning. Successful administrators take advantage of this group and “cultivate a broad-based visions of what ‘student success’ looks like” (Daggett, 2015, p. 10). According to Kay and Greenhill (2013), leaders need to understand that the most important responsibility is to motivate their teachers and to provide them with adequate time out of class to craft their lessons, time to collaborate with their peers, and time to work with their teams or PLC to refine their practice. Teachers who are engaged, motivated, and supported can help a school administrator take the schools’ vision and make it a reality for all students: “Principals are the critical cog that can support or inhibit both student and adult learning” (DuFour, 2015, p. 223). The principal plays a very important role in the transformation of a school, but he or she cannot do it alone. In order to meet all the demands placed on school administrators today, dispersing leadership throughout the school is a must (DuFour & Marzano, 2011; Fullan, 2014). Administrators who motivate their staff, value their input, provide them with needed resources, and take a shared leadership approach will be on their way to creating a culture that is more conducive to change.

The fourth lesson learned demonstrates the importance of a systemic approach to organizational change. The shift that is needed in organizations could include adjustment in curriculum and assessment. It could also include the use of technology, how data is used to

guide student learning, use of formative assessments, shift classroom focus to learning rather than teaching, and embracing college and career readiness (Daggett, 2014). Schools must shift the approach to teaching and learning to meet the 21st century needs of students today. The school leadership must create a clear understanding of why the organization needs to change and then must assist instructional leaders and coaches in determining what needs to be changed: “4 C’s curriculum advances your education initiative through ‘what’ gets taught. Curricula refinement is a significant step in shifting from a rote memorization, content-only focus to a more balanced curricular approach that emphasizes both content and skills” (Kay & Greenhill, 2013, p. 76). This process is more effective when initiated through a systematic approach: “When your vision is being implemented in a systemic, coordinated way across the school or district, that’s when you will start to see powerful results: the 4Cs integrated into daily teaching and learning for every student” (Kay & Greenhill, 2013, p. 45). Once school administrators acknowledge the need for a change in their schools, they can design visions that support the implementation of 21st century skills, and then they can put structures in place that will help effect the needed changes:

Creating a highly effective, systemic intervention process requires a school staff to take collective responsibility for student success, collaborate regularly, agree on essential learning outcomes and pacing, abandon traditional teaching and assessment practices that were designed to create bell-shaped curve of student success, and make significant revisions to the school’s master schedule and resource allocations. (DuFour, 2015 p. 220)

A systematic change takes the entire school or division working together to make a sustained effort to address the needed changes to transition into 21st century learning for all students. The

organizational leaders, instructional leaders, and teachers working together to support a common mission will support the most effective change.

The fifth lesson learned focuses on the use of data to make decisions. Data systems are used to gain a vision of improved student performance, measure student growth, diagnose learning gaps, and monitor the impact of instructional strategies (Daggett, 2014). Schools can use the data provided to create short-term action plans that identify assistance needed to support teachers in providing personalized instruction. Teachers can take this information and immediately begin providing individual instruction for each student: “Shifting from an isolated snapshot model of data use to a growth-model approach allows schools to capture, analyze, and act on information in ways that can transform student learning” (Daggett, 2014, p. 15). Effective school administrators understand the importance of using student data to drive instruction: “Powerful principals are obsessed with the instructional core of personalizing learning and getting results for each and every student” (Fullan, 2010, p. 14). Effective schools are based around data informed decision making to guide instruction in an effort to improve student performance. As stated by Boudett, City, and Murnane (2015),

What effective schools look like is not a mystery. They have a coherent instructional program well-aligned with strong standards. They have a community of adults committed to working together to develop the skills and knowledge of all children. They have figured out how to find the time to do this work and are acquiring the skills to do it well. (p. 4)

School administrators can transform student learning by using data to create short-term and long-term plans, putting structure in place to support the plans, and providing support for teachers, so they can personalize the instruction for each student.

These five lessons learned have been found as common tenets in the nation's most rapidly improving schools and can support school administrators by informing their work toward academic change needed to meet the demands of providing a 21st century education (Daggett, 2014). School administrators who want to transform their schools can initiate change by (a) addressing today's challenging issues within the context of emerging trends, (b) creating a culture that supports improvement, (c) taking control with short-term action plans, (d) taking a system approach to student performance, (e) using data to make decisions (Daggett, 2014). When a school works together with a focus on these five tenets, change will take place that will support the school's effort in providing a 21st century education that prepares its students for success in college and career.

Change Leadership

School leadership is a key component in successful change that leads to improved student and adult learning: "Principals are the critical cog that can support or inhibit both student and adult learning" (DuFour, 2015, p. 223). Actions that result in change typically begin with the vision of the leader. None of this work can take place until a climate is created that supports change. Leaders who enact change in their schools do so by creating a climate that supports collaboration, risk-taking without a fear of failure, innovation, and mutual respect among the staff and students (Bellanca, 2015). Michael Fullan, the author of *Leading in a Culture of Change* (2001), offers five characteristics of effective leadership for change: moral purpose, understanding the change process, strong relationships, knowledge sharing, and connecting new and existing knowledge. Administrators who strive to change their schools to meet the demands of providing a 21st century education must approach the change in a way that supports both adult and student learning within a supportive climate.

Principals play a very important role in the change that takes place in their schools, but they cannot be expected to do it all alone. Principals are not expected to have all the answers regarding school improvement, but by creating leadership teams and through shared leadership, principals can positively impact improvement strategies (Lieberman, Saxl, & Miles, 1988; DuFour, 2015; Santamaria & Santamaria, 2012). Principals who share the decision-making process with others can use this opportunity to model the use of the 4Cs. The National Association of Elementary School Principals (NAESP) and the National Association of Secondary School Principals (NASSP) have urged their members to practice collaborative leadership (DuFour & DuFour, 2012). Through the development of professional learning communities and leadership teams, school leaders can foster a collaborative decision-making process that gives all stakeholders a voice: “The only hope of meeting the demands of the contemporary principalship is dispersing leadership throughout the school (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Chhuon, Gilkey, Gonzales, & Daly, 2008; DuFour & Marzano, 2011; Fullan, 2014; Marzano, Waters, & McNulty, 2005). When principals allow others to share in the leadership, a true sense of collaboration occurs and promotes a community approach to meeting common goals.

Importance of a Professional Culture of Learning

Professionals today work in the 21st century workplace and are faced with rapid and constant changes that demand more than they learn from their traditional training programs. As a result, professions, including educators, must rely on non-formal learning approaches through a personal learning community or network (Manning, 2015). Schools that seek out this kind of support for their teachers find that it creates an environment of learning and sharing. As reported by Hunzicker (2012), “school leaders who understand leadership create a school culture of

collaboration and continuous learning that engages all teachers in a variety of learning and leadership experiences” (p. 286). As educators strive to implement 21st century skills into schools, the culture of the school environment as a whole is the key factor (Donovan, Green, & Mason, 2014; Kay & Greenhill, 2013). A culture that provides teachers with support and the time to collaborate results in an environment of continuous learning and sharing around teaching 21st century skills.

Professional Development

High-quality professional development is the main focus for most school administrators who are trying to improve education, they are recognizing that schools can only be as good as their teachers and administrators (Guskey, 2002). Teacher professional development can serve as the vehicle to support the implementation of 21st century skills in schools: “In crafting professional development programs, the areas of pedagogy, content, and technology need to be addressed to ensure that the experience is as transformative as possible” (Archambault, Wetzel, Foulger, & Williams, 2010, p. 5). Sustained concerted professional development opportunities must be provided by school administrators to promote 21st century educational practices such as technology trends, differentiation and assessment practices, and student-centered pedagogical methods so that teachers have the tools needed to provide their students with a 21st century education (Gunn & Hollingsworth, 2013). Education for the 21st century requires teachers to become highly specialized in a set of skills to enable them to implement 21st century skills in their classrooms. Through the development of a learning culture, teacher professional development will support the transformation of schools that is necessary to prepare students to excel in life and work beyond graduation.

Partnership for 21st Century Skills (2008) suggests that in order to prepare educators to integrate 21st century skills into learning standards and classroom instruction, funding must be provided, and higher education institutions must be disseminating best practices; these same institutions must ensure they are graduating teachers who are prepared to employ 21st century teaching and assessment strategies. P21 also suggests that school administrators should first identify the most capable and energetic people, providing them with professional development, and then build from this group as they model for and coach others within a professional learning community (PLC). EdLeader21(2009) suggested that moving past traditional stand-and-deliver PD to one that is more collaborative is something school leaders should embrace. Resources are a common obstacle, but Kay and Greenhill (2013) suggest reviewing current PD to make sure it is producing the desired results, and if not, reallocate the money to a different PD source that supports the vision of the school. Another suggestion was to use outside groups or PD consultants as coaches in the building for both teachers and administrators. Schools can also train teachers as peer coaches to support the PD efforts in the building (Kay & Greenhill, 2013).

According to Trilling and Fadel (2009), successful 21st century professional development must be collaborative, grounded in teachers' own questions and problems, and connected to a teacher's own work with his or her students and curriculum. The professional development should also include intensive support provided through modeling, coaching, mentoring, and collaborative problem solving with other teachers. It should be experimental and engaging to teachers in concrete tasks of designing, implementing, managing, and assessing learning through activities and projects. Guskey (2002) suggests that for professional development to be effective, it must be followed with regular classroom visits with continual feedback and reflection from a coach or mentor. In order for professional development to be successful,

school leaders must focus on implementing PD that “motivates and empowers teachers, shares ownership, and personalizes professional learning, all while increasing accountability and expectations for all” (Murray & Zoul, 2015, p. 4). The research here shows that professional development that is provided to teachers in their classrooms and delivers a more personalized approach to learning collaboratively with their peers is what is needed to support transformation in schools today.

The Partnership for 21st Century Skills (2009) provides school leaders with goals to help provide teachers with 21st century professional development. In order for teachers to effectively implement 21st century skills into their classrooms, they must receive professional development that provides them with the capacity to implement the essential knowledge and skills into their lessons. The following goals are recommended to support this effort:

- Help teachers identify how to take a lesson and make changes that support the implementation of the 4Cs
- Emphasize a balanced approach that includes direct instruction and project-based activities
- Provide examples of how students who practice the 4Cs experience deeper learning
- Use 21st century professional learning communities that model 21st century skills
- Train teachers how to identify strengths and weaknesses of their students and provide examples of how to address each concern
- Support teachers in developing strategies to reach all students through differentiation of instruction and assessment
- Encourage ongoing evaluation of students’ 21st century skill development
- Cultivate an environment that encourages knowledge sharing

- Use a sustainable approach to professional development

School administrators can use these goals to provide professional development designed to improve teacher capacity to implement 21st century skills and essential knowledge into the classrooms. The ultimate result will be the creation of a climate of learning throughout the schools that focuses on improved student and adult learning.

Job-embedded professional development. According to the United States Department of Education (National Archives and Records Administration, 2009), the requirement for providing ongoing, high quality, job-embedded professional development to staff in a school is directly tied to improving instruction. Professional development that is sustained and job-embedded with a focus on content is more likely to improve teaching and learning for both students and teachers rather than PD with a focus on teacher knowledge, classroom instruction, and student achievement (Darling-Hammond & Ball, 2004; Darling-Hammond, Chung, Andree, Richardson, & Orphanos, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gutskey, 2009). *Job-embedded professional development* is generally defined as day-to-day teaching practice that occurs regularly and consists of teachers analyzing students' learning and finding solutions to problems of practice that align with student standards and school goals. It is classroom or school based and is integrated into the school day as opposed to delivery through isolated workshops or conferences.

Job-embedded professional development helps teachers solve day-to-day problems in their classrooms (Sparks & Hirsh, 1997). Teachers assess and problem-solve for authentic and immediate problems of practice as part of ongoing improvement (Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality, 2010). Job-embedded professional development provides teachers with opportunities to work with a master teacher in their

classrooms that include ongoing feedback and dissecting what was observed (Murray & Zoul, 2015). Job-embedded professional development activities may include mentoring, coaching, peer observation, Reflective Friends, protocols for peer feedback, examining student work, lesson study, data teams, study groups, and support from professional learning communities (Croft et al., 2010). Job-embedded professional development provides school administrators with a way to personalize professional development for each teacher while also facilitating collaboration among the staff. It also allows administrators to implement PD that supports the school's vision through the creation of a learning culture.

Research presents a variety of best practices school administrators can use to help support the implementation of 21st century skills. Leaders must begin by establishing an environment of learning in their schools (Cornell, 2002; Konings, Zundert, Brand-Gruwel, & Merrienboer, 2007; Partnership for 21st Century Skills, 2012). Professional learning communities (PLC) enable educators to create an environment of learning that supports collaboration and shared best practices.

Professional learning community (PLC). The development of professional learning communities allows for teachers to collaborate using a shared vision to support and share teaching practices and strategies that support student learning (DuFour et al., 2008; Hord, 1997; National Staff Development Council, 2010). A professional learning community creates an environment where educators are committed to working collaboratively in an ongoing process of collective inquiry and action research to achieve better results for students (DuFour et al., 2008). Developing effective PLCs takes time and resources to train teachers and nurture the PLC process (Hairon, Goh, & Chua, 2015; Pirtle & Tobia, 2014). A school with a positive school culture along with an effective professional learning community has a “shared purpose and

values, a collaborative culture, problem solving and collective inquiry, and a focus on continuous improvement” (Little, 2002; Schechter, 2008). Having a group of teachers looking at how to address a problem or a needed change brings a larger view from a variety of perspectives and results in a more vetted end result than just one teacher working alone.

In order to implement 21st century skills, administrators must find ways to demonstrate what the 4Cs (collaboration, communication, critical-thinking, and creativity) of 21st century learning are as a starting place (EdLeader21, 2016; Partnership for 21st Century Skills, 2012). Teachers who practice the 4Cs skills within their professional environment can better understand the skills as they introduce them into their classrooms to their students: “Teachers of 21st century skills will need to be experts and have expertise in teaching the same 21st century skills that they are encouraging their students to excel in” (Pacific Policy Research Center, 2010, p. 13).

Collaboration, one of the 4Cs, requires teachers to work together in diverse teams, exercise flexibility, assume shared responsibility, and value the input of each member (Partnership for 21st Century Skills/Collaboration, 2012). Assuming a shared responsibility in an effort to accomplish a common goal is needed to work effectively (Partnership for 21st Century Skills, 2009; Trilling & Fadel, 2009). Communication is one of the 4Cs that requires teachers to effectively use oral, written, and nonverbal communication skills, along with good listening and technology communication skills (Partnership for 21st Century Skills/Communication, 2012; Walther, 1996;). Another one of the 4Cs is critical thinking, which represents reflective, analytical, and evaluative skills used to help solve problems and reach conclusions (Marin & Halpern, 2011; Partnership for 21st Century Skills/What We Know About Creativity, 2015). Teachers who practice using critical thinking skills in a collaborative setting, such as a PLC, work to solve problems present in their classrooms or struggles they are having with individual

students. Together with varied teacher experiences, the PLC setting allows for a group of teachers to focus on solving one teacher's problems to help improve their instruction in the classroom. *Creativity*, the last of the 4Cs, is defined by the "interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful" (Plucker, Beghetto, & Dow, 2004, p. 90). Teachers in a PLC can practice creativity to help solve instructional problems in different ways or to transform the way they are teaching in an effort to reach the needs of each and every student and to provide a classroom environment that is engaging and meaningful to their students. Teachers who practice the use of the 4Cs in a PLC setting will have a better understanding of what they are asking of their students when they are implementing the 4Cs in their own classrooms.

Instructional coaching. Instructional coaching began in the 1980s when school administrators needed to provide support to teachers who were not meeting necessary standards. That was when professional development began shifting from conferences and workshops to the belief that teacher learning should happen every day (Ball & Cohen, 1999). Instructional coaching is a strategy that uses the more knowledgeable and capable teachers to support and guide the less experienced or more knowledgeable teachers to introduce teaching best practices. Instructional coaches provide ongoing consistent feedback on new strategies and knowledge (National Staff Development Council, 2010; Rowley, 2005). Coaches provide feedback to those they are coaching through demonstrations, observations, and conversations (National Comprehensive Center for Teacher Quality, 2010). Instructional coaches vary in their roles across schools, but are similar in the desired outcome to improve teaching strategies that result in improved student achievement.

Critical Friends process. The Critical Friends process focuses on teachers developing collegial relationships, encouraging reflective practice, and rethinking leadership (Cushman, 1998). According to Lee and Smith (1996) students' academic achievement is greater in schools that practice collective responsibility for student learning. Critical Friends groups provide opportunities for teachers to analyze one other's work, including student work, lesson plans, assessments, and classroom teaching and provide support for challenges they are experiencing with the material or meeting student needs (Kuh, 2016; National Staff Development Council, 2010; Norman, Golian, & Hooker, 2005). Historically, teachers have worked in isolation, but this approach helps create a culture that supports open classrooms and a collective responsibility among the staff (Kuh, 2016). This process also allows teachers to receive feedback that can immediately improve their classroom teaching and can also be called action research (Cochran-Smith & Lytle, 1990). If the classroom lesson is videotaped, then this could also be called a case discussion when a group of faculty reviews the video and discusses a particular teaching strategy or outcome (LeFevre, 2004). All are ways staff can collaborate and reflect together to offer support to one another with the goal being continual growth and learning for all.

Data teams or assessment development. Data teams or assessment development is a best practice that allows teachers to meet and analyze results from standardized assessments or teacher-created assessments to formulate how to improve student outcomes (Blythe, Allen, & Powell, 1999; National Staff Development Council, 2010). These teams can be made up of similar subject teachers or cross-curricular teams working in a PLC that helps generate broader strategies or solutions to the problems presented to the team. Both summative and formative assessments are important for teachers to review, but formative assessments are continual checks for understanding that effective teachers use daily to guide their instruction (DuFour, 2015). The

effectiveness of formative assessments used to improve student learning is very well documented in research in the field of education (Black, Harrison, Lee, Marshall, & Williams, 2003). The most effective teachers use a variety of formative assessments such as effective questioning, multiple strategies to check for student understanding, and high quality questioning (DuFour, 2015). Teachers use the information from the checks for understanding to adjust their instruction for the next day to support areas that students did not understand.

Michael Fullan (2011) supports the process of team-developed common formative assessments. This is a process when a team of teachers uses assessment data for more than just assigning grades. They use the process to meet intervention and enrichment needs of students, identify teachers who need support within the team, and reveal areas of strengths and weaknesses within the team (DuFour, 2015). Data teams or assessment teams are groups of teachers who work together in PLCs or teams on a common focus or goal to improve teaching and learning.

Protocols. Tuning protocol is a strategy in which teachers evaluate and provide feedback on new project ideas and student work and help solve problems a teacher is facing with a lesson or project (Blythe, Allen, & Powell, 1999; Moore & Carter-Hicks, 2014; National Staff Development Council, 2010). This strategy helps teachers generate ideas of ways to expand or focus project ideas and provides feedback on what good student work looks like and suggestions on how a rubric can add support to the grading of student work. The use of protocols has several purposes according to Moore and Carter-Hicks (2014): (a) allows the presenter of the work to be removed from the conversation to hear the feedback without responding defensively, (b) allows all groups members to be heard by limiting one person from dominating the conversation, (c) respects the group members time through the structure of the protocol, (e) and the protocol keeps

the conversation focused. This process allows the members of the group to become invested in the learning of others while maintaining a focus on teaching and learning.

Mentoring. When teachers are in need of support, mentoring can be used to match teachers in need of support with coaches or peer-support relationships that allow for collaborative time (National Staff Development Council, 2010; Portner, 2005). This is especially helpful for new teachers who need extra support. This practice is most effective when the teachers share the same content area, have a common planning time, and have structured collaboration time available (Croft et al., 2010). Study groups consist of small groups of teachers and administrators who study a selected topic related to the school goals or student outcomes and engage in discussions that lead to school improvement (National Staff Development Council, 2010). In a study group, teachers could be provided the opportunity to present their portfolios of lesson plans, student work, reflective writing, and other material to all for feedback on teacher growth and outcomes (Gearhart & Osmundson, 2009). Book studies is another strategy that school administrators can use to study a topic together as a faculty or small study group.

Project-Based Learning. The Buck Institute for Education (BIE) is a not-for-profit organization committed to expanding the effectiveness of Project-Based Learning (PBL) by providing products and services to support teachers, organizations, and school districts (The Buck Institute, 2016): “Project-Based Learning is a transformative teaching method for engaging ALL students in meaningful learning and developing the 21st century competencies of critical thinking/problem solving, collaboration, creativity, and communication” (The Buck Institution, 2016). Project-Based Learning provides an effective way to learn that is also enjoyable and leads to deeper learning. According to the Buck Institution, PBL makes school more engaging for students; improves learning; builds skills for college, career, and life; helps address

standards; uses technology to enhance instruction; and makes teaching more enjoyable and rewarding; connects students and schools with the community; and addresses real-world issues (The Buck Institute, 2016).

A study of the essentials for successful use of PBL lists six recommendations for schools to provide (a) student support, (b) teacher support, (c) effective group work, (d) a balance knowledge with skill work, (e) assessments with an emphasis on reflection and self and peer evaluations, and (f) student choice and autonomy (Kokotsaki, Menzies, & Wiggins, 2016).

Project-Based Learning is one approach to teaching 21st century skills that engages students and allows them to have a voice and use their talents while learning on a deeper level. When students are engaged in their learning and take ownership, they tend to experience deeper learning (Bellanca, 2015; Kokotski, Menzies, & Wiggins, 2016; Partnership for 21st Century Skills, 2015).

Summary

An analysis of the literature associated with this review revealed that research identifying obstacles school administrators encounter while implementing 21st century skills in their school was lacking because practical direction was not provided for school administrators on how to approach the implementation. However, there appears to be a large body of general research into teaching and learning in the 21st century (e.g., Bellanca, 2015; Burkhardt et al., 2003; Daggett, 2014; DuFour, 2015; DuFour & Marzano, 2011; EdLeader21, 2016; Fullan, 2008, 2014; Kay & Greenhill, 2013; Kereluik, Mishra, Fahnoe, & Terry, 2013; Lieberman, Saxl, & Miles, 1988; Manning, 2015; Partnership for 21st Century Skills, 2008; Santamaria & Santamaria, 2012; Soule & Warrick, 2015). According to literature, best practices of 21st century learning include the concepts around change leadership (e.g., Bellanca, 2015; Bryke, Sebring, Allensworth,

Luppescu, & Easton, 2010; Chhuon, Gilkey, Gonzales, & Daly, 2008; Darling-Hammond, 1990; DuFour, 2015; DuFour & DuFour, 2012; DuFour & Marzano, 2011; Fullan, 2001; Lieberman et al., 1988; Marzno et al., 2005; Santamaria & Santamaria, 2012), culture of learning (e.g., Donovan, Green, & Mason, 2014; Hunzicker, 2012; Kay & Greenhill, 2013; Manning, 2015), professional development (e.g., Archambault, Wetzel, Foulger, & Williams, 2010; Gunn & Hollingworth, 2013; Guskey, 2002; Kay & Greenhill, 2013; Murray & Zoul, 2015; Partnership for 21st Century Skills, 2008, 2009; Trilling & Fadel, 2009), job-embedded professional development (e.g., Croft et al., 2009; Darling-Hammond & Ball, 2004; Garet et al., 2001; Gutskey, 2009; Hawley & Valli, 1999; Murray & Zoul, 2015; National Archives and Records Administration, 2009; National Comprehensive Center for Teacher Quality, 2010; Sparks & Hirsh, 1997), and best practices (e.g., Bellanca, 2015; Black, et al., 2003; Blythe, Allen, & Powell, 1999; Cochran-Smith & Lytle, 1990; Ball & Cohen, 1999; Cornell, 2002; Cushman, 1998; DuFour et al., 2008; DuFour, 2015; Fullan, 2001; Gearhart & Osmundson, 2009; Hairon, Goh, & Chua, 2015; Hord, 1997; Kokotski, Menzies, & Wiggins, 2016; Konings, Zundert, Brand, Gruwel, & Merrienboer, 2007; Kuh, 2016; Lee & Smith, 1996; LeFevre, 2004; Marin & Halpern, 2011; Moore & Carter-Hicks, 2014; National Comprehensive Center for Teacher Quality, 2010; National Staff Development Council, 2010; Norman, Golian, & Hooker, 2005; Pacific Policy Research Center, 2010; Partnership for 21st Century Skills, 2012, 2009; Pirtle & Tobia, 2014; Plucker, Beghetto, & Dow, 2004; Portner, 2015; Rawley, 2005; The Buck Institute, 2016; Trilling & Fadel, 2009; Walther, 1996).

The research addressed a broad understanding about teaching and learning in the 21st century and can be further refined through an investigation of job-embedded professional development and the impact it had on the implementation of 21st century skills. The gap in the

literature suggested that more research was needed on how school administrators overcome obstacles to implementing job-embedded professional development to support teachers in classroom implementation of 21st century skills through the use of research-based best practices.

The research established just how important it is for schools to implement 21st century skills to help prepare students for life and work after graduation. It also supported the importance of teacher professional development designed to provide teachers with the necessary tools they need to implement 21st century skills. Job-embedded professional development is one form that is practiced today, with positive outcomes on student learning. This study provided additional study that narrowed in on job-embedded teacher professional development for 21st century skills, identifying the implementation obstacles school leaders encountered, resulting in implementation recommendations for school administrators.

CHAPTER THREE: METHODS

Overview

The purpose of this collective case study is to understand the successes, challenges, and lessons learned when secondary school administrators implement job-embedded professional development to change the teaching and learning of 21st century skills. Chapter Three begins with a description of the design for the study. The research questions that guiding the study are presented. The setting is detailed along with the participant information. The procedures of the study, researcher's role, data collection, data analysis, trustworthiness, and ethical considerations are described, ending with the summary of the chapter.

This study was conducted in order to better understand the challenges, successes, and lessons learned when school administrators implement 21st century skills through teacher job-embedded professional development. This study is important in furthering the understanding so that school administrators can better implement the 21st century skills in their schools through the use of best practices. The 21st century skills are necessary to prepare students for work, school, and life. Secondary school administrators are tasked with finding ways to teach students these skills prior to high school graduation. Therefore, it is vitally important for school administrators to understand how best to effectively implement these skills into the classrooms using best practices.

Design

For the purposes of this research, a qualitative method was chosen because it allowed for issues to be studied in depth and detail without constraints by predetermined categories of analysis. It also allowed for a large amount of detailed information from a smaller group of people and cases that helped increase the depth of understanding of the cases and situations

studied (Patton, 2015). A quantitative method of study would require the use of standardized measures, limiting the amount and depth of information collected (Patton, 2015).

This qualitative study was conducted using a collective case study design. A collective case study design supports the study of four secondary schools that share the similar phenomenon of interest demonstrated through a sampling of teachers and administrators who share a common experience or perception that gives special value to the data collected (Gall, Gall, & Borg, 2007; Yin, 2009). The unit of analysis for this case study was the data collected from each of the four schools. This design was the most appropriate design for this study because it allowed for a complex understanding of a phenomenon and would provide a thick description of how leaders overcome obstacles of implementing ongoing teacher job-embedded professional development to successfully promote 21st century skills by changing teaching and learning through the use of best practices and improving the school culture (Gall, Gall, & Borg, 2007; Yin, 2009). The study's phenomenon involved understanding how administrators addressed challenges that prevented them from implementing 21st century skills in their schools. Multiple cases were examined to allow for an analysis of replication among the challenges, successes, and lessons learned related to the implementation of 21st century skills. Each case was reported individually and then compared across cases, so recommendations could be developed to support school administrators with future implementation of 21st century skills in their schools.

This type of case study describes a phenomenon and the real-life context in which it occurred (Yin, 2009). An exploratory case was used to explore situations that have no clear set of outcomes (Yin, 2003). Through data collection and analysis, recommendations were developed regarding lessons learned on how administrators can overcome challenges they encounter when implementing 21st century skills in their schools. This design was appropriate because an

exploratory case study allowed for the identification of the successes, challenges, and lessons learned to be analyzed and coded to gain knowledge about the phenomenon and naturalistic generalizations.

Research Questions

Research questions were used to guide the focus of the study through conceptual organization, provide ideas to express needed understanding, bridge what is already known, offer cognitive structures to guide data collection and analysis, and outline interpretations for others (Stake, 1995). Research question design played an important factor in the type of research method chosen for the study (Yin, 2009). For the purpose of this collective case study, the research questions were:

RQ1 What are the practices secondary schools have successfully implemented through the use of job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom?

RQ2 What are the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges?

RQ3 What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom?

Setting

The setting chosen for this study was a Virginia school division with a county population of 92,432 (Virginia Department of Education, 2015). The division was made up of 27 schools: 16 elementary, 5 middle, 5 high, and one specialty school. The schools were all based on the quasi site-based management model in which administrators made decisions based on the best interest of the individual school. All schools within the division met all state and federal measures in 2014-2015, 2015-16, and 2016-2017. This school division was chosen for the study because it has a strategic plan in place that places the primary focus on deeper learning through the implementation of 21st century skills. Because the implementation of 21st century skills was at the center of this study, all schools in this study had the same focus. The strategic plan was the division's long-term plan for the direction in which the schools were to move, but allowed for principals' discretion on how to get there. All schools took a little different path because of the quasi site-based management model. Four secondary schools within the division were chosen for the study. The site selection was based on the proximity of the school division as well as secondary schools within the same school division following a strategic plan that was in place to promote 21st century skills throughout the entire division. The site selection was also based on the schools whose leadership had been actively implementing job-embedded professional development for the implementation of 21st century skills for at least two years. The four schools chosen for this study were all fully accredited through the standard of accreditation set by the state of Virginia.

Site A

Site A is a middle school with a total enrollment of 430 students with the following demographics: American Indian (1), Asian (11), Black (16), Hispanic (8), White (382),

American Hawaiian (1), 2 or more races (11), (VDOE School Demographics). This site had a free-and-reduced lunch percentage of 27%, (VDOE School Demographics). There was one principal who had been serving as the school leader for the past five years. There was one assistant principal at this school who had been serving for the past five years.

Site B

Site B is a middle school with a total enrollment of 595 students with the following demographics: American Indian (0), Asian (39), Black (31), Hispanic (24), White (464), American Hawaiian (0), two or more races (37), (VDOE Student Demographics). This site had a free and reduced lunch percentage of 17%, (VDOE Student Demographics). There was one principal who had been serving as the school leader for the past five years. There were two assistant principals, one who had been serving for four years and one who had been serving for five years.

Site C

Site C is a high school with a total enrollment of 803 students with the following demographics: American Indian (0), Asian (9), Black (41), Hispanic (19), White (703), American Hawaiian (0), 2 or more races (31), (VDOE Student Demographics). This site had a free and reduced lunch percentage of 27%, (VDOE Student Demographics). There was one principal who had been serving as the school leader for the past five years. There were two assistant principals, one who had been serving for four years and one who had been serving for five years.

Site D

Site D is a high school with a total enrollment of 951 students with the following demographics: American Indian (0), Asian (63), Black (39), Hispanic (35), White (772),

American Hawaiian (1), two or more races (41), (VDOE Student Demographics). This site had a fee and reduced lunch percentage of 14.7%, (VDOE Student Demographics). There was a new principal at this school this year. There were two assistant principals who had been serving for the past thirteen years.

The type of sample used in this study was a convenience and purposeful sample of sites because of proximity and rich experience with the phenomenon of interest. The unit of analysis chosen was the responses from teachers and administrators because they were likely to provide information-rich data with respect to the purpose of the study (Gall, Gall, & Borg, 2007; Patton, 2001; Yin, 2009). Administrators were chosen because they were serving as the leaders at the sites to be studied. The teachers were chosen because they were identified by their administrators as teachers who were actively implementing 21st century skills in their classrooms.

Participants

The following convenient and criterion sampling procedures were used for this study. Four secondary schools who meet the criteria for the study and whose principals were willing to participate were selected. Each school chosen had been engaged in job-embedded professional development for at least two years with a focus on the implementation of 21st century skills in the classrooms. All school administration (principals and assistant principals) within each of the four schools chosen were selected to participate along with three teachers from each of the four schools. The three teachers chosen from each of the four schools met the criteria for the study. The criteria required that each teacher had been actively implementing 21st century skills in their classrooms for the past two years. The strength of the teachers' knowledge and experience supported the strength of the data collected. Qualitative study seeks to provide an understanding

of the meaning of a phenomenon from the perspectives of the participants and the choice of participants should provide the best learning outcomes for the study (Merriam, 1988). The sample size included 23 participants, all the school administrators within each school, and three teachers from each of the four schools. The school administrators consisted of the school principal and all assistant principals at each school. Three of the schools had two assistant principals while one school had one assistant principal. There were 23 participants, all with pseudonyms assigned to protect their identities.

Procedures

No research was conducted until obtaining Institutional Review Board approval from Liberty University. Permissions to conduct the research were provided by the school superintendent and each school principal. Full disclosure of the study, its purpose, and consent were provided and the consent collected along with a brief participant demographic form (see Appendices B and C). After acceptance and informed consent were provided, a focus group meeting was scheduled for all school administrators and teachers participating in the study. The focus group was conducted with a more open-ended approach, so the group dynamics could be observed. Individual interviews scheduled were semi-structured to allow for cross-comparisons of the data. The interviews were conducted in the participants' home school. The focus group and individual interview sessions were electronically recorded and later transcribed for analysis. The researcher kept all memos and journal entries throughout the entire process. Documents including the timelines and budgets were collected from each school.

Data analysis began with the information from the focus groups and individual interviews. Member checking allowed for continual analysis of the data collected, and then the data were selectively coded through a categorical aggregation software, MAXQDA, to analyze

the data for trends by combining all interview data collected based on the answers to questions. Recurring themes/trends were used to explain the phenomenon that existed in these four schools as their administrators strived to implement 21st century skills into the classrooms.

The Researcher's Role

As the researcher serving as the human instrument (Lincoln & Guba, 1985), I have a background in education, serving as a teacher and school administrator for over twenty-six years at the secondary level. Degrees earned include a bachelor of science in physical education K-12, masters in school counseling, and a masters in school administration. Currently, I am pursuing an EdD in school leadership. I have served as a high school principal for ten years in the same school division within this study and have led the school through the use of job-embedded professional development to implement 21st century skills. I chose this study because, as a former school administrator who was implementing 21st century skills within this same school district, I have seen firsthand the positive changes this approach can make on a school's learning culture for both students and staff over the past three years. I have also presented at the state and local levels on this topic. As the researcher, I served as the human instrument, collecting research memos and journaling throughout the study identifying emerging themes

Data Collection

A strategy used to strengthen data credibility in a case study is to use multiple data sources (Patton, 1990; Yin, 2003). Based on the research questions, there were four data gathering methods for this study: (a) focus groups; (b) individual semi-structured interviews; (c) documents, timelines and budgets; (e) researcher's memos and journal. Multiple data collection techniques were used to ensure triangulation (Clandinin & Connelly, 2000; Stake, 1995). Data

for this study was not collected without Liberty University IRB approval from the organization and institutions.

Focus Groups

All the school administrators and teachers chosen for the study participated in a thought-provoking semi-structured focus group discussion held at each school and led by the researcher explaining the study and sparking conversation around the basic concepts of the study. This interaction led to discussions on the type of information this study will be collecting and occasionally triggered professional development activities that may have been forgotten by the participants. To obtain high quality data needed for this study, the following protocol was followed during each of the four focus group meetings that took place at each of the four school sites:

Individual school focus group meeting protocol. The focus group began with a full description of the research study along with a complete review of the Informed Consent Form. Participants were allowed to ask any questions they had regarding the study. All consent forms were collected at the end of the focus group meeting. A brief Participant Demographic Form was also completed at the end of the meeting. Each principal was asked two weeks in advance of the focus group meeting to prepare a timeline of all the job-embedded professional development practices that had been implemented at the school since the 2014-15 school year. The principal shared the timeline with the group to help the group remember the practices in which the school had engaged in regarding the implementation of 21st century skills. The group then participated in discussions around each of the practices and were asked to think about the challenges, successes, and lessons learned from those practices. The individual interview process was described in detail, and dates and times were scheduled for each interview. Each participant was

given an Interview Handout that had the date and time of the participant's individual interview as well as some basic information about 21st century skills and job-embedded professional development to help stimulate each participant's thinking prior to the interview.

The pilot procedures for the focus group consisted of an expert panel of educators participating in a mock focus group interview. The purpose of the piloting was to test the validity of the questions and procedures of the focus group interviews. The focus group sessions at each of the four schools were recorded and transcribed for later coding and analysis. At the end of each focus group, participants were provided with interview handouts designed to help prepare them for the individual interviews (see Appendix D). This helped to ensure that during the individual interviews, each participant was familiar with the terminology that was used during the interview. The interviews were scheduled with each participant at the end of each focus group.

Individual Semi-structured Interviews

One of the most important sources of data in case study research is the interview (Yin, 2003). The goal of the semi-structured interviews with school administrators and teachers was to establish an understanding of how they think about practices and challenges of the implementation of 21st century skills in their schools. The semi-structured interviews placed the researcher in control, but still allowed participants flexibility to share their beliefs, attitudes, and perceptions that were likely not reached through a survey (Freebody, 2003). The interview process was explained to the research participants prior to the teacher's conducting the interviews in their own work environment. All the participants were asked the same open-ended questions; however, probing and clarifying questions were asked depending on the direction of the interview: "The truly open-ended questions permits those being interviewed to take whatever

direction and use whatever words they want to express what they have to say” (Patton, 2002, p. 354). The interview questions were piloted in advance by an expert panel to ensure the questions being asked generated the data needed for this study (See Appendices E and F). The external check of the research process helped improve the validity of the study (Lincoln & Guba, 1985; Merriam, 1988). The pilot helped identify and revise flaws, limitations, and weaknesses in the design of the interview questions (Kvale, 2007). The interviews were recorded and transcribed, and the interviewees had an opportunity to review for clarification purposes.

Individual semi-structured interview questions for school administrators. Questions 1 through 8 related to yielding the data needed to address the research question that reviewed practices implemented through job-embedded professional development at each school. They were designed to increase teachers’ ability to effectively implement 21st century skills in the classroom (Croft, et al., 2010; Kamehameha Schools Research & Evaluation, 2010; Partnership for 21st Century Skills, 2009).

1. Does your school have a vision of implementation of 21st century skills, and if so, what is that vision?
2. Does your school place an emphasis on 21st century skills such as the 4Cs (communication, collaboration, critical-thinking, and creativity), and if so, how?
3. How would you describe your school’s approach to 21st century skills implementation professional development?
4. Describe the professional development your school has offered teachers regarding 21st century skills implementation.
5. Describe how effective you believe the professional development was in preparing your teachers to implement 21st century skills in the classroom.

6. How engaged has your school administration been in the implementation of 21st century skills?
7. How engaged has your school's teaching staff been in the implementation of 21st century skills?
8. List all the practices your school has participated in to help prepare the teachers for the implementation of 21st century skills. Discuss your perception of how successful each practice was at meeting the intended goal.

Questions 9 through 11 helped answer the research question that addressed the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development and what was needed to overcome those challenges. (Kamehameha Schools Research & Evaluation, 2010)

9. What are the challenges that keep you from implementing 21st century skills in your school?
10. What are some ways in which the school could overcome the challenges you encounter in the implementation of 21st century skills?
11. List the positive changes you have seen at your school that you believe are an outcome of the 21st century professional development. (Students, teachers, administrators, school climate, student engagement, etc.)

Questions 12 through 14 answered the research question that addressed the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom (Cornell, 2002; Partnership for 21st Century Skills / Learning Environment).

12. List the lessons you have learned and ways your school has grown as a result of the experiences with the 21st century skills professional development.
13. List any opportunities you would have liked to experience that you believe would have been beneficial in supporting your teachers with the implementation of 21st century skills in the classroom.
14. List the positive changes you have seen at your school that you believe are an outcome of the 21st century professional development. (Students, teachers, administrators, school climate, student engagement, etc.)

Individual semi-structured interview questions for teachers. Questions 1 through 8 provided teacher responses related to the practices implemented through job-embedded professional development at the schools that were designed to increase teachers' ability to effectively implement 21st century skills in the classroom (Croft, et al, 2010; Kamehameha Schools Research & Evaluation, 2010; Partnership for 21st Century Skills, 2009).

1. Does your school have a vision of implementation of 21st century skills and if so, what is that vision?
2. Does your school place an emphasis on 21st century skills such as the 4Cs (communication, collaboration, critical-thinking, and creativity), and if so, how?
3. How would you describe your school's approach to 21st century skills implementation professional development?
4. Describe the professional development your school has offered you regarding 21st century skills implementation.
5. If you participated in the professional development, describe the effectiveness of the PD in preparing you to implement 21st century skills in the classroom.

6. How engaged has your school administration been in the implementation of 21st century skills?
7. How engaged has your school teaching staff been in the implementation of 21st century skills?
8. List all the practices your school has participated in to help prepare the teachers for the implementation of 21st century skills. Discuss your perception of how successful each practice was at meeting the intended goal.

Questions 9 through 12 provided the teachers' perceptions of the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development and what was needed to overcome those challenges (Biancarosa, Bryk, & Dexter, 2010; Croft, et al., 2010; Saunders, Goldenbert, & Gallimore, 2009).

9. What are the challenges that keep you from implementing 21st century skills in your classroom/school?
10. What are some ways in which the school could overcome the challenges you or the school encounter in the implementation of 21st century skills?
11. What are the factors that influenced your decision to begin implementing 21st century skills in the classroom?
12. What is the major driving force at your school for the implementation of 21st century skills?

Questions 13 through 15 provided teachers' responses to the lessons learned during the process of implementing the practices through job-embedded professional development designed to

increase teachers' ability to implement 21st century skills in the classroom. (Kamehameha Schools Research & Evaluation, 2010)

13. List the lessons you have learned and ways you have grown from your experiences with the 21st century skills professional development.
14. List any opportunities you would have liked to experience that you believe would have been beneficial in supporting you with the implementation of 21st century skills in the classroom.
15. List the positive changes you have seen at your school that you believe are an outcome of the 21st century professional development. (Students, teachers, administrators, school climate, student engagement, etc.)

Documents, Timelines, and Budgets. To provide historical insight for qualitative research, written texts such as planning documents, timelines, and budgets are important to research. Documents were collected to provide additional information from each school. The school division strategic plan was collected as well as each school's professional development plan, budget, and timeline or five-year plan. These documents provided data on the division goals as well as the goals for each individual school. Meaningful and purposeful context was gained through understanding a phenomenon by analyzing documents for specific themes that may emerge during the study (Corbin & Strauss, 2008).

Researcher Memos and Journal

Throughout the duration of the study, data were collected that reflected the process and the emerging themes. Memos and journal writings were used to "write notes, reassess roles, retreat from the setting, and question the direction of the research" (Marshall & Rossman, 2006, p. 77). Memoing is described by Glesne (2005) as the "links across your data" (p. 148), this

study collected across all schools studied. The process of thinking and writing helped document thoughts about the study along the way. Writing logs and memoing both helped support this process, and the notes were maintained electronically and were consulted during data analysis. The journal kept notes that reflected the process throughout the study. Memos were written during each phase of the study to support thoughts along the way and to maintain continuous analysis throughout the study.

Data Analysis

A detailed analysis of data and a detailed description of a case are important components for a qualitative study (Stake, 1995; Yin, 2009). From the start of the study, memoing and journaling began the thematic analysis and interpretation of the data. According to Baxter and Jack (2008), the collection of data and the analysis of data happen simultaneously. The information gathered helped guide the study throughout the research process. Data were stored using the software program MAXQDA student semester license for data organization and the analysis process. The data were hand coded prior to input into the software program. The four focus meetings and all the individual interviews were electronically recorded and transcribed to textual data. The data were described in words or phrases and then classified into open codes and themes that transcend the cases (Yin, 2009). Categorical aggregation and direct interpretation were used to analyze data to establish the themes, so each case was clearly understood. Each case was analyzed to provide a detailed description of each case and themes called a within-case analysis (Stake, 1995; Yin, 2009). According to Yin (2009), there are four actions that must be done by the researcher to ensure the highest quality of data analysis: (a) attend to the evident, (b) acknowledge rival interpretations, (c) pay attention to the most significant aspects of the case,

and (d) use prior and expert knowledge during the analysis. High quality data analysis helped the researcher identify detailed themes within the study.

The study began with two propositions that helped guide the direction and scope of the study, focus the data collection, and together form the framework of the study (Miles & Huberman, 1994; Stake, 1995). The first proposition supported research question one and helped focus the data collection surrounding the practices used in schools by school administration to implement 21st century skills in their schools. The first proposition addressed how school administration would implement only the practices introduced by central staff within the school division, or those practices introduced by a consultant supported and provided by the school division. School administrators are the driving force for teacher professional development that leads to change in the practices within the schools, but most do not understand the concepts related to 21st century skills professional development to implement practices without guidance and support from within the division (Archambault, Wetzel, Foulger, & Williams, 2010; Guskey, 2002; Partnership for 21st Century Skills, 2008; Trilling & Fadel, 2009).

The second proposition addressed research question two and helped focus the data collection surrounding the challenges most school administrators encountered when trying to implement 21st century skills in their schools. There are three major challenges that school administrators must overcome to implement 21st century skills. The first challenge is based around educating themselves as leaders about what 21st century skills are and why they are important skills to teach students today, and then to share that knowledge with the staff in their buildings to create a common language and understanding (Soule & Warrick, 2015, p. 185; Kereluik, Mishra, Fahnoe, & Terry, 2013)

The second challenge is how to balance standardized testing outcomes with the implementation of 21st century skills. For the past decade, school administrators and teachers have been focused primarily on the success of standardized tests, and to change that focus causes some uncertainty because the state department of education maintains accountability for educators (Partnership for 21st Century Skills, 2007; Stewart, 2014; U.S. Department of Education, 2016). The third challenge is how to provide the resources needed to support the job-embedded professional development such as funding and time for teacher ongoing professional development (Gunn & Hollingsworth, 2013; National Institute for Excellence in Teaching, 2012).

A thematic analysis across the cases, cross-case analysis, took place along with assertions of the meaning of the case (Stake, 2006). The within-case and cross-case analyses provided documentation of the challenges, successes, and lessons learned regarding the obstacles school administrators encountered while implementing 21st century skills in their schools. The data collected were reviewed, and direct interpretation was used to develop a generalization of the information learned. Naturalistic generalization explicated the lessons learned from the study (Lincoln & Guba, 1985).

Trustworthiness

A strength of qualitative research is how extensive time in the field, detailed thick description, and the close relations between the researcher and the participants adds value or accuracy to the study (Lincoln & Guba, 1985). Credibility, dependability, confirmability, and transferability were all addressed to ensure trustworthiness of the study. The credibility of findings and interpretations depended on establishing trustworthiness (Lincoln & Guba, 1985).

Credibility

According to Lincoln & Guba (1985), *credibility* refers to the clear representation of the constructions of the social setting being studied, such as four secondary schools in this case. Credibility of the study was addressed through triangulation of data allowing the researcher to see the themes and perspectives surrounding the study. Data were collected through prolonged engagement in the field (Lincoln & Guba, 1985). The interview questions were linked to the research questions and piloted by an expert panel (Kvale, 2007). Participants performed member checking by reviewing the transcriptions, analyses, interpretations, and conclusions for accuracy and credibility (Pitney & Parker, 2009). A peer review with the members of the dissertation committee and other experts in the field was conducted to ensure information transcribed and analyzed was accurate. Outside peer reviewers signed a confidentiality statement to protect all participants. Purposeful sampling was applied to support the credibility of the study by selecting sites for study because they could purposefully inform an understanding of the central phenomenon (Merriam, 2009).

Dependability and Confirmability

Dependability and confirmability of the study were addressed by providing detailed descriptions of data collection and analysis procedures to allow for the study to be replicated. *Dependability* is based on the assumption that a study can be repeated with similar results (Lincoln & Guba, 1985). This study involved one school division that had a strategic plan in place for all schools in the division for 21st century skill implementation which narrowed the replication of the study. Schools all have varying demographics, and this would also limit the replication. *Confirmability* is the degree results can be confirmed by others and can be considered truthful (Lincoln & Guba, 1985). This was supported through ongoing data checks

asking participants to check their interview data for accuracy. A data base was used to store and protect the data collected. External auditors who do not have any connections to the study examined the process and the end product, checking for dependability of the study and examined if findings, interpretations, and conclusions were supported by the data. (Lincoln & Gubba, 1985). One external auditor had a doctoral degree and helped review coding and analysis of the data. Another external auditor had a strong background in the field of 21st century implementation and reviewed the study for practical implications and recommendations made as a result of the data analysis.

Transferability

Transferability determines if the findings of a study have applicability in other contexts (Lincoln & Guba, 1985). Transferability of the study was addressed with descriptive data collected to allow readers to determine if findings were applicable to their sites and populations. This study included maximum variation through the use of four different schools with varying economic diversity as well as ethnic diversity along with different leadership qualities. Thick, descriptive representation of findings within cases allowed for cross-case analysis that was used across the four schools looking for similar themes in order to generate naturalistic generalizations. This study offered an understanding of challenges school administrators encounter when implementing 21st century skills in their schools and provides recommendations that can benefit all secondary school administrators.

Ethical Considerations

During qualitative research, the researcher faced many ethical issues during the data collection process in the field and during the analysis and dissemination phase. For the purpose of this study, ethical considerations were made to protect the rights and well-being of all

participants in this study. Approval from the Institutional Review Board was requested once confirmation had been granted and permission letters had been received from the school board, principals, and participants. Participants were presented with full disclosure of the study including the purpose and expectations. Participants were informed of the voluntary nature of the study and their right to withdraw from the study at any time. Informed consent was gained by each participant and all information will remain confidential, and pseudonyms were used to protect identities of the sites and participants. All documents have been stored on a password protected computer and locked in a cabinet in a locked private office of the researcher. The researcher did not hold any influential position over the participants involved in this study and kept personal boundaries, serving only as a human instrument to gather information, and not the role to provide any information or direction to the participants. Trusting and supportive relationships with the participants were maintained throughout the study.

Summary

This research took a look at how administrators can overcome obstacles to successfully train teachers through ongoing, job-embedded professional development using research-based best practices that support their efforts for the implementation of 21st century skills in the classroom. The case study design was chosen for this study because the method allows for rigorous exploration of the topic through the use of several different data sources (Yin, 2003). A purposeful selection of the schools helped meet a necessary criteria to ensure schools studied were actively participating in job-embedded professional development to support the implementation of 21st century skills. The researcher detailed in this chapter a variety of ways data were collected (focus groups, individual interviews, review of documents, timelines and budgets, and researcher's memos and journal) and analyzed to describe the phenomenon and find

meaning in the case study. The end of this chapter focused on trustworthiness and ethical considerations within this case study. Chapter Four will provide the findings of this research based on themes and categories that emerged from the analysis process.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this collective case study is to understand the challenges, successes, and lessons learned when secondary school administrators implement job-embedded professional development to change the teaching and learning of 21st century skills. Focus groups, individual semi-structured interviews, documents, and research memos and journal used to provide an understanding of how school administrators can use best practices to implement 21st century skills in their classroom. Data from the focus groups, individual semi-structured interviews, documents, and research memos and journal are presented in this chapter through themes derived from the three research questions investigated during this case study:

- What are the practices implemented through job-embedded professional development at the school that are designed to increase teachers' ability to effectively implement 21st century skills in the classroom?
- What are the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges?
- What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom?

Each of the research questions has been explored more deeply through interview questions asked of the participants designed to seek answers to the research questions. A set of interview questions has been designed for the school administrators and for the teachers within each of the four schools studied.

There were five themes that emerged from research question one: (1) focus on 21st century skills supported by a strong vision and mission, (2) importance of principal leadership with a focus on 21st century skills, (3) colleague classroom observations with reflection and sharing of ideas to improve instruction, (4) showcasing and celebrating student success (5) getting teachers to buy into change. There were four themes that emerged from research question two: (1) balance of content knowledge with 21st century skills, (2) time, (3) resources, (4) driving force. Research question three had three themes that emerged: (1) lessons learned, (2) other professional development opportunities, (3) results and positive change. There was obvious continuity in the responses among all data collection methods, especially the individual interviews, among the four schools. Very little valuable data were collected from the focus groups, documents, and research memos and journal. The most significant data were collected from the individual participant interviews from 22 school administrators and teachers from four secondary schools.

Participants

Participants for this collective case study were chosen through convenience and criterion sampling procedures. Four schools were chosen as cases to be studied because they met the criteria for schools within the same division that have been actively implementing 21st century skills in the classrooms for the past two years and schools that had administrators who were willing to participate in the study. The participants included all of the administrators in each of the four schools as well as three teachers from each school. The teachers all met the criteria of actively implementing 21st century skills in their classrooms for at least the last two years. A total of 22 of 22 participants agreed to participate in this study. All participants currently work in the same school division that is guided by a strategic plan that supports a focus of 21st century

skill development for all students. The participants will be grouped by school as each school will represent a case to be studied and will be cross-analyzed against all cases. An in-depth description of each school studied will be presented through the data collected from the participants within each school. Table 1 presents the demographic information of the participants in terms of pseudonym, gender, ethnicity, title, and years of experience in education.

Table 1

Participant Demographics

Pseudonym	School Pseudonym	Gender	Ethnicity	Title	Year of Experience
Lilly	Mountain View High	Female	Black	Principal	20
Tammy	Mountain View High	Female	Caucasian	Asst. Principal	30
John	Mountain View High	Male	Caucasian	Asst. Principal	22
Ann	Mountain View High	Female	Caucasian	English Teacher	29
Bobby	Mountain View High	Male	Caucasian	Math Teacher	15
Cathy	Mountain View High	Female	Caucasian	English Teacher	19
Mark	Mountain Valley Middle	Male	Caucasian	Principal	23
Charles	Mountain Valley Middle	Male	Caucasian	Asst. Principal	19

Michelle	Mountain Valley Middle	Female	Caucasian	Asst. Principal	18
Randy	Mountain Valley Middle	Male	Caucasian	Science Teacher	19
Sally	Mountain Valley Middle	Female	Caucasian	Math Teacher	13
Bart	Mountain Valley Middle	Male	Caucasian	Special Education Teacher	10
James	Green Mountain High	Male	Caucasian	Principal	33
Susan	Green Mountain High	Female	Caucasian	Asst. Principal	31
Kelly	Green Mountain High	Female	Caucasian	Math Teacher	9
Jim	Green Mountain High	Male	Caucasian	Social Studies Teacher	16
Whitney	Green Mountain High	Female	Caucasian	English Teacher	20
Jake	Green Valley Middle	Male	Caucasian	Principal	21
Christina	Green Valley Middle	Female	Caucasian	Asst. Principal	20

Abby	Green Valley Middle	Female	Caucasian	Math Teacher	13
Nancy	Green Valley Middle	Female	Caucasian	Math Teacher	5
Pat	Green Valley Middle	Female	Caucasian	Math Teacher	6

Case 1 Mountain View High School

Mountain View High School was the first school in the Sun Valley Public School District to primarily focus on the implementation of 21st century skills through continual job-embedded professional development. The school worked closely with a consultant who helped provide the basic understanding of the importance of 21st century skills and how to begin the transformation within the school beginning during the 2013-2014 school year. A leadership team was established that consisted of all the administrators and six teachers who participated in all of the professional development opportunities. Each year, the team welcomed new teachers to the leadership group, and the size doubled each year, resulting in teacher participation of approximately 75% over four years. The administration did not make the participation mandatory and took an approach in which teachers could be involved whenever they wanted and at a level of involvement that met their comfort level. The principal at this school was very passionate about the importance of the implementation of 21st century skills for both the teachers and the students, and this was the primary focus of the school's vision. The students' Virginia SOL (Standards of Learning) scores consistently remained high as this was one of the five high

schools in the division with the highest scores across all subjects tested. The following participants from Mountain View High School engaged in a focus group meeting that served as an information meeting and a quick review of professional development activities the school has participated in over the past few years. Very little discussion was generated from the focus group meeting, and no one asked any questions. Below, is a brief description of each participant from Mountain View High School.

Lilly, Principal. The Principal of Mountain View High School is in her first year, but came from another school within the same school division. Lilly was not as involved in the implementation of 21st century skills in her previous school as she placed a primary focus on student SOL results. The leadership team helped her learn practices and protocols used at the school to support teachers with the implementation of 21st century skills. She has been in the field of education her entire career and began as a social studies teacher at the middle and high school levels. She served as a middle school assistant principal for three years and as a middle school principal for eight years, and this is her first year as a high school principal. She has been working for the Sun Valley Public School District for the past eleven years. She brings a unique perspective as she has moved from principal at a school that struggled to meet passing SOL scores and where the implementation of 21st century skills was not a focus to a new position at a high school that maintains passing SOL scores and has primarily focused on the implementation of 21st century skills over the past four years. Lilly said:

I would say that the light bulb went off for me was our first exhibition night. For me to be able to say I remember you'll doing that in the classroom and then to walk out there and see something totally different and remembering some of the hurdles we had to jump over to get some things done and to see the end result was what really made me go like

this is definitely worth it because for that hour and half to see the kids excited about what they have done or what they are going to do, is worth any of the obstacles we had encountered before that, so I would say my first aha moment was during our first exhibition night. (personal communication, April 10, 2017)

Seeing how excited the students were about the work they were doing and what they were learning made all the difference in her view of how 21st century skills implementation impacts students and how it leads students to take ownership of their learning and learn more deeply.

Tammy, Assistant Principal. Tammy has been serving at Mountain View High School for the past thirteen years. She began as a math teacher and taught middle and high school math for fifteen years and was an assistant principal for fifteen years and has been in the Sun Valley Public School District for the past fifteen years. She has been a part of the leadership team since the beginning and has been very active in supporting the teachers through the change in mindset from a focus on the SOL results to placing the emphasis on the implementation of 21st century skills. Tammy said, “Instructional focus on student learning is enhanced by creation and maintenance of a process of professional development and collegial collaboration. This allows us to optimize instructional practices and provide deeper learning experiences for students” (personal communication, April 6, 2017). She helped foster the culture where continual professional development and common language among the staff around the implementation of 21st century skills was ongoing and relevant to teacher daily practice in their classrooms.

John, Assistant Principal. John has been serving at Mountain View High School for the past fourteen years. He began as a band director for both middle and high school levels. He has served as an assistant principal for fourteen years and has been in the Sun Valley Public School District for the past fourteen years. He has been a part of the leadership team since the beginning

and has been very active in supporting the development of Professional Learning Communities (PLCs) within the building to help provide the structure for the transformation. He has also been very active in the professional development opportunities over the years to support the teachers' change in mindset and practice of 21st century skills implementation. John said:

Taking our meetings at the beginning of the year and not talking about SOL scores and going over the handbook or logistical stuff, sending it in an email for teachers to read and using that time to give teachers to collaborate and experience those 21st century skills themselves because if they can't do it themselves, then they can't teach it. That seems to be a clear charge we have taken on and again we are not letting up on that. (personal communication, April 28, 2017)

As an assistant principal, he helped to support the vision of the school and supported the professional development and practices in place to provide teachers with the tools they needed to successfully implement 21st century skills in their classrooms.

Ann, Teacher. Ann has been teaching at Mountain View High School for the past fourteen years as an English teacher. She has been teaching for the Sun Valley Public School District for the past twenty-five years as a high school English teacher, but has a total of twenty-nine years of teaching experience. She has been a member of the leadership team since it originated four years ago and has participated in the majority of the professional development opportunities provided to the team. She was at a place in her career where she was questioning if this is what she wanted to continue doing. Ann said:

I was in a place after teaching English for fourteen years that I was starting to wonder if this was a career that I wanted to continue in, but when I became a part of this team and began pushing my creativity in the classroom, I became revived as a teacher and person.

(personal communication, May 1, 2017)

After participating in the professional development and changing the way she approached her practice through the implementation of 21st century skills, she shared that she became more enthusiastic about her teaching and felt it renewed her passion.

Bobby, Teacher. Bobby has been teaching math at Mountain View High School for the past ten years and has served as the math department chair for the past eight years. The math department was one of the last departments to join the 21st century leadership team since its primary focus four years ago was on working to raise the SOL results throughout that department. This teacher took it upon himself to take a risk to try a few projects and then share them with the other teachers who taught the same subject within his department. After two years, the math teachers were participating at a higher rate than most departments in the building. Bobby said:

I use the example of the first year we had a student Expo. I was the only math teacher who participated. The second year, there were three of us. And this most recent one we had four. We are almost half the department already, and I think this was a hard thing for people to grasp, and now we are more steadily growing, and people are asking how to get involved. (personal communication, May 1, 2017)

Bobby was proud of his department's gradual change in mindset around instruction and celebrated that the SOL scores did not decrease for the department after changing the way the teachers approached the instruction in their classrooms.

Cathy, Teacher. Cathy has been teaching at Mountain View High School for the past nine years as an English teacher. She has been teaching for the Sun Valley Public School District for the past nine years as a high school English teacher, but has a total of nineteen years

of teaching experience. She has been a member of the leadership team for three of the four years and has participated in the majority of the professional development opportunities provided to them. This teacher was identified to join the team because she was one of the few teachers on staff who was an out-of-the-box thinker and took risks in her classroom daily with new and innovative activities and projects. She thrived on this team by coaching others and by setting an example and pushing the limits for the other teachers to strive to meet. Cathy said, “Many of us have matched up with the newer teachers to join the team and partnered with them for their first project. Once they have experienced it once, they are able to begin designing projects of their own” (personal communication, May 1, 2017). She supported the team through her coaching of teachers and by constantly leading out front and trying new and innovative ideas in the classroom and demonstrated a willingness to take risks with an understanding that failure was inevitable, but part of the process.

Case 2 Mountain Valley Middle School

Mountain Valley Middle School was the second school in the Sun Valley Public School District to place an emphasis on the implementation of 21st century skills. The school worked closely with the same consultant, hired by the division, to help provide the basic understanding of the importance of 21st century skills also during the 2013-2014 school year. A leadership team was established that consisted of all the administrators and four teachers who participated in the professional development provided. This school focused on training a small group of teachers for two years and grew slowly because they changed their approach to how they conducted peer observations several times. This administration also did not make the participation mandatory and took an approach in which teachers could get involved whenever they felt comfortable. The principal at this school was willing to take a risk, but struggled with the best way to provide

teachers with the job-embedded professional development opportunities without disrupting their daily schedules. This is what resulted in several attempts at ways to best organize peer observations for teachers. The students' Virginia SOL scores consistently remained high as this was one of the five middle schools in the division with the highest scores across all subjects tested. The following participants from Mountain Valley Middle School engaged in a focus group meeting that served as an information meeting and a quick review of professional development activities the school has participated in over the past few years. Very little discussion was generated from the focus group meeting, and the only question asked was about scheduling the interviews. Below is a brief description of each participant from Mountain Valley Middle School.

Mark, Principal. The Principal of Mountain Valley Middle School has been in this position for five years and served as assistant principal for three years and as a science teacher for ten years. He has been working for the Sun Valley Public School District for the past twenty-three years. He is very passionate about instruction and supported the division initiative to implement 21st century skills in the classrooms. Mark has a leadership team that helps with the decisions about school goals and designing professional development to support the needs of the teachers. By putting a focus on the 21st century skill development, the principal runs the risk of not producing the SOL scores that are accepted by the division and could negatively impact his evaluation as the principal. Mark said:

There is still a message in our division that we are expected to produce good scores and implement 21st century skills at the same time. This message is hard to sell to teachers, and as administrators, we must create an atmosphere where they feel safe to fail at the expense of lost instructional time. (personal communication, May 2, 2017)

He shared that he is totally supportive of the implementation of 21st century skills and believes in the value of those skills for the students, but at times wonders if by focusing on both SOL results and 21st century skill development he is spreading the focus too thin, and he worries about SOL results decreasing because of the split focus. Mark stated:

It can be challenging to stay the course and keep the focus on the implementation of 21st century skills when a strong focus is still being placed on high SOL results. Makes you question if this is the direction you should be going because others are not putting such an emphasis on this, and their SOL scores seem to keep improving. Hard to know where you should be placing your focus as the leaders. (personal communication, May 2, 2017)

He intends to stay the course in his building, unless his evaluation indicates a need for him to change his focus back to placing a greater emphasis on the improvement of the SOL results.

Charles, Assistant Principal. Charles has been serving at Mountain Valley Middle School for the past three years. He began as an English teacher and taught high school English for thirteen years and an athletic director for three years. He has been in the Sun Valley Public School District for the past nineteen years. He has been a part of the leadership team since the beginning, but admits that as an assistant principal, he has been responsible for the supervision of students and ensuring the day-to-day functionality of the school continues. This has caused him to miss a variety of professional development activities in which he could have learned from and been a part of what the teachers were learning and practicing. Charles expressed, “The principal mostly leads the activities, but we participate when we are available, but we are needed to help run the building on days they are visiting classrooms with Reflective Friends. I would like to be more involved, but understand that I am needed to help run the building” (personal communication, May 2, 2017). He helps support the direction of the school vision the best he

can and finds ways such as classroom walkthroughs and observation post conversations as good opportunities to engage teachers in discussions about how they are implementing 21st century skills into their lessons.

Michelle, Assistant Principal. Michelle has been serving at Mountain Valley Middle School for the past five years. She began as a physical education teacher and has been in the Sun Valley Public School District for the past eighteen years. She has been a member of the leadership team from the beginning and has been a part of most of the professional development activities offered to the staff. She stressed the importance of listening to the teachers, those on the leadership team as well as those not on the leadership team. Michelle asserted, “We try to listen to our teachers because they are in the classroom and the ones who are leading instruction. We have to do what we can to help them” (personal communication, April 12, 2017). She discussed how teachers are all growing at different paces around the implementation of 21st century skills and that the professional development must focus on where the teachers are in their practice rather than directed at the larger group. She shared, “It is like you have to differentiate the professional development for the teachers too” (personal communication, April 12, 2017). By listening to the needs of the teachers, she believes that the administration can target the professional development needed for the entire staff, even though they are all growing at different paces.

Randy, Teacher. Randy has been teaching at Mountain Valley Middle School for the past sixteen years as a science teacher. He has been teaching for the Sun Valley Public School District for the past sixteen years, but has a total of nineteen years of teaching experience. He has been a member of the leadership team since it originated four years ago and has participated in the majority of the professional development opportunities provided to the team. He believes

that peer observations have made the biggest change in his schools and has encouraged more collegial collaboration. Randy said:

I have been impressed with the growth of the teachers being willing to talk and share and bounce ideas off. I think the peer observations have helped the teachers open up a little more and not feel closed in by the walls of their classroom and to branch out and talk.

(personal communication, April 5, 2017)

The school's approach to peer observations has changed over the past few years, and he believes that the approach the school is taking now is the most effective because it includes a feedback session with the teacher and the observers at the end of the lesson.

Sally, Teacher. Sally has been teaching at Mountain Valley Middle School for the past seven years as a math teacher for the Sun Valley Public School District, but has a total of thirteen years of middle school teaching experience. She has been a member of the leadership team since it originated four years ago and has participated in the majority of the professional development opportunities provided to the team. She is the type of teacher who is always willing to try something new and who is willing to take a risk with a new teaching strategy or activity. Sally stated, "I have always wanted to be more modern in my classroom. Progressive, I have taught thirteen years, and I have never wanted to do the same thing over again. I always want to try something new" (personal communication, April 5, 2017). She enjoys participating in the peer observations and seems to always glean new ideas from each lesson she observes that she can take and implement in her own classroom. She also feels like the major driving force behind her personal desire to implement 21st century skills in her classroom is her need to keep her classroom ideas fresh and interesting so that students are engaged and learn the material more deeply through active lessons.

Bart, Teacher. Bart has been teaching at Mountain Valley Middle School for the past ten years as a special education teacher for the Sun Valley Public School District. He has been a member of the leadership team since it originated four years ago and has participated in the majority of the professional development opportunities provided to the team. He discussed how impactful it is for teachers to hear the voices of the students and how they like to learn. His school provided students an opportunity through Lunch & Learns to showcase projects and activities they were working on to other teachers in the building and then to reflect with the teachers through conversation around what they liked, their struggles, what they did not like, and how the project or activity enhanced their learning. Bart, a middle school special education teacher, said:

Lunch and learns have been great. Teachers can say things to other teachers, administrators can say things to other administrators, but when students are talking about it, it is a little different. Teachers hearing it from that perspective is very effective. I have been to every single one, and it has been great for teachers and students. What a great opportunity for them to get a chance to share with their teachers and have these discussions. (personal communication, April 5, 2017)

He has seen how teachers are influenced by listening to the students discuss how they prefer to learn. He believes this professional development opportunity was very effective in spreading the idea of what it looks like to implement 21st century skills in the classroom and how students respond to these projects and activities through their own words. After the Lunch & Learns, teachers would become more interested in joining the team and were more willing to try tweaking a few lessons to incorporate 21st century skills.

Case 3 Green Mountain High School

Green Mountain High School was the second high school in the Sun Valley Public School District to begin focusing on the implementation of 21st century skills through continual job-embedded professional development. The school worked closely with the consultant hired by the division who helped provide the basic understanding of the importance of 21st century skills and how to begin the transformation within the school beginning during the 2014-2015 school year. A leadership team was established that consisted of the two administrators and four teachers who participated in all of the professional development opportunities. The school was renovated during the 2015-2016 school year, and the focus moved away from the implementation of 21st century skills temporarily, and this resulted in its falling behind the other schools who were progressing. During the 2016-2017 school year, the school used the team established in 2014-2015 and began their work again and used the consultant to help get them back on track. The administration did not make the participation mandatory and took an approach in which teachers could be involved whenever they wanted and the principal wanted to move slowly to help protect the teachers from additional stress. The students' Virginia SOL (Standards of Learning) scores were not a major concern for this high school as they consistently received solid passing scores in all areas. The following participants from Green Mountain High School engaged in a focus group meeting that served as an information meeting and a quick review of professional development activities the school has participated in over the past few years. Very little discussion was generated from the focus group meeting, and only two questions were asked, and both had to do with scheduling interviews. Below is a brief description of each participant from Green Mountain High School.

James, Principal. The Principal of Green Mountain High School has been in this position for ten years, served as assistant principal for eight years and as a science teacher for ten years. He has been working for the Sun Valley Public School District for the past thirty-three years. He is a supporter of creating a balance between students learning essential content knowledge and 21st century skills. James only has one assistant principal because the school is smaller than the others in this study. James encourages his staff to take risks, even if they fail. He expressed, “Change can be accomplished through hard work, and PD has to be purposeful and achieve results. Teachers need to be reassured that if they try something in the classroom and experience failure, that it is okay” (personal communication, May 11, 2017). He allows his teachers the freedom to try new lessons in the classroom designed to implement 21st century skills.

Susan, Assistant Principal. Susan has been serving at Green Mountain High School for the past fifteen years. She began as a math teacher and has been in the Sun Valley Public School District for the past thirty-one years. She has been a member of the leadership team from the beginning and has been a part of most of the professional development activities offered to the staff. Susan led the charge at this school, as directed by her principal. She provided the structures during the school day to allow for teacher professional development:

I think that teachers have learned to trust themselves more, but their anxiety level is still very high. I have learned to go slow and was directed by my principal to take my time. I see the growth in the activities, and teachers are thinking differently. I can see the transition in the teachers’ lessons by peaking student interests and allowing them to problem solve. The paradigm shift is trying to get everyone on board, and you will leave some behind. Having a buddy system for teachers where they are coached along by their

peers. There is great talent in a building, and by tapping into that talent, it fosters confidence in the teacher as well as in the school. (personal communication, May 22, 2017)

Green Mountain High is a small school, but teachers support one another in an effort to improve instruction across the school.

Kelly, Teacher. Kelly has been teaching at Green Mountain High School for the past three years as a math teacher for the Sun Valley Public School District. She began her teaching career at a middle school in another school division and taught middle school math for six years. She has been a member of the leadership team since it originated three years ago and has participated in the majority of the professional development opportunities provided to the team. Kelly shared how many teachers are reluctant to try implementing 21st century skills because it takes longer to plan and seems overwhelming. She discussed how when teachers only make small changes to the lessons they already have in place, they are less likely to be intimidated about making the changes. Kelly expressed, “It takes time, and it is not perfect the first time you do it. Make small changes. It is not even perfect each year and could vary by class period. The key is just to not give up” (personal communication, May 25, 2017). Regardless of the failures with lessons, she keeps trying to design lessons with 21st century skills because she knows how important those skills are to her students’ future success.

Jim, Teacher. Jim has been teaching at Green Mountain High School for the past two years as a social studies teacher for the Sun Valley Public School District. He taught high school social studies for twelve years and served as a testing coordinator for two years in another school division. He has his master’s degree in school administration, but is not sure if he wants to pursue becoming a school administrator because he loves being in the classroom teaching. Jim

has been a member of the leadership team for two years and has participated in the majority of the professional development opportunities provided to the team. He shared that in order to make changes in a school, it is important to get buy-in from the teachers. Jim stressed:

The first thing from teachers is this is just another thing on their plate; this was even from good teachers. This is just another name for something we have already done in the past, was viewed as a top-down mandate that was going to be attached to evaluation and was not very positive. Getting people to see it as bottom up rather than top down. This is exciting and all about the kids, but will help you like teaching, and kids enjoy learning. (personal communication, May 15, 2017)

He discussed how the school goes about implementing new ideas with teachers; the implementation must be well planned and thought through, so teachers feel they have a voice in the change, and it is not a top down mandate that will be temporary.

Whitney, Teacher. Whitney has been teaching at Green Mountain High School for the past ten years as an English teacher for the Sun Valley Public School District. She was an elementary teacher for ten years prior to moving to the high school. She has been on the leadership team for the past four years and has participated in most of the professional development offered to the leadership team. She shared how the leadership team was originated and how this process has worked so well to grow the team. Whitney stated:

Well with the beginning of C change we decided we wanted an infectious group that was excited about change, bringing new things into our work environment, so maybe our excitement would foster excitement with maybe someone else. It has worked that way, we started as a really small group, and it has gotten larger. Collaboratively we work very well together, even cross curricular. But we really just like to celebrate each other's

successes and brag about each other. (personal communication, May 22, 2017)

She contributes the success of the school's implementation of 21st century schools to the first group of infectious teachers who were frontrunners and helped lead the way for others. Teachers learn from seeing examples in the classroom and she believes they can take what they see back to their classrooms and tweak their own lessons to reflect the example they were provided.

Case 4 Green Valley Middle School

Green Valley Middle School worked closely with the same consultant, hired by the division, to help provide the basic understanding of the importance of 21st century skills also during the 2013-2014 school year. A leadership team was established that consisted of all the administrators and seven teachers who participated in the professional development provided. This school focused on training a small group of teachers for two years, and the team grew slowly over time. The team changed its approach to how it conducted peer observations several times as the team was trying to find a way to manage the observations without causing a disruption to the teachers' day. This administration also did not make the participation mandatory and took an approach in which teachers could be involved whenever they felt comfortable. The principal at this school had several initiatives going on each year, and teachers were spreading their focus trying to be responsive to each initiative. This resulted in a very slow progression of the implementation of 21st century skills because it was not the school's primary focus. The students' Virginia SOL scores had dropped slightly in a few areas, and the principal decided at the start of the 2016-2017 school year to place a greater emphasis on data disaggregation while the implementation of 21st century skills took a back seat. The following participants from Green Valley Middle School engaged in a focus group meeting that served as an information meeting and a quick review of professional development activities the school has

participated in over the past few years. There was very little discussion generated from the focus group meeting, and one question was asked by a teacher regarding the questions. Below is a brief description of each participant from Green Valley Middle School.

Jake, Principal. The Principal of Green Valley Middle School has been in this position for eight years, served as assistant principal for five years, and as a science teacher for eight years. He has been working for the Sun Valley Public School District for the past twenty-one years. Jake immediately began introducing his teachers to the 21st century skills and project-based learning once they were introduced as part of the district's strategic plan five years ago. He now realizes that he may have taken the wrong approach with the implementation of 21st century skills and shares:

We tried a paradigm shift where we tried to do this fully, and then our SOL scores went down, and I had to shift to put a focus back on the SOL scores. So for people on the leadership team the entire five years, the first year was spent designing a PBL, and then we did design challenges and really cool 21st century projects, but we went backwards. Now we are working on data, differentiation. We are doing lessons that are engaging and purposeful but, at the same time, remembering these do not go away. You use these as strategies to get what you need to do with SOLs. To be honest, if I were to do it over again, I would start with data and differentiation and then go to PBLs, etc. (personal communication, May 11, 2017)

The school is progressing in the implementation of 21st century skills, but would be farther along the continuum if it had not experienced this set back.

Christina, Assistant Principal. Christina has been serving as assistant principal for Green Valley Middle School for the past six years. She served as an assistant principal for Sun

Valley Public School District for the past twelve years. She has a total of twenty years of experience. Christina shared the same concerns as the principal regarding the set-back their school had experienced. She said:

We formed the leadership team and first started with the principal wanting to push forward with PBLs, and then we pushed the leadership to take every month in the faculty meetings going through the elements of a PBL. Trained ourselves on who to develop one, and the following year we created design challenges. The leadership team mapped out how to do the PBLs, and since that time, we have had a change in leadership, and the focus has moved away from that and more emphasis on SOL but we are asking teachers to have the balance, so we have told our teachers to pull back a little to focus on the standards to make sure we are preparing our students the best we can. (personal communication, May 22, 2017)

Green Valley Middle School has rebounded well and has shown an improvement in its SOL scores and are now working toward getting back to striking a balance between teaching content knowledge along with the 21st century skills.

Abby, Teacher. Abby has been teaching at Green Valley Middle School for the past thirteen years as a math teacher for the Sun Valley Public School District. She has been on the leadership team for the past four years and has participated in most of the professional development offered to the leadership team. She was serving as a department chair and found it challenging to encourage teachers to make a change and try a new way of teaching that incorporated 21st century skills. She found that teachers felt as if the change was overwhelming, and the teachers really did not understand what it meant to implement 21st century skills. She

realized that providing examples of lessons she had tweaked during the departmental PLC meetings was a good way to model for her teachers. Abby stated:

If you are not familiar with 21st century skills, it seems like this grand thing, and as it turns out, it really is not. Sharing that I just did this and it is not a really big thing and talking about it with others helps because some don't realize they are already doing it or could easily tweak their lesson to incorporate that. That is where our PLCs are going, I don't think we are there yet, but that would help people realize it is not the burden they may think it is. (personal communication, May 25, 2017)

She was able to get most of her department to a place where they were comfortable making small changes to their lessons when they were implementing 21st century skills on a small scale, but with the hope that this would grow over time.

Nancy, Teacher. Nancy has been teaching at Green Valley Middle School for the past five years as a math teacher for the Sun Valley Public School District. She has been on the leadership team for the past four years and has participated in most of the professional development offered to the leadership team. She shared how the 2016-2017 school year was intense for the teachers because the principal had several areas of focus and was providing professional development opportunities for teachers, but the multiple topics of focus caused the teachers to spread their growth thin among those areas because of a lack of time to truly grow in any area. Nancy shared:

This year it was intense. I feel like our principal tried to expose us to everything and at times that was overwhelming depending where you were on the learning curve. Some teachers were juggling multiple new ideas and he tried to meet everyone where they were, but tried to expose everybody. (personal communication, May 17, 2017)

As a teacher who was willing to make changes in her practice and wanted to be the best teacher she could be, Nancy found it very difficult to make the improvements she desired because her focus was spread among a variety of topics designated by the principal.

Pat, Teacher. Pat has been teaching at Green Valley Middle School for the past six years as a math teacher for the Sun Valley Public School District. She has been on the leadership team for the past four years and has participated in most of the professional development offered to the leadership team. She places a primary focus on the implementation of 21st century skills through the 4Cs (communication, collaboration, critical thinking, and creativity) and shows this through her teaching practice. Pat expressed:

I want to create responsible citizens, and part of that is being able to communicate and collaborate, being able to think for yourself and make judgement calls. I also want students to use their gifts and talents within the classroom, so creativity is huge. I'm personally a constructivist at heart and believe that when students create their own meaning, it sticks. Learning should be an experience that doesn't happen without collaboration, communication, critical thinking and creativity. This has always been important to me, but I want to grow and implement it more and more. (personal communication, May 25, 2017)

She has a clear picture of the skills and knowledge she wants her students to have when they leave her classroom, all because she wants them to be productive and successful citizens.

Results

The results of this study will be presented in this section by answering the research questions. The information collected from focus group interviews, individual semi-structured interviews, and documents and timelines served as a basis to answer the research questions

guiding this qualitative case study and to form the themes for the study. Prior to data collection, the researcher sought expert panel review of the focus group and interview questions. The experts provided positive feedback on the focus group and individual interview questions, rendering them appropriate for the study. Upon approval from the school division and the Institutional Liberty University Review Board, research began by first collecting data through triangulation. Triangulation was accomplished by collecting data in the form of focus group interviews, individual semi-structured interviews, documents, and research memos and journals.

Theme Development

The participants for this study were chosen using a criterion sampling, based on having at least two years of experience implementing 21st century skills in the school or classroom. The first instrument used to collect data was a participant profile questionnaire, which gave a description of the participant's demographic information such as gender, ethnicity, education experience, and employment (See Table 1). The second instrument was a transcript of the audio-recording from the focus group sessions. The third instrument used was transcriptions of the semi-structured individual interviews from each participant. Documents such as professional development timelines and budgets from each school were collected and coded as additional sources of data. During this process, patterns and similarities were noted, creating a list of potential codes.

The focus group protocol was followed, and all focus group meetings resulted in very little discussion. There were only two questions asked, and both were asking about the scheduling of the individual interviews. Once consent was provided by each participant, the individual interviews were completed. The interview audio recordings were personally transcribed to allow for immersion of the data. Memos and journal entries were made during the

transcription process on relevant notes on the actual participants' responses for later analysis. Member checking was conducted by contacting participants through email to review the transcribed interviews. The focus group and individual interview were audio recorded and transcribed and then loaded into the MADQDA software used for organization and analysis processing. The participant quotes were color coded based on emerging themes. The process of open coding was used to identify codes, clustering codes together, to identify the themes that answered the three research questions. Themes were identified based on the information collected along with a description of the analysis and coding process. Within case and cross case data analysis, results of this qualitative case study were guided by three research questions. The data generated through this study provide evidence of the challenges, successes, and lessons learned when secondary school administrators implement job-embedded professional development to change the teaching and learning of 21st century skills. An enumeration of open-code appearance across data and theme development is shown in Table 2.

Table 2

Enumeration of Open-code Appearance Across Data and Theme Development

Open-Codes	Enumeration of open-code appearance across data sets	Themes
RESEARCH QUESTION ONE		
Vision & Mission	22	Focus on 21 st Century Skills Supported by a Strong Vision and Mission
Deeper Learning Through 4Cs	59	
Balance of Content and 21 st Century Skills	59	
Foundation of Learning	11	Importance of Principal Leadership with a Focus on 21 st Century Skills Implementation
Principal Leadership with Support	45	
Continual Focus Providing Job-Embedded Professional Development	38	
Developing a Culture of Learning	27	
Lunch & Learn	10	Colleague Classroom

Peer Observation and Sharing	45	Observation with Reflection and Sharing of Ideas to Improve Instruction
Professional Learning Communities (PLC)	21	
Reflective Friends	41	
Visiting Other Schools	27	
Exhibitions	21	Showcase and Celebrate Student Success
Project-Based Learning (PBL)	17	
Protocols	5	
Student Success Examples	33	Getting Teachers to Buy-in to Change
Staff Participation/Buy-in (Buy-in, Listening to Staff, Staff Participation, Staff Resistance, Rick-taking, Slow Process, Failure)	153 (combined)	
RESEARCH QUESTION TWO		
Balance of Content and 21 st Century Skills	59	Balance of Content Knowledge with 21 st Century Skills
Staff Participation/Buy-in	153	
Time	26	Time
Resources	13	Resources
Principal Participation & leadership	45	Motivation
Self-motivation	15	
RESEARCH QUESTION THREE		
Lessons Learned	22	Lessons Learned
Other Professional Development Opportunities (Consultant,	21	Other Professional Development Opportunities
Positive Change	44	Results and Positive Change

Research Question One

The first research question, “What are the practices implemented through job-embedded professional development at the school that are designed to increase teachers’ ability to effectively implement 21st century skills in the classroom?” was answered by themes derived from the coded data analyzed and are illustrated in Figure 1. The interview questions were purposely designed to probe educators’ overall perceptions about the success of practices around

ongoing, job-embedded professional development designed to support the implementation of 21st century skills in the classroom.

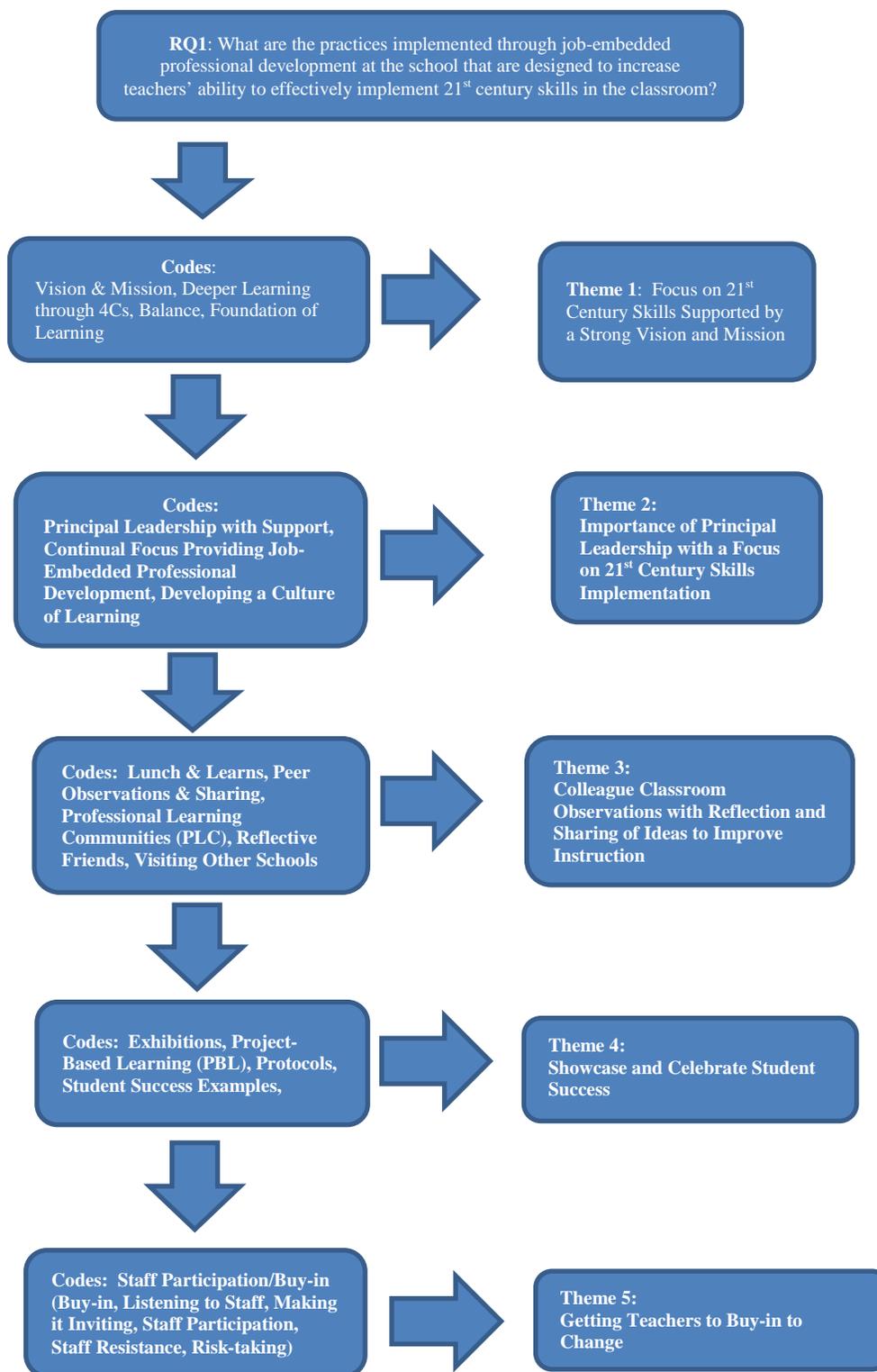


Figure 1: Data Analysis of Successful Practices

Theme 1: Focus on 21st century skills supported by a strong vision and mission. The participants in this study were asked if their schools had a vision and mission around the implementation of 21st century skills, to include the 4Cs, in the classrooms, and if so, was there an emphasis placed on the implementation. The following five codes were identified as merging together to support this theme: vision/mission, deeper learning through 4Cs, balance, and foundation of learning.

Vision & mission. The Sun Valley School District has a vision and mission that supports the implementation of 21st century skills such as the 4Cs (collaboration, communication, critical thinking, and creativity) in the classrooms. It was evident from the participant responses that each of the four schools based its individual school's vision and mission around the division's framework. Each of the participants knew the vision and mission and could clearly articulate how work in the classrooms was directly related. Jim, a high school social studies teacher, stated:

I see my school as being very closely aligned with the division goals and that we see practices and methods we see that are designed to prepare students for the real world, job readiness, work readiness, 21st century skills getting students to a point that when they get out of school to be prepared for what is out there. They will have the content knowledge, skills, and certain types of methods and practice to get you there.

(personal communication, May 15, 2017)

Brian, a middle school special education teacher, supports there is an emphasis around the vision and mission at his school. He said:

I think our vision really goes around the 4Cs, and we all follow that model, and I think it all lies under the premise of teachers collaborating with each other. That we are all not operating in our little rooms, just trying to change the culture of our school. To learn

from each other in order that our classrooms can be more filled with innovation, technology, and deeper learning, so going towards that is our goal. (personal communication, April 5, 2017)

The division's vision and mission support deeper learning through the balance of content knowledge with the implementation of 21st century skills such as the 4Cs. This leads to the next code related to this theme, deeper student learning through the implementation of the 4Cs.

Deeper learning through the 4Cs (collaboration, communication, critical thinking, and creativity). The 4Cs have been identified by the Sun Valley School District as the 21st century skills students need, along with content knowledge, to be successful in the future. Tammy, a high school assistant principal, said, "The school creates an atmosphere and supports the 21st century skills framework that allows us to provide our students with the greatest opportunity for future success. We want our graduates to possess the skills necessary for them to be competitive in a global society" (personal communication, April 6, 2017). Most participants were able to articulate an emphasis in their school placed on the implementation of the 4Cs skills in the classrooms. Ann, a high school English teacher, shared, "Basically, everything we do such as professional development and meetings all have a focus on the 4Cs. All of the conversations surrounding instruction includes the 4Cs and how teachers are implementing them in their classroom instruction" (personal communication, May 25, 2017). Kelly, a high school math teacher, expressed how deeper learning is emphasized in her school, "The vision is deeper learning through project-based learning using those 4Cs, but really taking it to the student level making well-rounded human beings who can do something with their life" (personal communication May 25, 2017). The division clearly focuses on deeper learning through the

implementation of 21st century skills in the classroom, but also places an emphasis on how to balance that with the necessary content knowledge students must also have for future success.

Balance. The balance of the necessary content knowledge along with the implementation of 21st century skills is the vision for the Sun Valley School District. For years, these schools have been focused on meeting high scores on the Standards of Learning (SOLs) tests given by the state of Virginia at the end of many secondary courses. Administrators and teachers all have a sense of responsibility to maintain high SOL scores and are faced with the decision to take risks and transfer some of the focus placed on the SOL attainment, to a shared focus with the implementation of 21st century skills. Students who only have the content knowledge tested by the SOL tests will enter their futures without the necessary skills to help them succeed in college, at work, and as a productive citizen in the future. Charles, a middle school assistant principal, asserted:

Challenge to move teachers who are scared to move away from their traditional teaching that works for them and trying something new. It is hard for them to make this transition. As leaders, we have to provide a supportive atmosphere for them to feel safe to take risks, even if they fail. We have taken the emphasis off of the SOL scores and placed it on the 21st century skills implementation, and our language should always stay the same to show the teachers we are committed and willing to take the risk with them. (personal communication, May 2, 2017)

Lilly is a high school principal who moved from another school in the district who was chosen for this study because the school had not been implementing 21st century skills over the last two years. She brings an interesting perspective as she has moved from a school that struggled to

meet the SOL score expectations set by the division to a school that always met the SOL expectations. She said:

I could speak to trying to move toward 21st century and PBL learning, but it is difficult as a leader to get people to change when they have been ridiculed about test scores. They found a successful path, and now you want them to change what they have done. They are afraid because they don't want to go back to that place they were. I can say from my previous experience, when I said to them, let me take the hit if scores go down, that made them play with it a little bit, but you could still see the resistance there, so we did not do it on a grand scale as here. We required them to do one PBL activity once a semester. That way they at least got their toe in the water, but they were still OK to know they were not getting pushed into the water. That was the perspective there, but here, some of the obstacles that were in my previous school are not here so people are more likely to do it at a more constant pace because some of those things we were trying to do we have already jumped that hurdle with less testing in the high schools where in the middle school they are tested in every subject. It is less here, so you find people who are more willing to go out on that ledge a little more. (personal communication, April 10, 2017)

This is a very interesting perspective as it relates to the importance of balance between teaching the content knowledge and the 21st century skills to best prepare students, while also meeting the expectations set by the state and the district. A balance is very hard to accomplish when the message set by the state and the district is not conveying both are equally important. Clearly SOL scores attainment is most important as it determines state accreditation. As this last statement Lilly shared, clearly school administrators and teachers are impacted by the SOL

pressure, and this tends to keep them from trying something new out of fear of not being successful.

Foundation of learning. This code represents the learning curve experienced by both school administrators and teachers when asked to implement 21st century skills into their classrooms. Many do not understand what this means or how to go about getting started. Ann, a high school teacher, noted:

We started with PD at central, and at that time, I really had no idea what was happening and did not understand what was being introduced. After the PD continued, I started understanding more of what we were being asked to do. We then started with Reflective Friends and this is where I gained the most understanding because I could see examples of what we were to be doing: Basically, taking a lesson and making small changes to include the 4Cs, and that gradually grew into many of us creating projects. (personal communication, May 1, 2017)

When the district strategic plan was introduced five years ago, central office provided professional development for school administrators and teachers to help begin the process of learning what 21st century skills were, why we needed to implement them, and how to implement them in the classrooms. Professional development has been provided over the years by the same initial consultant, but has been left up to the discretion of each principal to initiate. Bobby, a high school math teacher, stated, “Sometimes teachers have a lack of experience or knowledge, not sure how to do this, and there is a comfort zone issue with trying” (personal communication, May 1, 2017). Similarly, Abby, a middle school math teacher, echoed, “One of the things is just knowing it is not anything grand or fancy, so accepting that makes it easier to say these are the things I have done or could do in my classroom” (personal communication, May 25, 2017).

Some teachers have a lack of understanding of how to get started, so providing them with examples is a way to support their efforts. Cathy, a high school English teacher who serves as an instructional coach, said, “I have learned that teachers need lots of support and guidance when making a change. This has been a slow process, but teachers are just like students; they are at varying levels and must be supported in different ways throughout the process” (personal communication, May 1, 2017). Administrators and teachers all need time and to be provided with professional development to help lay the foundation of the common language around 21st century skill implementation. School administrators are then tasked with the responsibility of taking this foundation and growing upon it at each of their schools by providing additional professional development.

The development of theme 1, focus on 21st century skills supported by a strong vision and mission, was generated by merging the codes vision/mission, deeper learning through 4Cs, balance, and foundation of learning from all four of the schools studied. Each of the schools studied followed a vision that was directly related to the vision established by the division. It was evident that at each of the schools, effort was being made at laying the foundation, to support the continual efforts of 21st century skill implementation. The extent at which each school progressed could have been impacted by the next theme generated from the data collected.

Theme 2: Importance of principal leadership with a focus on 21st century skills implementation. The participants in this study were asked how engaged their school administration had been in the implementation of 21st century skills in their schools. The following three codes were identified as merging together to support this theme: principal

leadership with support, continuous focus/providing professional development, and developing a culture of learning.

Principal leadership with support. Principals were provided with professional development five years ago when the district first introduced the strategic plan that placed a focus on providing students with an education that balanced the necessary content knowledge with the implementation of 21st century skills such as the 4Cs. The district provided additional professional development opportunities through a consultant the district hired to help guide the strategic plan development. The principals made the decision in each of their buildings about the type and amount of professional development they would provide for their staff. The consultant's services were made available at no expense to the schools, but the principal had to initiate an interest in making this professional development a focus at his or her school. There are ten secondary schools in this district, and the schools included in this case study are schools where the principals placed a priority on the professional development opportunities provided by the consultant. It is evident the job-embedded professional development provided by the consultant helped provide the foundation that set these schools on their paths toward 21st century skill implementation. The data provided by the participants supports the idea that the school administration is instrumental in leading the change in their schools. Jake, a middle school principal, said, "It all comes back to (the consultant) setting the foundation. The first follower was right; people will follow things they see as effective. There are very few teachers who do not want to get better" (personal communication, May 11, 2017). Similarly, John, a high school assistant principal, said:

(The consultant) being in the building has been huge, and the things he has brought to us like Reflective Friends, lunch and learns, and you taking that and tweaking that so that

met our needs. That one was a big one for us. The fact that it has been continual and ongoing for years now. (personal communication, April 28, 2017)

School administrators who were willing to welcome the change at their schools and initiate and support the professional development opportunities were encouraged by the transformation taking place within their schools.

Continual focus and providing job-embedded professional development. The participants shared the importance of having school administrators who led by example, who were active participants, and who placed a continual focus on the practices designed to support the implementation of 21st century skills. Charles, a middle school assistant principal, stated:

Another challenge is teachers who are scared to move away from their traditional teaching that works for them and trying something new. It is hard for them to make this transition. As leaders, we have to provide a supportive atmosphere for them to feel safe to take risks, even if they fail. We have taken the emphasis off of the SOL scores and placed it on the 21st century skills implementation, and our language should always stay the same to show the teachers we are committed and willing to take the risk with them. (personal communication, May 2, 2017)

School administrators who are active participants in the professional development opportunities send a message to their staff about the level of commitment to making a change. Ann, a high school English teacher mentioned:

The administration has been very involved and have been active participants in all of our professional development activities, not just as leaders, but as participants like the teachers. Each have been involved in their own way adding new components such as leading book studies and implementing the PLC process and taking an active role in

scheduling the Reflective Friends activities. They were all very active in supporting the Titan 21 Exhibition night. (personal communication, May 1, 2017)

Similarly, Cathy, a high school English teacher, echoed:

Each of them have played a part in the professional development and have led by example and been involved as a participant. By sending a consistent message, we as teachers know this is something that is not going away, and there have been multiple ongoing professional development opportunities that allow teachers to get on board at their pace. We have teachers who are learning at multiple levels, and the administration has offered tiered differentiated professional develop during faculty meetings to meet the needs of all teachers at all levels of involvement. So, I think our administrators have all been very involved. (personal communication, May 1, 2017)

As presented by the participants, teachers gain an understanding of what the primary focus is for the school through the way the school leadership shows a commitment. When teachers know the direction their school is going and not going, they are more likely to embrace the change.

Developing a culture of learning. In order to make a change in a school, administrators must have a clear vision and maintain a constant focus and commitment to providing the support necessary for their staff. Administrators who are trying to change the mindset of their staff must create a culture that supports learning for all. Teachers have become comfortable placing their primary focus on teaching to the SOL tests. Making a change to their practice takes time and support, and that all begins with establishing a culture of learning. Cathy, a high school English teacher, said:

I see a total transformation in the school climate. The focus is clearly on the 4Cs development for both teachers and students. We are all learning the same skills and

collaborating to support each other. There is certainly a more collaborative atmosphere now among the teachers. The community is more involved and willing to come in and support our students with their projects now they have seen this as a movement that is here to stay and worth their investment. (personal communication, May 1, 2017)

There are many ways school administrators can establish a culture of learning in their schools, and Tammy, a high school assistant principal, stated, “All teachers have contributed to the school learning culture and student achievement by participating in job-embedded and focused professional development, through meaningful participation in highly functional PLCs and by demonstrating lessons that are embedded with 21st century skills” (personal communication, April 6, 2017). Tammy shared a variety of practices her school initiated to help develop a culture of learning for all. It all starts with changing the mindset and then creating an environment that supports the needs of the staff and students throughout the transformation.

Theme 3: Colleague classroom observations with reflection and sharing of ideas to improve instruction. During the individual interviews, the participants were asked to describe the approach their schools took in providing job-embedded professional development around the implementation of 21st century skills in the classroom and how effective each approach was at supporting the implementation. The following five codes were identified as merging together to support this theme: Professional Learning Communities (PLCs), colleague classroom observations and sharing, Reflective Friends process, lunch & learns, and visiting other schools.

Professional learning communities (PLCs). The Sun Valley School District’s comprehensive plan included the use of PLCs to structure meetings around instruction, reflection, and the sharing of ideas around best practices in an effort to improve instruction. All four of the schools in this study had functioning PLCs, and they all had a team of teachers who

were part of a leadership team who were tasked with driving the 21st century professional development efforts in each school by serving as models and coaches for other staff members. The PLC development was the very first stage of professional development for all four schools in this study. The idea is that teachers need to practice using the 4Cs in groups with colleagues before they could truly teach their students how best to develop these skills. Having firsthand experience collaborating in a group, communicating with others, working together to solve problems, and working to come up with creative solutions were all very important skills for teachers to experience. PLCs are a great place for teachers to work together to improve one another's practice around teaching, according to Bart, a middle school special education teacher, who said:

I think it is really reaching out to those teachers and getting them involved in some kind of professional learning community. If they have a group of teachers, those who hold back are those who are not involved. Part of the issue is trying to get them on board more. Teacher may say its about the content, but you could pose a questions, if you have engaging activities that would reinforce those SOLs. It is changing the mindset and giving that teacher opportunities to see how it could work that is in a more nontraditional way and seeing how it could be effective. (personal communication, April 5, 2017)

Another teacher shared how the PLC has helped the teachers collaborate across disciplines. Randy, a middle school science teacher, expressed, "The professional learning community has helped us open up to each other even those in other disciplines to bounce ideas off each other to go in and see ideas that are implemented and stealing those ideas and using them in our own classrooms by adapting them to our own subject areas" (personal communication, April 5, 2017). The participants all shared how effective the PLCs were at setting the foundation for teams of

teachers to work collaboratively in a trusting environment to support one another's practice of teaching and provided a place for teachers to share ideas freely. From the development of PLCs, the schools moved on to the next code that was found in the data provided by each of the four schools, peer observations with reflection.

Peer observations and sharing. Teachers, who were members of the PLCs designed to implement 21st century professional development in their schools, began opening up their classrooms for their peers to visit. After working with the consultant provided by the district, the teams at each school established their own way of structuring peer observations and were met with a variety of results. Two of the schools asked teachers to voluntarily open up their classrooms when they were introducing a lesson that supported 21st century skill development for their students. The participation of the visiting teachers was low, and there was very little constructive feedback provided, mostly positive feedback that did not result in an improvement in instruction. Jake is a middle school principal of one of these schools, and he noted:

It is very hard in the beginning. Trying to get those on the leadership team to go first was a hard sell because they don't think they are good. Get people out into other classrooms who are rock stars. Creating the atmosphere that it is worth their while, that is tough. Once it gets going, it snowballs, but getting that first momentum going is tough. They think this is just another thing put on their plate that will go away like all the other PD they have experienced. (personal communication, May 11, 2017)

One of the schools began peer observations with a process called Reflective Friends right from the beginning and experienced great success. This past year, the other three schools in the study began using the Reflective Friends process which leads to the next code.

Reflective Friends process. The Reflective Friends process is a peer observation process that includes a team of educators who go into a classroom of a teacher who has volunteered to teach a lesson for the team to observe. The lesson observed will have 21st century skills embedded into the lesson and will focus on student engagement. Once the lesson is over, the team of educators and the teacher will meet to reflect on the lesson. It is very important to provide professional development for the team on how to give good feedback designed to improve instruction, and not attack the person. Another characteristic that makes this process so effective is that a very detailed observation schedule is created, and coverage is needed for those involved throughout the day. This takes additional resources to support the coverage, but the positive outcomes are worth the strain it puts on the available resources. Mark, a middle school principal, who implemented the Reflective Friends process this past school year said:

Now we are working on a version of Reflective Friends that involves more of the constructive feedback that is designed to make lessons stronger and more effective. This has been very powerful for us so far, and the teachers love getting this feedback to improve their practice. What is so great about Reflective Friends: improvement in instruction is constantly happening, and everyone involved is growing in some way.
(personal communication, May 2, 2017)

The next few statements were made by teachers at three of the four schools. Cathy, a high school English teacher, stated, “I did participate, and I really think the Reflective Friends has been a powerful tool to help teachers grow in their practice. Teachers get so much feedback and can make changes that enhance their lessons or projects” (personal communication, May 1, 2017). Ann, a high school English teacher, asserted:

We then started with Reflective Friends, and this is where I gained the most understanding because I could see examples of what we were to be doing. Basically taking a lesson and making small changes to include the 4Cs and that gradually grew into many of us creating projects. By visiting our peers and having them visit us by giving feedback on ways we can improve our lessons was the most beneficial and helped us all grow. (personal communication, May 1, 2017)

Bobby, a high school math teacher, teaching at the first school to initiate Reflective Friends three years ago stated:

Teachers are more willing to take risks and step outside and do something new. They are willing to see that it may not go well, and it is not the end of the world, just retool it, or they see now you can share with others. We can now reflect more honestly with others. Those who have been the most involved are open to negative feedback or constructive feedback; in fact, we are looking for it. We are not scared of it. We want to hear we have done great because we know we have because we have worked hard for it, but we want to hear ideas that could make it better because we want to make everything better. It is a good mindset for teachers to be looking for ways they could do better than just having to justify they have done a good job. (personal communication, May 1, 2017)

The responses from the participants clearly supported how effective the impact of Reflective Friends was in each of their schools. Each school plans to continue the practice and expand to include more teachers into the process. The positive effects of the Reflective Friends process shared by the participants included greater staff collaboration, constructive feedback and reflection on daily teaching practice, the sharing of ideas around best practice, and helped support the culture of learning for all.

Lunch and learns. Lunch and learns were started at the Mountain View High School, the first school to focus on the implementation of 21st century skills. The idea of lunch and learns was designed as a way to spread the work the 21st century skills team was doing by providing teacher and student presentations during lunch. Teachers were invited during their half hour lunches to hear one example of how a teacher took a lesson and tweaked it to incorporate 21st century skills. Once the teacher had explained the lesson development, the most powerful aspect of this concept, students were chosen by the teacher to share and reflect on how the lesson impacted their learning. This allows students an opportunity to share with teachers the kind of instructional strategies that keep them engaged and interested in learning. Three of the four schools have held lunch and learns, and all three shared through their responses how effective it was in helping to create a culture of learning within their school. Jake, a middle school principal who recently implemented lunch and learns, shared:

Another one is a lunch and learn. That has been by in large the best thing we have ever done! We have kids wanting to do these that we have started having to do two a 9 weeks to get all the kids in who want to participate. To see the kids who you think are the best at presenting are not always your Pre AP kids. That has been really eye opening for the teachers and kids. I told teachers to only do what is part of your lesson. They have been very impressive! Allows students to show off their talents. (personal communication, May 11, 2017)

Bobby, a high school math teacher, said:

Lunch and Learns have been successful. I think they are very capable of changing the mindset for teachers. I just think they might be too infrequent because it is hard to draw in people during that little half hour and out of their comfort zone to get them to just sit

down, reflect, and just enjoy since they are trying to get things done. If they go, it can really change the mindset. (personal communication, May 1, 2017)

Lunch and learns allows teachers to model for their colleagues how to incorporate 21st century skills by simply tweaking a lesson they are already teaching. This helps to show this is something every teacher can do, and it provides an opportunity for teachers to hear directly from their students how to keep them engaged and take ownership of their own learning.

Visiting other schools. Several of the participants shared an interest in wanting to visit more schools in Virginia who have been successfully implementing 21st century skills while maintaining strong SOL results. The district arranged for school administrators to visit a few of the neighboring schools who were implementing project-based learning, and many administrators asked for this to continue. Visiting other schools provides school administrators and teachers with ideas of ways they could approach the implementation of 21st century skills in their schools. A special note here is that Lilly, a school administrator who came from another school in the district that struggled to meet SOL score expectations, shared a need to see schools with similar demographics having success. Lilly, a high school principal, stated:

One thing I like and again it goes back to my learning style. I like to go see it, watch it, be able to bring it back and tweak it for what is best for us. And I think what I would have like to see is a school that resembled ours that had very similar obstacles that was being successful and just based on our location we are not going to find that in our area. (personal communication, April 10, 2017)

Charles, middle school assistant principal, admitted, “I think I would have liked to visit other schools to see this in action. Even the schools in the division who are doing certain aspects of this process very well. Once you see something, it is so much easier to implement than trying to

create it from a lack of true understanding” (personal communication, May 2, 2017). Cathy, a high school English teacher, echoed:

I would like to have visited more schools who were practicing this as we were learning. I think by seeing an example it would have helped the staff progress a little faster. I would have liked to visit schools that had exhibition nights, so we could see what this looked like before jumping in. I would still like to visit more teacher classrooms for peer observations and even at different levels. (personal communication, May 1, 2017)

Visiting other schools and sharing practices that support the implementation of 21st century skills and just good instruction is something that school administrators and teachers are requesting as continual professional development. This practice would be considered job-embedded because most visits involve classroom observations during which the visiting team then engages in a discussion of the practices they observed. One of the next steps for Sun Valley School District is to schedule visits within the district for teams to share techniques they have learned through the Reflective Friends process and other practices. Because the ten secondary schools are all at different places in the implementation process, visits can help provide examples for the other schools to model.

Theme 4: Showcase and celebrate student success. The following four codes were identified as merging together to support this theme: exhibitions, project-based learning (PBL), project fine-tuning protocols, and examples of student success.

Exposition. An exposition is a special event schools schedule each year designed to provide an opportunity for students to showcase their work. It also can be used as a tool to share with all the stakeholders of the school the 21st century skills the students are developing. Two of the four schools in this study have held student expositions where student work was showcased

to the community. Students have an opportunity to practice their communication skills while presenting to the guests the process involved in the project they are displaying as well as answer any questions about the project to demonstrate what they have learned. One of the high school principals who has held an exposition, Lilly, said:

I would say that the light bulb went off for me during our first exposition night. This is definitely worth it because for that hour and half to see the kids excited about what they have done or what they are going to do, is worth any of the obstacles we had encountered before that, so I would say my first ah ha moment was during our first exhibition night. I think exposition night is a great time for people to see, this is why we should be doing this to see kids excited about what they have done within their classroom. And I think seeing that will help with the change perspective, but I think change is the biggest thing; people don't want to change. They are used to the sage on the stage, they are used to doing what they have done, and their test scores show it is working, so why should I go try something new? But, we have got to realize we are trying to do something that is for the betterment of our students. (personal communication, April 10, 2017)

A teacher who has had students participate in an exposition, Cathy, a high school English teacher, stated:

The driving force in my opinion is the exhibition nights where students get to showcase their work. I have seen this change over the past three years, and now students are excited about the opportunity to present their work, and they are expecting teachers to give them those opportunities. This has become a community expectation and something that is becoming a tradition for the school. (personal communication, May 1, 2017)

The participants who had experienced expositions responded that this practice was very successful in providing teachers and students with a way to showcase what they were teaching and learning in the classroom. They shared that students really enjoyed preparing for the exposition and sharing their work with others.

Project-based Learning (PBL). Participants reported that the implementation of 21st century skills began with tweaking lessons to incorporate the 4Cs to make the lessons more authentic and engaging for students. This grew into teachers expanding upon this concept and creating PBLs. Most of the projects allowed students to have a voice and choice in the topic of the project as well as the way the end result, end product, or solution to a problem would be shared or presented. These final outcomes to the projects were shared at the exposition nights. Teachers would build in many benchmarks, opportunities for reflection, and a variety of evaluations within each project. John, a high school assistant principal, shared, “There are just tons of project-based learning activities that are afforded kids and tons of opportunity for them to pursue ownership of their own learning, taking on their interests, and applying that on to the curriculum and all things that are related to 21st century skills” (personal communication, April 28, 2017). Teachers need a significant amount of professional development to successfully design good PBLs. Bart, a middle school special education teacher, mentioned, “We formed the leadership team, and then we pushed them to take every month in the faculty meetings going through the elements of a PBL. Trained ourselves on how to develop one and the following year we created design challenges” (personal communication, April 5, 2017). All four of the schools reported they had professional development around PBL design, but each school reported different levels of success. The two schools that were the most successful designing PBLs were

the two schools that were fully engaged in 21st century skills implementation and had leadership that initiated PBL professional development.

Project fine-tuning protocols. Project fine-tuning protocols has been used by one school as a way to ensure the necessary criteria for a solid PBL or performance task has been met in each of the teacher designed projects. The project fine-tuning protocol was introduced by the division consultant as a tool used by High Tech High, a secondary school in California that is well-known for its approach to project-based learning. The protocol was tweaked to meet the needs of the teachers and to include the criteria for strong performance tasks assessments supported by the state of Virginia as local alternative assessments to replace the SOLs in some courses. The protocols are used as a tool to facilitate collegial communication, collaboration, creativity, critical thinking, and citizenship around the concept of peer reflection and feedback on project-based learning ideas. Bobby, a high school math teacher, who has participated in project fine-tuning protocols, expressed:

Project tuning protocols, I think those are the most successful. Just because everyone is involved, leaders emerge from that; common language is used because we have protocols to go through we set a common level of expectations. You have to justify to your peers why you are doing what you are doing, and they have to justify the qualifications of what you are doing. It can really generate a lot of ideas with each other; people walk away thinking about how they can do something like that. (personal communication, May 1, 2017)

A high school assistant principal, Tammy, who has also participated, noted:

We do protocols and have different times when the teachers come in and go through what they are doing within the classroom; we look at the different aspects of it and how it can

help in one of the 4Cs and make it a better exhibition night for the student and teacher and the process. (personal communication, April 6, 2017)

Protocols are a tool to be used by schools to help teachers design strong PBLs or task assessments, but schools must be ready for this stage of development prior to introducing it to the staff. The staff must also be prepared and trained to give good constructive feedback during the protocols.

Student success examples. When teachers see how students enjoy their learning when they are engaged in activities and projects that tap into their interests, teachers become more likely to step out of their comfort zone and design lessons that engage students. The 21st century skills lessons allow for students to tap into areas they are passionate about and allows them to showcase their talents. When students are doing work that has a real purpose and is meaningful to them, they are far more likely to engage in the work, take ownership, and spend more time working on the final outcome of their project or activity. Lilly, a high school principal, asserted:

Students and teachers excited about learning and that is what we are here for, and that is what is best for kids, and it is preparing them for the real world because now we are seeing a lot of jobs that require problem solving, and they have to figure out things, and if we can prepare them for the real world, that is another piece, and if we can adjust teaching that will benefit students and are the things that I have seen are 21st century.
(personal communication, April 10, 2017)

Michelle, a middle school assistant principal, stressed:

I truly believe the teachers are enjoying doing these projects and doing these things with the kids. It is more of that 80-20; the kids are in charge 80 percent and the teachers 20 percent. And I think the teachers are seeing they do not have to be in control the entire

time. Or, I don't have to be the one who always gives out the information. I think they are enjoying the opportunity to expand beyond just teaching the SOL or just focusing on that. They are able to incorporate it in a meaningful way, real-life situations where they have to problem-solve. I think it is one of those things that is coming, I think our staff is on board, our staff is happier. They are seeing the kids happy: you have to have happy kids and happy staff. (personal communication, April 12, 2017)

When teachers see that students are happier and are taking pride and ownership in their work, the teachers are more likely to try implementing 21st century skills in their classrooms. Sharing student successes can be a great way to encourage other staff members to buy into the importance and value of implementing 21st century skills.

Theme 5: Getting teachers to buy into change. The following six codes were identified as merging together to support this theme: buy-in, listening to staff, making it inviting, staff participation, staff resistance, and risk-taking. During the coding process, all of the codes were merged together because they kept overlapping, resulting in one single code entitled staff participation/buy-in. This one code had a total of 187 remarks and was by far the code with the greatest number of responses.

Staff participation/buy-in. All four of the schools studied started with a small team of teachers, offered them professional development around implementing 21st century skills in the classroom, and then participated in peer observations within the team. Once this group became comfortable with the process of peer observations and reflection, the groups would strive to encourage other staff members to join the group and participate in peer observations. The idea was that teachers would become curious about this group and would be interested in joining, so they would not be left behind. The professional development was not mandated, and teachers

could join in when they were ready. Because it was not mandated, the growth of the teams was slow. But, each of the four schools reported steady growth year after year. Bobby, a high school math teacher, said:

Change is gradual, and the mindset must be that I am not going to be perfect right away. Another lesson I have learned is that change must be done through influence rather than mandate. If I would have been in charge, it would have been a mandate, and it would have gone down the wrong road, and it would have been a mistake. But, being willing to step back and willing to join when they are finally comfortable, it is going to be so much more fruitful than dragging them through it. Slowly but surely, people come on board, and now we have reached the tipping point where too many people are doing it this way, and others want to be part of the majority. They don't want to be part of the minority. (personal communication, May 1, 2017)

Whitney, a high school English teacher stated:

Well, with the beginning of C change, we decided we wanted an infectious group that was excited about change, bringing new things into our work environment, so maybe our excitement would foster excitement with maybe someone else. It has worked that way; we started as a really small group, and it has gotten larger. Collaboratively, we work very well together, even cross curricular. But we really just like to celebrate each other's successes and brag about each other. (personal communication, May 22, 2017)

When encouraging teachers to join the team, many reported that it was important to provide teachers with reasons why the change was needed. Making the change from traditional teaching with SOL drill and practice to an approach that included necessary content knowledge along with the implementation of 21st century skills was a hard sell for many teachers, especially

those who had experienced success with the SOLs and were comfortable in their practice. Mark, a middle school principal, shared:

I think another big challenge is getting teachers to take a risk and step away from what they know works and gets the test scores they know they need. There is still a message in our division that we are expected to produce good scores and implement 21st century skills at the same time. This message is hard to see to teachers, and as administrators, we must create an atmosphere where they feel safe to fail at the expense of lost instructional time. (personal communication, May 2, 2017)

Ann, a high school English teacher, sharing from the perspective of a teacher expressed:

I think feeling comfortable to step away from the focus on the SOLs and feeling safe to take risks. It is scary to walk away from things you have always done and done it well to trying something you are unsure of and may fail. It is very important to know you will be supported as a teacher by trying. (personal communication, May 1, 2017)

Susan, a high school assistant principal, shared, “Convincing them and creating a paradigm shift, hard when you have veteran teachers who have it all under control and are being successful, we have to provide them with why this is important. The businesses are telling us our kids need more workplace readiness skills” (personal communication, May 22, 2017). When trying to encourage teachers to change their practice, it is important to help them understand why the change is needed and then to provide the support they need throughout the process. Getting teachers to buy into the need to change the way they approach their classroom instruction is clearly a challenge as reported by the number of codes associated with this theme.

Research Question Two

The second research question, “What are the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges?” was answered by themes derived from the coded data analyzed and are illustrated in Figure 2. The interview questions were purposely designed to probe educators’ overall perceptions about the challenges experienced during the implementation of ongoing, job-embedded professional development designed to support the implementation of 21st century skills in the classroom. The questions were also designed to identify the factors around the motivation for school administrators and teachers to initiate and continue the implementation of 21st century skills.

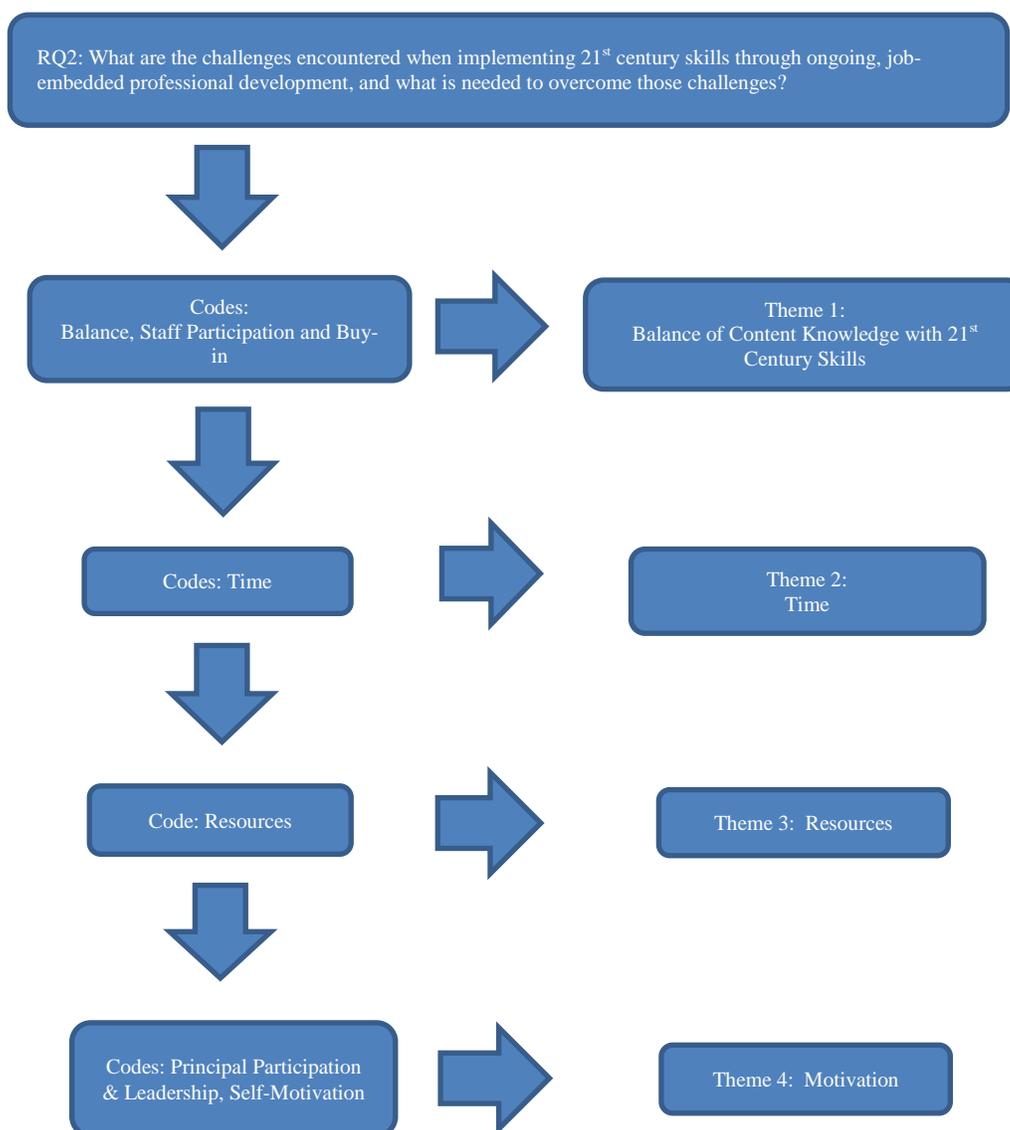


Figure 2: Data analysis of challenges

Theme 1: Balance of content knowledge with 21st century skills. The participants in this study were asked what challenges they faced when implementing 21st century skills in their schools or classrooms. The following two codes were identified as merging together to support this theme: balance, staff participation & buy-in.

Balance of content knowledge with 21st century skills. The Sun Valley School District has a vision and mission that supports instruction around content knowledge balanced with the implementation of 21st century skills. It was evident from the participant responses that each of the four schools was actively trying to strike a balance between the two approaches to instruction, but found this to be a major challenge. Mark, a middle school principal, asserted:

It can be challenging to stay the course and keep the focus on the implementation of 21st century skills when a strong focus is still being placed on high SOL results. Makes you question if this is the direction you should be going because others are not putting such an emphasis on this, and their SOL scores seem to keep improving. Hard to know where you should be placing your focus as the leaders. (personal communication, May 2, 2017)

Bart, a middle school special education teacher, noted:

There are some classes where the content is a push to get through, like a semester course with an SOL test at the end. The teacher perception is that they can't do a lot of innovation in my classroom because I have these SOLs, and I can't miss a day, or I will fall behind in content. That is one challenge, and it varies by course and pace of content. (personal communication, April 5, 2017)

Jim, a high school social studies teacher, shared how his school is trying to meet the balance to prepare their students for the future. He shared:

We see practices and methods that are designed to prepare students for the real world, job readiness, work readiness, 21st century skills getting students to a point that when they get out of school to be prepared for what is out there. They will have the content knowledge, skills, and certain types of methods and practice to get you there. There are teachers who are doing great, and students score well on SOLs, and they have

great rapport with all, and ask why do I need to do that? They are good at teaching to a test; tell me why we need to change it. (personal communication, May 15, 2017)

The teachers reported they understand the importance of implementing the 21st century skills, but are also struggling to find a way to strike a balance with the need to ensure students are getting the essential content knowledge needed to score well on the SOL tests.

Staff participation and Buy-in. This code has already been used to help answer research question one, but is also relevant to support research question two. As stated previously, this code was the most widely used response by participants as an influence on the implementation of 21st century skills. Staff must understand the importance of implementing 21st century skills to help better prepare the students for their future endeavors. They must also feel supported by their administration to take risks by stepping away from the traditional teaching of the SOLs to a more balanced approach of teaching content knowledge and 21st century skills. By providing examples of success, administrators and teachers can take those examples and tweak them to meet their own needs within their schools and classrooms. In order to facilitate a change in the approach to educating students, the staff must buy into the importance of the change and then be provided with support along the way.

Theme 2: Time. One of the challenges the participants of this study highlighted was the lack of time both administrators and teachers had to plan and implement 21st century skills in their schools and classrooms. Time was the only code used to define this theme, but was supported by over 26 responses from participants as a challenge.

Time. Time is a valuable commodity in education. Administrators and teachers list time as a challenge when trying to implement 21st century skills in their schools and classrooms: time to provide or participate in professional developments activities, time to fit in the 4Cs into

lessons when trying to cover all the material tested on the SOLs, time needed to plan and collaborate around lessons that implement the 4Cs, and time to reflect on instruction. Mark, a middle school principal, stressed, “The greatest challenge is time. Providing enough time for the teachers to plan and work collaboratively on ideas. But, this is a problem with anything you do in education” (personal communication, May 2, 2017). Cathy, a high school English teachers, mentioned, “I think time is the most apparent challenge. It takes time to design projects and plan with others, and that time is not always available” (personal communication, May 1, 2017). Similarly, Ann, who is also a high school English teachers, echoed, “I think time is a huge challenge. Planning time is hard to find, and many teachers have to use time after school to work with other teachers on projects. The more time provided, the more creativity and reflection can happen to improve instruction and project growth” (personal communication, May 1, 2017).

Bobby, a high school math teacher, expressed the same challenge with a lack of time and said:

Time is such a precious commodity. Time to develop creative ideas to test those ideas and let them fail and then to reflect on that failure and go back to the drawing board and modify and tweak. It just seems like you always need more time. Time is a challenge, developing creative ideas at those faculty meetings, those ideas can spawn in an instant, but you just have to set that time aside to allow for those ideas to be generated. (personal communication, May 1, 2017)

Clearly, from the responses, teachers are not pushing away from the implementation of 21st century skills; they are just asking for more time to practice strategies that support good implementation. School administrators must be willing to make some adjustments in the school day to help provide teachers with more time. Charles, a middle school assistant principal, stated, “I think in order to protect time for teachers, we need to try and find new ways to hold meetings

and send out information to save that time for planning and PD” (personal communication, May 2, 2017). Susan, another middle school assistant principal, shared:

At all cost, protect the common planning time and establish the common planning time. Part of that is what we have done here, and I say we need to continue to do that and structure what you would do in a tradition meeting and think about how you could get the message out a different way, so that time can be used for more engaging instructional materials or strategies. (personal communication, May 22, 2017)

Both school administrators and teacher participates shared that in order to overcome the challenge of time, school administrators must find creative ways to open up time for teachers to plan, collaborate, implement, and reflect on 21st century embedded lessons.

Theme 3: Resources. Another challenge the participants of this study shared was the resources needed to support the implementation of 21st century skills such as financial resources, consultant resources to help with the professional development, substitute days needed to cover teachers to allow for collaboration and reflection, and funding to support student projects. Resources was the only code used to define this theme, but was supported by the participants as a common challenge.

Resources. Time is a valuable commodity. School administrators and teachers shared how important time was in the implementation of 21st century skills. Mark, a middle school principal, mentioned, “As for the financial part, I think we just have to evaluate where to put our funds, and the focus must be on supporting this growth in our teachers” (personal communication, May 2, 2017). Whitney, a high school English teachers, expressed:

If we had a common planning time, even a remediation block, or share students and switch off. Smaller class size would be great, more manageable for these activities.

Hiring more teachers to lighten that load or a part time person to come in and help during peer observations time. We do what we need to do with what we have, but it would be on a grander scale if we had those resources. (personal communication, May 22, 2017)

Cathy, another high school English teacher, shared a challenge to find funding to support student projects. She asserted, “I think another challenge is funding for projects for students and teaching them how to go about raising money to carry out their ideas. I have written grants and teach my students to write grants, but the financial need is real and can be challenging” (personal communication, May 1, 2017). Just like time, having adequate resources has always plagued public education and has an impact on all initiatives schools take on. School administrators need to be innovative in the way they approach protecting and creating more time for teachers and how to allocate their resources to support the important work of implementing 21st century skills.

Theme 4: Motivation. The teachers in this study were asked what the driving force was behind their decision to begin the implementation of 21st century skills in their schools or classrooms. Motivation was the only code used to define this theme.

Motivation. Teachers reported that they were either self-motivated or were motivated by their school administrators to begin the implementation of 21st century skills in their classrooms. Teachers shared that their individual desires to keep their practices of teaching progressive and by providing students with the educational approach they believe is best for their success in the future was their driving force. When asked what was your driving force to begin the implementation of 21st century skills, Abby, a middle school math teacher, stressed, “The same factors that influenced me to become a teacher, just wanting kids to be prepared for life and helping them along that journey. That has always been foremost in my mind, and 21st century

skills is just an aspect of that to help student to be more prepared” (personal communication, May 25, 2017). Bart, a middle school special education teacher, said:

The first is the expectation I have for myself that I never become complacent. I don't want to be the teacher that does the same thing every year, year after year. If I do that, it will no longer be fun for me as a profession, and it definitely will not be fun for my students in my room. (personal communication, April 5, 2017)

Sally, a middle school math teacher, shared, “I have always wanted to be more modern in my classroom. Progressive, I have taught thirteen years, and I have never wanted to do the same thing over again. I always want to try something new. The children we teach are fascinating” (personal communication, April 5, 2017). School administrators and teacher leaders can motivate teachers to change their practices by sending a consistent message and through modeling. Pat, a middle school math teacher, stated, “I think currently it's driven by teacher leaders who are personally driven to implement it. Also, the administration encourages and celebrates it regularly” (personal communication, May 25, 2017). Nancy, a middle school math teacher, who served as a teacher leader mentioned, “I think since I was on the leadership team, it pushed me to model what we were talking about with the staff. If I was to be a good leader, I felt the pressure to model when someone comes into my classroom” (personal communication, May 17, 2017). When school administrators provide the climate and support needed, teachers who are self-motivated reported they would take the risk to try something new in an effort to provide their students with an education designed to prepare them better for their future.

Two other codes were listed under this research question as challenges teachers encountered that did not fit into any of the themes, but are worth mentioning. One of the four schools in this study had a principal who was pushing multiple new initiatives at the same time.

Each of the teachers from this school responded how difficult it was to focus on any one of the initiatives because they did not have the time to place on so many. This code was named, too many initiatives and was only coded by teachers from this one school. Abby, a middle school math teacher at this school, expressed, “For me, it is difficult to juggle all the different priorities that are presented to us. The biggest challenge is to incorporate while not losing sight of analyzing data, differentiating, and when doing all that, it is something hard to remember we are also focused on that” (personal communication, May 25, 2017). The teachers at this one school all had the desire to try new initiatives, but cautioned that teachers can only manage so many changes at a time.

The second code, classroom management, was a code that was supported by two teachers from two different schools who taught co-taught classrooms. Both teachers shared how student behavior in the classroom could impact successful implementation of 21st century skills. Bobby, a high school math teacher, noted, “Another challenge is classroom management. To be able to foster creativity and innovation and doing these collaborative assignments and projects, it requires a lot of planning, time in classroom. So sometimes if a teacher struggles with classroom management, that can be a challenge too” (personal communication, May 1, 2017). The implementation of 21st century skills should be done with all students in every classroom, but teachers reported that in classrooms with student behavior issues, the teacher may need to make modifications to activities.

Research Question Three

The third research question, “What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers’ ability to implement 21st century skills in the classroom?” was answered by

themes derived from the coded data analyzed and are illustrated in Figure 3. The interview questions were purposely designed to probe educators' overall perceptions about the lessons learned during the implementation of ongoing, job-embedded professional development designed to support the implementation of 21st century skills in the classroom. The questions were also designed to identify the factors around opportunities administrators and teachers would have liked to have experienced along this journey as well as the positive changes they have seen at their schools as a result of 21st century skills implementation.

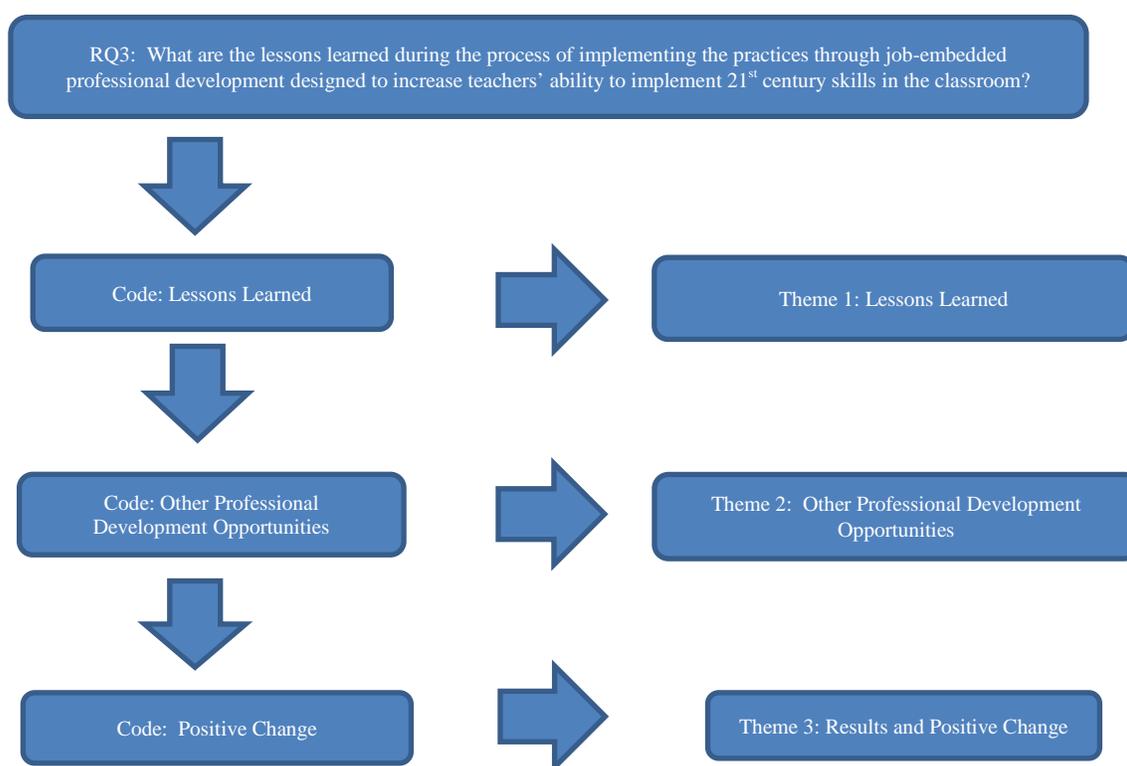


Figure 3: Data analysis of lessons learned

Theme 1: Lessons Learned. The participants in this study were asked what the lessons were they learned through the process of implementing 21st century skills in their schools or classrooms. Lessons learned was the only code used to define this theme.

Lessons learned. The following lessons learned are listed according to the greatest to least number of responses from the participants. The responses from both the school administrators and teachers were similar.

Slow Progress. All four of the schools allowed teachers to begin practicing the implementation of 21st century skills when they were ready, rather than mandating it to the entire staff. The idea was to help improve buy-in and to use the trail-blazers in each school to get it started and then to serve as models and coaches for the staff who would join later. Most participants responded that they liked this approach, but felt as if it also contributed to the slow growth in each building. Mark, a middle school principal, asserted, “I have learned that by allowing teachers to come on board when ready is far better than mandating participation. This allows for teachers time to buy into the process rather than forcing them to participate in something that they do not whole heartedly believe in through a mandate” (personal communication, May 2, 2017). Bobby, a high school math teacher, stressed:

Another lesson I have learned is that change must be done through influence rather than mandate. I learned that from you, honestly. If I would have been in charge, it would have been a mandate, and it would have gone down the wrong road, and it would have been a mistake. But, being willing to step back and willing to join when they are finally comfortable, it is going to be so much more fruitful than dragging them through it. Slowly, but surely, people come on board, and now we have reached the tipping point where too many people are doing it this way, and other want to be part of the majority. They don't want to be part of the minority. (personal communication, May 1, 2017)

School administrators typically approach staff development as a mandate for all staff members, but the approach practiced by these four schools was supported by both administrators and teachers at all four schools.

Start small. The administrators and teachers all stressed the importance of starting small with one lesson and tweaking that lesson to incorporate 21st century skills and then progressing over time to project-based learning (PBL). Teachers become overwhelmed at the thought of designing a PBL and will more likely back away because of the lack of knowledge and time to design a project. Whitney, a high school English teacher, said, “Nothing has to be on a grand scale to be change or to be something that will enhance what you are doing. It does not have to be big to be better” (personal communication, May 22, 2017). Another teacher, Abby, a middle school math teacher, echoed, “One of the things is just knowing it is not anything grand or fancy, so accepting that makes it easier to say these are the things I have done or could do in my classroom” (personal communication, May 25, 2017). Starting small is a practice that was supported by many participants because in order to get buy-in from teachers, the process needs to be gradual and something all teachers can accomplish without too much effort.

Provide teacher support. As teachers are taking risks and changing their teaching practices, they need to be met with a very supportive environment in their school. Cathy, a high school English teacher, stated, “I have learned that teachers need lots of support and guidance when making a change. This has been a slow process, but teachers are just like students; they are at varying levels and must be supported in different ways throughout the process” (personal communication, May 1, 2017). Mark, a middle school principal, shared, “I have learned that teachers need a supportive environment to take risks by stepping away from the traditional teaching and the focus on the SOLs; with that support, they can grow and build their lessons that

are more engaging for their students” (personal communication, May 2, 2017). With a supportive environment to learn and grow, teachers are more willing to take risks and step out of their comfort zones. This leads into the next lesson learned; do not be afraid to fail.

Do not be afraid to fail. Risk-taking is hard for teachers who are held accountable for SOL results in their courses. A supportive climate can help encourage teachers to take risks by stepping away from the traditional drill and practice for the SOL tests and to begin incorporating 21st century skills into their lessons. Christine, a middle school assistant principal, mentioned, “Don’t be afraid to fail; you have to have that overwhelming climate and culture not to be afraid to fail. From failure comes great things” (personal communication, May 22, 2017). Bart, a middle school special education teacher, expressed:

I was a little anxious and nervous, but after the experience, I stepped outside my comfort zone, and it was tough, and there were parts of my lesson that I could improve in, and I learned a lot for it. I think was to me one of the biggest lessons was that it is okay to be vulnerable and to step outside your comfort zone. (personal communication, April 5, 2017)

School administrators must first provide a climate that accepts and supports failure when teachers try new ideas in their classrooms. Once the climate is established and the teachers see more examples and are provided with the necessary professional development, they will begin to make the transformation from traditional teaching to providing students with the skills they will need to be successful in the future.

Impact of collaboration. Each of the participants shared how collaboration has helped improve instruction in their schools. Jake, a middle school principal, noted:

Modeling the 21st century skill of collaboration has created a dramatic change in our building's culture from where people were working in isolation that creates resentment, to a culture where it is all of us in it together trying to meet the needs of kids. Even simple things like teachers working across curriculum to support their efforts. I think it has been culture changing, and, due to this, student outcomes are far better than when people work alone. I think just the sharing, and teachers stealing good ideas to use in their classrooms. (personal communication, May 11, 2017)

A high school math teacher, Bobby, asserted:

Collaboration and communication between staff is better because like any school or community, we have our pockets of people we feel more comfortable with, and I think it is good to encourage teachers to work with other teachers that they feel comfortable with. I think this helps with morale when teachers have those opportunities, so I think teacher morale has improved as well. (personal communication, May 1, 2017)

Mark, a middle school principal, stressed, "I have learned just how valuable peer reflection can be through the Reflective Friends process. It is impressive how much all those involved can learn from those experiences" (personal communication, May 2, 2017). As the participants share, creating a culture that encourages collaboration among the staff helps to improve instructional practices and helps improve teacher morale.

Student outcomes. When students are provided with opportunities in the classroom that allow them to tap into their talents and interests, they take more ownership of their learning.

Cathy, a high school English teacher, said:

I have learned that students have skills that they can't demonstrate in the tradition school setting. In this setting, we see skills, talents, and passions students have, and this connects them to their learning in such a way that they will work so much harder on that project when they have ownership and have created their own direction. (personal communication, May 1, 2017)

Bobby, a high school math teacher, stated:

I have learned that students have so many more skills that I never realized when I was allowing them less choice and less creativity. Students, if you go in every day and deliver everything to them and they just sit there and receive it, you will never hear anything back from them, and you will never learn about them as individuals. When you give them the chance to show you what they can do, it is really impressive. They have skills you would have never expected. (personal communication, May 1, 2017)

The administrators and teachers who participated in this study provided six top lessons they learned from their experience with the implementation of 21st century skills in their schools or classrooms. The next section will address additional professional development opportunities the participants shared they wish they could have experienced prior to or during the process of implementation.

Other professional development opportunities. The participants in this research shared that there were professional development opportunities they wish they could have experienced to help them have a better understanding of the implementation of 21st century skills.

Visit other schools. Both administrators and teachers reported a desire to have had the opportunity to visit other schools that were actively implementing 21st century skills to learn

from their experiences. Many shared how they would have benefitted from seeing it firsthand.

Ann, a high school English teacher, shared:

I would have liked to visit other schools to see more examples of teachers who are implementing the 4cs in their classrooms. I would like to visit other peers in the division to gain more instructional practices. When we go to the share fairs, we always find new teaching strategies that we bring back and implement in our own classrooms. (personal communication, May 1, 2017)

Whitney, a high school English teacher, mentioned, “I think we learn a lot by going out of our own box as well. See what others are doing in other school districts to overcome their problems as well as some of the things they are celebrating” (personal communication, May 22, 2017).

Jake, a middle school principal, expressed, “I really wish we had more time to go to other schools and see things in action. Would love to take teachers to go watch the process in action, but it was so hard” (personal communication, May 11, 2017). Many of the participants shared that visits to other schools would have been beneficial to them during this process.

Content specific professional development. A few teachers shared how they wish they had more content specific professional development opportunities that provided examples of how this is done in the content area. Kelly, a high school math teacher, noted:

I think one thing I still struggle with is that you need time to practice in math class, and I think it is hard to do a PBL lesson and then get the time in for practice and then teach the skills they need. This takes time to do, but a lot of PD in that would be beneficial.

(personal communication, May 25, 2017)

Of the three teachers who responded, all were math teachers. Sally, a middle school math teacher, asserted, “For me, it is just math specific training. I do learn a lot for all content learners,

but I am really hungry for some math specific content training” (personal communication, April 5, 2017). Teachers struggle taking the content and turning it into authentic activities for their students and would like more examples of how this is done in the classroom.

Technology training. Three teachers shared a need for more technology training. Jim, a high school social studies teacher, said, “ I would like to know more on how I could use technology and get the latest ideas and how that might fit into each area of the 4Cs. I feel like there are some apps that could be used to enhance my instruction” (personal communication, May 15, 2017). Abby, a middle school math teacher, stated, “The biggest thing for me with the laptops that we have, we have so much great software, and we have no idea how to use them, and there is no training for us” (personal communication, May 25, 2017). The Sun Valley School District has one-to-one laptops for each student grades 6th through 12th, and three teachers shared a desire for more technology professional development to help them enhance their instruction.

Conferences. Two participants shared how conferences could have helped them with the process of 21st century skills implementation. Randy, a middle school science teacher, shared:

I attended the VMI STEM conference this past year, and it was excellent so more opportunities like that. Even if we had more people visiting the school to share STEM opportunities. I think with science, I think with the technology it involves, all the teachers. So just being able to take part in more opportunities like that conference would be very helpful. (personal communication, April 5, 2017)

Conferences can help educate teachers and help lay the foundation for the implementation of 21st century skills, but most of the professional development opportunities experienced by all four of these schools were job-embedded professional development that took place in the school or

classroom. The job-embedded professional development, according to the participants, resulted in the greatest changes to instruction in the schools and classrooms.

Results and positive changes. The participants were asked to share changes at their schools they believe were outcomes of the 21st century skills professional development. The changes are listed according to the greatest to least number of responses from the participants.

Improved staff collaboration. Half of the participants in this study shared how collaboration among the staff at their schools had improved since the introduction of peer observations, Reflective Friends, and through the encouragement to share ideas around best practice. Sally, a middle school math teacher, mentioned:

I have been here six years, and when I first came, it was a much closed-door environment, and it was this is what you need to teach and when you need to teach it. So I think the observation weeks have opened the door; people have come to my room; I have gone to their room. It has been really neat to see how my colleagues teach, we have always been a good staff here, but I think we have become more collaborative. We talk more across the content areas. We have hallway conversations that center on instruction. We have more participants than we did when we first started peer observations three years ago, and we are now developing a group of teachers who can help us plan and design lessons with each other. So it is just really, really neat. (personal communication, April 5, 2017)

Jim, a high school social studies teacher, expressed, “Reflective Friends made me nervous at first with so many people observing, but it has been good working with other teachers and especially when we reflect about a lesson. It is great for making the staff closer through this process. The

relationships have developed more deeply through this process” (personal communication, May 15, 2017). Whitney, a high school English teacher, noted, “It creates this atmosphere, a team approach to everything, so you don’t look at it as if you are isolated in your classroom. You are part of a larger group that is there to help each other” (personal communication, May 22, 2017). Providing professional development for teachers around the 4Cs allows teachers to practice those skills so that when they teach their students, they can approach it from a place of deeper understanding. It also helps to improve teacher instruction through the reflection and sharing of good teaching practices.

Improved student engagement. Half of the participants responded that student engagement had improved at their schools since the job-embedded professional development for implementation of 21st century skills began. Susan, a high school assistant principal, asserted:

There have been some great changes in attitude, students as well as teachers. We had several kids whose performance has improved due to the collaboration, connection to relevancy to real world, they are motivated and do their work. They want to know the why they need to do something. Student said it is good to do things that are worthwhile. (personal communication, May 22, 2017)

Pat, a middle school math teacher, stressed:

I think it boosts engagement of students, no doubt. Focusing on students being able to put into words what they’re learning has been a neat thing to watch (Lunch and Learn). Students learning to interact with material and think critically about it is enrichment. I love seeing my students grow throughout the year in how they express themselves, defend themselves, and analyze content. While looking at scores is always going to be important, administrators have been celebrating the efforts made to meet more than that.

It isn't solely about scores anymore. It's about what we're doing to grow our students in preparation for the real world and what we're doing to grow ourselves as well. (personal communication, May 25, 2017)

Bobby, a high school math teacher, said:

The students, I believe, as a result of our push are starting to learn more time management skills because they now have a higher expectation because they have to create things. They have to adhere to certain levels of quality, and on top of that, they are young people too. They are learning the value of taking pride in what they create. It is much easier for them to take pride in it since it is something they are passionate about; it is hard to take pride in a worksheet or something that is really lame. I think we are now tapping into skills students had and never got to the surface here at the school. Or if they did, they only came out in art or music classes and then had to be put away for the rest of the school day. So now we are starting to see how talented our students are, and our students are starting to see that we trust them to take on things. Students are so proud of the work they do for their teachers. They spend so much time and focus on those activities, and now everyone knows his talent, and he knows the teachers trusted him to do it, and that strengthened the relationship. (personal communication, May 1, 2017)

Similarly, Bart, who is a middle school special education co-teacher, echoed:

I think the driving force behind this is deeper learning and student success and achievement, and that is why we are doing it. If you did an observation here randomly, you would see that here in the classrooms, not every classroom, but I think teachers here very good at being creative with their instruction and making sure it is meaningful and

authentic, and I have learned a lot at this school in that area. Deep learning and engagement has definitely improved. (personal communication, April 5, 2017)

Bart, the teacher above, explained very well how deeper learning is the ultimate outcome for students, and by the improvement of student engagement through the implementation of 21st century skills, students are learning the content more deeply while also developing 21st century skills.

Improved school culture. In order for a school to effect change, the culture must change. Each of the four schools had at least one participant who shared how the 21st century skills implementation had improved the school culture. Jake, a middle school principal, stated:

Modeling the 21st century skill of collaboration has created a dramatic change in our building's culture from where people were working in isolation that creates resentment, to a culture where it is all of us in it together trying to meet the needs of kids. Even simple things like teachers working across curriculum to support their efforts. I think it has been culture changing, and due to this, student outcomes are far better than when people work alone. I think just the sharing, and teachers stealing good ideas to use in their classrooms. No matter the PD you offer, there is always something they can take away through observations. The culture shift is amazing, and now they are all working together, and this has been the best thing. (personal communication, May 11, 2017)

Cathy, a high school English teacher ,shared:

I can see that the students are enjoying school more and are more involved in their learning and taking more ownership. I see teachers who are always trying to improve their practice and are open to leaning from their peers and open to feedback to help them strengthen their work. I see teachers more willing to take risks now because they know

the message has been consistent and take comfort in that this is not something that is here and gone tomorrow and is worth investing in the change. I see a total transformation in the school climate. The focus is clearly on the 4Cs development for both teachers and students. We are all learning the same skills and collaborating to support each other. There is certainly a more collaborative atmosphere now among the teachers. The community is more involved and willing to come in and support our students with their projects now they have seen this as a movement that is here to stay and worth their investment. (personal communication, May 1, 2017)

Both statements from the participants clearly articulate the profound effect introducing 21st century skills can have on a school's climate that ultimately impacts the students, teachers, and community. One interesting outcome from the data collected shows that in the schools that had progressed the farthest with the implementation of 21st century skills, the participants all noted the change in school culture. In the schools with less progress, only a few participants noted culture change in their school.

Improved teacher morale. Teacher morale has suffered under the SOL accountability standards placed on teachers by the federal, state, local, and district leaders. Now that school administrators are encouraging teachers to balance the essential content knowledge with the 21st century skill development, teachers are reporting they are becoming more enthusiastic about their profession and overall happier. Michelle, a middle school assistant principal, mentioned:

I truly believe the teachers are enjoying doing these projects and doing these things with the kids. It is more of that 80-20; the kids are in charge 80% and the teachers 20%. And I think the teachers are seeing they do not have to be in control the entire time. Or I don't have to be the one who always gives out the information. I think they are enjoying the

opportunity to expand beyond just teaching the SOL or just focusing on that. They are able to incorporate it in a meaningful way, in real-life situations where they have to problem-solve. I think it is one of those things that is coming; I think our staff is on board, our staff is happier. They are seeing the kids happy; you have to have happy kids and happy staff.

Christina, a middle school assistant principal, expressed:

I would say that as far as staff, when we are focused on engaging students in that way, the teachers are invigorated. It is exciting to come up with a plan and watch the kids put that plan into action. So, for the staff, there was a lot of work in the front end, but once they got it going and when it was successful, they loved it. (personal communication, May 22, 2017)

Improving teacher morale is essential in promoting the teaching profession and keeping good teachers on staff. This is a struggle many schools are facing, and by providing 21st century skills job-embedded professional development, teachers can be given the support and skills needed to bring back the passion around why they decided to become teachers. Giving them the ability to be more creative and collaborative with their lesson and project design taps into that passion.

Improved teacher leadership. Teachers who are in a school climate with a focus around learning become more personally invested and enthusiastic about teaching and learning. As a result, more teachers are serving as instructional leaders and coaches in their buildings.

Nancy, a middle school math teacher, noted:

Students are getting the most from their teachers. Teachers are learning so much, it is causing the students to learn more from them. Anytime a teacher grows, the students are going to grow. Has brought teams closer together and helps them understand what is

going on in their classrooms. We are all different types of teachers, just like students who are different types of learners. Trying to help them with their weaknesses. (personal communication, May 17, 2017)

Bobby, a high school math teacher, asserted:

I see it as the flattening of the power structure of the school. It is no longer a few people at the top making all the decisions. They interact with teachers in meetings, protocols, and book studies, allows us to be more open with each other, and that has a far reach beyond just instruction. Now we have the ability to sit down and have a discussion about all kinds of decisions that can influence the culture of the building. We are very open and honest with each other and understand everyone is working for the same goal. I think that is really important. (personal communication, May 1, 2017)

Teachers are just like students as they all learn in different ways. A school that successfully grows instructional coaches within its staff allows for more individual job-embedded coaching opportunities so that any teacher who needs support has someone available to him or her. This helps a school take the implementation of 21st century skills full scale because so many supports are provided to help teachers grow.

It was noted earlier in the data that the participants from one school were concerned about the juggling of multiple initiatives driven by the school principal. During the collection of data around the positive changes in their schools, one person listed one negative change that took place at their school. Nancy, a middle school math teacher, stressed, “The only negative was the work load. I think that needs to be balanced for teachers because it could be overwhelming” (personal communication, May 17, 2017). This sends a message to school administrators that

when introducing a change in culture, keep the focus consistent and keep in mind that teachers can only manage so many initiatives at a time.

Summary

This study examined the successes, challenges, and lessons learned when secondary school administrators and teachers implement 21st century skills into their schools or classrooms. This chapter featured the results from the triangulation of focus group interviews, individual semi-structured interviews, documents, timelines and budgets, and researcher's memos and journal. The data from the individual case analysis and cross-case analysis yielded several themes for each research question through the merging of codes.

Five themes were identified related to the first research question, "What are the practices implemented through job-embedded professional development at the school that are designed to increase teachers' ability to effectively implement 21st century skills in the classroom?" Those themes were (1) focus on 21st century skills supported by a strong vision and mission, (2) importance of principal leadership with a focus on 21st century skills, (3) colleague classroom observations with reflection and sharing of ideas to improve instruction, (4) showcasing and celebrating student success, and (5) getting teachers to buy into change. Four themes were identified related to the second research question, "What are the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges?" Those codes were (1) balance of content knowledge with 21st century skills, (2) time, (3) resources, and (4) driving force. Three themes were identified related to the third research question, "What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom?" Those themes

were: (1) lessons learned, (2) other professional development opportunities, and (3) results and positive change.

Chapter Five provides an overview, summary of findings, discussion, implications, delimitations and limitations, and recommendations for future research relating to the successes, challenges, and lessons learned when secondary school administrators and teachers implement 21st century skills into their schools or classrooms, and a summary of the study.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this collective case study is to understand the challenges, successes, and lessons learned when secondary school administrators implement job-embedded professional development to change the teaching and learning of 21st century skills. Multiple data collection techniques were used to provide an understanding of the implementation of 21st century skills in the schools and classrooms. Focus groups, individual semi-structured interviews, documents, timelines and budgets, and researcher's memos and journal data were collected and analyzed for common trends to form themes around the research questions. The following research questions were used to guide this multiple case study:

- What are the practices implemented through job-embedded professional development at the school that are designed to increase teachers' ability to effectively implement 21st century skills in the classroom?
- What are the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges?
- What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom?

The purpose of this chapter is to summarize the results of the study and to generate conclusions and recommendations for school administrators from the data gathered. This chapter consists of a summary of findings followed by a discussion of the findings and the implications in light of the relevant literature and theory. This chapter provides a methodological and practical

implications section. The chapter concludes with an outline of the study delimitations and limitations and recommendations for future research.

Summary of Findings

Multiple data sources were obtained to ensure a true understanding of the research questions from school administrators and teachers from four secondary schools. The research questions in this case study were designed to provide the successes, challenges, and lessons learned when school administrators and teachers implement 21st century skills in their schools and classrooms.

There were five themes that emerged from research question one around the implementation of 21st century skills: (1) focus on 21st century skills supported by a strong vision and mission, (2) importance of principal leadership with a focus on 21st century skills, (3) colleague classroom observations with reflection and sharing of ideas to improve instruction, (4) showcasing and celebrating student success, and (5) getting teachers to buy into change. There were four themes that emerged from research question two around the challenges of implementing 21st century skills: (1) balance of content knowledge with 21st century skills, (2) time, (3) resources, and (4) driving force. Research question three had three themes that emerged around the lessons learned when implementing 21st century skills: (1) lessons learned, (2) other professional development opportunities, and (3) results and positive change.

Research Question 1

What are the practices implemented through job-embedded professional development at the school that are designed to increase teachers' ability to effectively implement 21st century skills in the classroom? The research found five trends across the four schools. The first was the importance for the school to have a clear focus on the 21st century skills that is supported by a

strong vision and mission that mirrors the state and district expectations and direction. This would include establishing a strong foundation around deeper learning through the use of the 4Cs (communication, collaboration, critical thinking, and creativity) to help prepare students for their future. It was also noted how important it is to establish a balance between providing students with the necessary content knowledge and 21st century skills and what a struggle this can be without a clear direction in the district and school leadership.

The second trend stressed the importance of principal leadership with a focus on 21st century skills. School administrators who create a culture of learning in their schools and who are actively involved in the implementation of 21st century skills tend to send a clear message and direction for their staff. Administrators who provide their staff with continual job-embedded professional development and support along the way tend to impact a greater change in the culture around learning. Keeping the focus clear helps teachers know where to place their efforts and how best to support the direction of the school.

The third trend addressed the impact colleague classroom observations with reflection and sharing of ideas to improve instruction can have on a teaching staff. Establishing well-functioning professional learning communities (PLCs) designed to improve instruction can support school leadership in establishing trust. The data collected from the administrators and teachers supported the following strategies to help improve communication, collaboration, critical thinking, and creativity among the staff: peer classroom observations followed by reflection, providing opportunities for teachers to share ideas around their practice, Reflective Friends process, lunch and learns, and visits to other schools that are practicing similar strategies.

The fourth trend focused on the importance of showcasing and celebrating student success. The participants shared how valuable the following techniques were to highlighting the

great things students were learning and skills they were developing: exposition nights, project-based learning (PBL), project fine-tuning protocols, and sharing student success examples to the staff. When teachers see the impact these activities have on student success, they are more likely to want to explore these opportunities more frequently. Ultimately, school administrators and teachers want to find ways to make all students successful. When they see activities that impact students positively, by tapping into their interests and talents, teachers become more engaged in finding ways to make their instruction more engaging and purposeful for their students.

The fifth trend is the more challenging one: getting teachers to buy into change. School administrators must provide teachers with a supportive environment that allows them to take risks in their classrooms. Teachers need to feel supported along the way and have the appropriate job-embedded professional development to help them grow. They also need to know why this change is needed for students, and this can be shared through examples of student success as well as an understanding of the knowledge and skills students will need to be successful in the future. Allowing teachers to get on board when ready may help alleviate the top-down mandate that many teachers resent and are less likely to really engage in to make a change in their instruction.

Research Question 2

What are the challenges encountered when implementing 21st century skills through ongoing, job mbedded professional development, and what is needed to overcome those challenges? Four trends were identified from the research related to challenges. The first trend was the challenge of balancing content knowledge with 21st century skills. Teachers encounter pressure for their students to perform well on the SOL tests. Many are afraid to take the risk of changing the way they teach by incorporating 21st century skills into their lessons. School

administrators must provide a climate that supports risk taking and provides the teachers with the professional development needed to make the transition. Once teachers see how 21st century skills can be used to get students to take ownership of their learning and how it allows students to share their passions and talents, most see the value and begin making the change.

The second trend the participants identified as a challenge was time. Time is a challenge in education, regardless of the change one wants to occur. School administrators must make time for teachers to participate in professional development, plan lessons that incorporate 21st century skills, collaborate with other teachers, and reflect on their practice of teaching. Teachers are always faced with the struggle of having enough time to cover all the necessary content and tend to limit activities that support the implementation of 21st century skills. Everything school administrators can do to open up more time for teachers would help make the transition from traditional teaching to a more 21st century approach possible.

The third trend that was a challenge for educators when they are implementing 21st century skills is finding available resources. Most of this comes down to having enough financial resources to pay for consultant support, substitutes needed to cover classes during job-embedded professional development, and funds to support student project development. School administrators will need to think of creative ways to free or repurpose resources so that teachers are provided with the professional development activities needed to help them through the transition.

The fourth trend the participants identified as a challenge was motivation. Teachers shared they were either self-motivated or motivated by the leadership of their administration. Teachers who were self-motivated shared how they had a desire to provide the best possible education to their students, and providing engaging activities was the key to getting students

invested in their own learning. Other teachers reported how strong administrative leadership was the contributing factor to their motivation to change the way they were teaching and implementing 21st century skills into their lessons.

Research Question 3

What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom? There were three trends that emerged from research question three around the lessons learned from the implementation of 21st century skills. The first trend was the identification of common lessons learned by the participants through their experiences with the implementation of 21st century skills in their schools or classrooms. The following lessons were identified: (1) slow progress, (2) start small, (3) provide teacher support, (4) do not be afraid to fail, (5) impact of collaboration, and (6) student outcomes. School administrators and teachers stressed how important it was to understand that making this transition is a slow process, and allowing students the time they need can be very beneficial to getting buy-in. When making changes to lessons, administrators can encourage teachers to start small by tweaking lessons they are already teaching and simply incorporating one or more of the 21st century skills into the lesson. Teachers must be provided the support needed to plan, collaborate, and reflect on their practices. By creating a supportive climate, teachers are willing to take risks and are less afraid of failing. By encouraging staff collaboration, trusting relationships are formed that allow for constructive feedback through peer observations that help improve instruction. By showcasing student outcomes, teachers see the benefits of changing the way they teach to provide the kind of instruction students need to be successful in the future. All of these trends

were identified by the participants as lessons they learned when implementing 21st century skills into their schools or classrooms.

The second trend addresses other professional development opportunities the participants said would have helped with the transition. School administrators and teachers shared that visiting other schools that are practicing the same strategies helped with their own implementation. Several teachers expressed a need for more professional development on how to implement 21st century skills into their lessons with a content specific focus. Math teachers expressed how specific examples would have helped them better understand how to make their math lessons more applicable to the real world. Teachers also shared a need for more technology training on how to use technology to enhance their instruction through the implementation of 21st century skills. Conference and workshops were noted as ways to help provide the basic knowledge around 21st century skill development, but was not deemed as effective as the job-embedded professional development activities at changing actual instruction in the classrooms.

The third trend is based on the results and positive changes the participants have experienced through the implementation of 21st century skills in their schools or classrooms. Improvements were identified in the following areas: (1) staff collaboration, (2) student engagement, (3) school culture, (4) teacher morale, and (5) teacher leadership. The trends listed are all improvements that educators desire in their schools. When school administrators make the decision to implement 21st century skills in their schools, the process is meaningful because a critical goal is to change the culture of the school that impacts the staff, students, parents, and the community.

Discussion

In this study, a qualitative collective study design, research questions were designed to help identify and examine the challenges, successes, and lessons learned when school administrators implement ongoing, teacher job-embedded professional development to successfully promote 21st century skills by changing teaching and learning through the use of best practices. Much research has been conducted related to teacher professional development and the need for students to develop 21st century skills, but there is very little empirical research that supports administrators in how to use research-based practices to overcome the challenges in implementing 21st century skills through job-embedded professional development. This study adds to the limited empirical research available to school administrators who find themselves tasked with the challenge of implementing 21st century skills in their schools. Discussion begins with a description of how this study's findings relate to the theoretical and empirical literature. The discussion extends to how the study's findings confirm, extend, or diverge from previous research reviewed in Chapter Two and will end with a discussion around how the study contributes to the field.

Theoretical Literature

The theories guiding this study are Lev Vygotsky's (1962) social constructivist paradigm, Malcolm Knowles' (1984) adult learning, Abraham Maslow's (1943) hierarchy of needs, and Partnership for 21st Century Skills (P21) (2002) framework. Vygotsky's social constructivist theory identifies the importance of learning in a social setting and how learners make meaning by transferring knowledge discovered when working with others who are more knowledgeable or experienced (Vygotsky, 1962). Research questions one and three both provided data to support the importance social interaction plays on the ability for teachers to grow in their practices of

implementing 21st century skills. Participants in this study shared how valuable job-embedded professional development, involving social settings, was to their growth while implementing 21st century skills in their classrooms. All four schools in this study had PLCs established to support colleague collaboration and reflection around good instructional practice. Teachers reported they thrived in a culture that was supportive and based around the sharing of ideas and supporting one another with research-based best practices designed to improve instruction in the classroom. Successful job-embedded professional development practices listed by the participants included PLCs, Reflective Friends, peer observations and reflection, and lunch and learns. Each of these practices involve social interaction among colleagues who work together to problem solve and construct common knowledge around learning and teaching to support the implementation of 21st century skills. Colleagues can serve as mentors, coaches, and motivators by providing feedback and support in an effort to improve the practice of teaching (Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality, 2010). Findings from this study appear to support Vygotsky's social constructivist theory (Vygotsky, 1962) that cognitive development increases with social interaction. Bobby, a high school teacher, shares how collaboration has transformed teaching and learning in his school:

Teachers are more willing to take risks and step outside and do something new. They are willing to see that it may not go well, and it is not the end of the world; just retool it, or they see now you can share with others. We can now reflect more honestly with others. Those who have been the most involved are open to negative feedback or constructive feedback; in fact we are looking for it. We are not scared of it. We want to hear we have done great because we know we have because we have worked hard for it, but we want to hear ideas that could make it better because we want to make everything better. It is a good mindset for

teachers to be looking for ways they could do better than just having to justify they have done a good job. (personal communication, May 1, 2017)

Teachers who collaborate in the classroom setting to problem solve, share best practices, offer support, and provide feedback to one another will build an understanding on how to implement 21st century skills in their classrooms.

According to Malcolm Knowles' adult learning theory (1984), adults are motivated by learning when it supports their needs and interests, when it is situated in their daily setting to help solve problems, when it is self-directed, and when it provides opportunities for social interaction. Research questions one, two, and three all provided data around teacher motivation for learning and growing in their practices. When teachers are provided with job-embedded professional development designed to support them with the implementation of 21st century skills, they can solve relevant problems in their classrooms through collaboration, support, and motivation from their colleagues (National Comprehensive Center for Teacher Quality, 2010). According to O'Toole and Sussex (2012), adults need to play an active role in their learning. Job-embedded professional development provides teachers with this opportunity. Adults are also more capable of learning when it is personally meaningful and beneficial (Holton, Knowles, & Swanson, 2005). Jake, a school administrator in the study, said:

Modeling the 21st century skill of collaboration has created a dramatic change in our building's culture from where people were working in isolation that creates resentment, to a culture where it is all of us in it together trying to meet the needs of kids. Even simple things like teachers working across curriculum to support their efforts. (personal communication, May 11, 2017)

Cathy, a teacher in the study, shared how the job-embedded professional development practices in her school have motivated her and the staff to grow as 21st century educators. She stated:

I think the Reflective Friend's process has been very successful because of the feedback we get from our peers and the ideas we get by observing others. The time we spend reflecting on our practice is very powerful. The protocols are great idea generators and helps when designing projects. The lunch and learns were helpful as an introduction to teachers to come hear from teachers doing the work and the students who have experienced the change in instruction. (personal communication, May 1, 2017)

From the assertions provided by the participants in this study, evidence is provided to support Malcolm Knowles' adult learning theory (1984): adults are motivated by learning that is relevant to their jobs and helps them solve problems through self-directed collaboration with colleagues.

Maslow's hierarchy of needs theory (1943) explains why basic needs must be met prior to moving to the next level in the hierarchy by both the teacher and school administrators. Administrators can help motivate their teachers to perform at a higher level by gaining an understanding of where they are on the hierarchy of needs. Administrators can then motivate teachers to obtain skills, knowledge, and tools needed to grow along the hierarchy. Administrators must also have their basic needs met before they can tackle the challenge of moving their schools through the process of implementing 21st century skills. Research questions one, two, and three all provide data to support how teachers must have their basic needs met prior to growing along the hierarchy. This can be seen in the way teachers at all four schools studied were allowed to determine when they were ready to engage with the professional development around the implementation of 21st century skills rather than a typical top-down mandate frequently experienced in education. This process allows those teachers who are farther

up the hierarchy to begin the implementation as trail blazers. They could then model and support those who buy into it at a later time in the process and can help others learn from their mistakes along the way. School administrators have to understand where their teachers are along the hierarchy of needs, so they understand who and when to motivate to the next level. Cathy, a teacher in the study, shares how her school's leadership helped support teachers when they were ready to engage in the process of 21st century skill implementation. She said:

By sending a consistent message, we as teachers know this is something that is not going away, and there have been multiple ongoing professional development opportunities that allow teachers to get on board at their pace. We have teachers who are learning at multiple levels and the administration has offered tiered differentiated professional development during faculty meetings to meet the needs of all teachers at all levels of involvement.

(personal communication, May 1, 2017)

Ann, another teacher in the study, shares how her school's leadership has provided teachers with the support needed to motivate them to push up the hierarchy and along the process of 21st century skill implementation. She shared:

I think the support our administration has given us to take risks and try new things, even if you fail. The support has been here the entire time, and it makes it easier to step out of the box and try new things. I think by collaboration with others, this has helped people get on board because you are not doing it alone; you have someone you are working with throughout the process, and this makes it less intimidating. We have had time to grow slowly, and it never seemed to be forced upon us. (personal communication, May 1, 2017)

The data collected from the participant interviews provides evidence to support Maslow's hierarchy of needs theory (1943) that teachers are motivated to achieve certain needs once they

have fulfilled the needs according to the hierarchy (psychological, security, social, esteem, and self-actualization). Administrators can use this to implement a change in their schools by focusing on motivating the teachers who are ready to do the work needed, based on their individual needs.

Partnership for 21st Century framework (2002) provides the 21st century standards, assessments, curriculum, instruction, professional development, and learning environments needed to support administrators in the process of implementing 21st century skills into the classrooms that lead to deeper learning for students. The Partnership for 21st Century framework was designed by input from teachers, educational experts, and business leaders to define the skills and knowledge students need to be successful in work, life, and citizenship in the 21st century. Deeper learning is the outcome of 21st century skill implementations. When students take the content knowledge they learn and then apply the 4Cs (collaboration, communication, creativity, critical thinking) skills as it relates to preparing them for college or career, the deeper they will learn the material (Bellanca, 2015; Kay & Greenhill, 2015; Partnership of 21st Century, 2002; Soule & Warrick, 2015). Job-embedded professional development designed to support the implementation of 21st century skills will provide opportunities for teachers to solve real problems relevant to their work, provide collaboration with colleagues, and offer support and motivation. These are the same components that support the Partnership for 21st Century framework (National Comprehensive Center for Teacher Quality, 2010). Basically, this demonstrates the importance of both students and teachers developing the 4Cs skills to help promote growth around their learning. Research questions one, two, and three all provide data to support the Partnership of 21st Century framework (2002) as the guiding structure for 21st century skill implementation.

Pat, a teacher in the study, commented on how the emphasis on the implementation of the 4Cs has supported her efforts to provide opportunities for deeper learning for her students. She stated:

I want to create responsible citizens, and part of that is being able to communicate and collaborate, being able to think for yourself and make judgement calls. I also want students to use their gifts and talents within the classroom, so creativity is huge. I'm personally a constructivist at heart and believe that when students create their own meaning, it sticks. Learning should be an experience that doesn't happen without collaboration, communication, critical thinking, and creativity. This has always been important to me, but I want to grow and implement it more and more. (personal communication, May 25, 2017)

Bobby, a teacher in the study, stated:

The vision is that teachers will gradually embed instructional practices and activities that require the use of 4Cs by their students regularly in class. The hope is through this gradual release, we can influence each other as professionals and that spreads like a wildfire. Eventually, the shift will take place, the power shift in the room shifted from the teacher to the learners themselves, giving them the power to make more choices and show their creativity on a higher level. (personal communication, May 1, 2017)

When teachers practice using the 21st century skills such as the 4Cs, they can more easily transfer that knowledge to their students in the classroom, helping them to develop the same skills along with the content knowledge that will lead to deeper learning.

Empirical Literature

Research Question One. Research question one set out to answer the question, what practices implemented through job-embedded professional development at the school are designed to increase teachers' ability to effectively implement 21st century skills in the classroom? Five themes originated from the study to help answer this question.

Theme 1: Focus on 21st century skills supported by a strong vision and mission.

Research supports the idea that students experience deeper learning when they are provided with the essential content knowledge along with the 21st century skills that can be related to meaningful and purposeful learning (Bellanca, 2015; Kay & Greenhill, 2013; Partnership of 21st Century Skills, 2002). A strong vision and mission that support 21st century skill development is necessary for schools implementing 21st century skills (Daggett, 2014; DuFour, 2015; Kay & Greenhill, 2013). The findings from the current study support that schools with a strong vision and mission, focusing on a balance between content knowledge and 4Cs development, will provide deeper learning opportunities for their students. Mark, a school principal in this study, said, "The vision is to have teachers to gradually change their instruction to introduce lessons that incorporate 21st century skills along with the content knowledge needed to continue doing well on the SOLs. This vision matches the strategic plan for the county and is designed to prepare students for the future" (personal communication, May 2, 2017). All four schools in this study have a clear systematic vision and mission that support the implementation of 21st century skills.

Theme 2: Importance of principal leadership with a focus on 21st century skills implementation. Developing a culture around learning and collaboration supports the implementation of 21st century skills (Cornell, 2002; Daggett, 2014; DuFour & Fullen, 2013;

Kay & Greenhill, 2013). School leadership is a key component for student and adult learning in a school (DuFour, 2015). School administrators may need to seek support from outside consultants to help support their efforts and to help provide a structure for the transition within the school setting that supports job-embedded professional development (DuFour, 2005; Kay & Greenhill, 2013). Findings from the current study suggest that school administrators must develop a culture of learning in their buildings, maintain a constant focus on the vision, and provide leadership that supports the staff throughout the implementation process. Mark, a school administrator, shares how sending a clear and consistent message to his staff has helped lay the foundation for the professional development around 21st century skill implementation. He stressed, “This (focus on 21st century skills implementation) has been shown in every way, how we dedicate time, money, and the language we use with staff at all times. We can’t talk about the importance of the SOLs and then talk about the importance of implementing 21st century skills” (personal communication, May 2, 2017).

Theme 3: Colleague classroom observations with reflection and sharing of ideas to improve instruction. Providing teachers with professional development opportunities is key to preparing them with the knowledge and skills needed to improve their practices (Archambault, Wetzel, Foulger & Williams, 2010; Gunn & Hollingsworth, 2013; Guskey, 2010). Job-embedded professional development allows teachers to work on their practices within their own classroom setting while working to solve real problems they encounter (Darling-Hammond & Ball, 2004; Darling-Hammond, Chung, Andree, Richardson, & Orphanos, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gutskey, 2009; Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality, 2010; Partnership of 21st Century Skills, 2009; Sparks & Hirsh, 1997).

Teachers who open their classrooms for their colleagues to observe and reflect on their practices, strengthen their skills as teachers through this process (Crushman, 1998; Gutskey, 2002; Kuh, 2016; Lee & Smith 1997; Murray & Zoul, 2015; National Staff Development Council, 2010; Norman, Golian, & Hooker, 2005). To support collaboration among teachers, developing professional learning communities (PLCs) is a great way to give teachers an opportunity to form trusting relationships with their colleagues and leads to common goal setting and sharing of ideas around teaching (Byrk, Sebring, Allensworth, Luppescu & Easton, 2010; Chhuon, Gilkey, Gonzales, & Daly, 2008; DuFour et al., 2008; DuFour, 2015, Hairon, Goh, Chun, 2015; Hord, 1997; Hunzicker, 2012; Lieberman, Saxl & Miles, 1988; Litle, 2002; Manning, 2015; Marin & Halpern, 2011; National Staff Development Council, 2010; Pacific Policy Research Center, 2010; Pirtle & Tobia, 2014; Plucker, Beghetto & Dow, 2004; Schechter, 2008). Coaching and modeling are ways teachers can support one another (Kay & Greenhill, 2013; National Staff Development Council, 2010; Trilling & Fadel, 2009).

Findings from the current study support the literature above and suggest the use of the following job-embedded professional development practices as ways for school administrators to support the implementation of 21st century skills in their schools: PLCs, colleague classroom observations and sharing, Reflective Friends, lunch and learns, and visiting other schools. Cathy, a teacher who participated in this study, said:

I think the Reflective Friends process has been very successful because of the feedback we get from our peers and the ideas we get by observing others. The time we spend reflecting on our practice is very powerful. The lunch and learns were helpful as an introduction to teachers to come hear from teachers doing the work and the students who have experienced the change in instruction. (personal communication, May 1, 2017)

Mark, a school administrator, said, “Now we are working on a version of Reflective Friends that involves more of the constructive feedback that is designed to make lessons stronger and more effective. This has been very powerful for us so far and the teachers love getting this feedback to improve their practice” (personal communication, May 2, 2017). Bobby, a teacher in the study, shared:

We started with PD at central, and at that time, I really had no idea what was happening and did not understand what was being introduced. After the PD continued, I started understanding more of what we were being asked to do. We then started with Reflective Friends; and this is where I gained the most understanding because I could see examples of what we were to be doing: Basically, taking a lesson and making small changes to include the 4Cs, and that gradually grew into many of us creating projects. By visiting our peers and having them visit us by giving feedback on ways we can improve our lessons was the most beneficial and helped us all grow. The protocols were great to help us with problems or to generate ideas for our projects. I think both of these activities were the most successful to our growth as teachers. The lunch and learns were good, but we have not done that in a while. (personal communication, May 1, 2017)

The Partnership for 21st Century Skills (2009) literature provides school administrators with goals for providing professional development to teachers who are striving to implement 21st century skills in their classrooms. Those goals are (1) incorporate the 4Cs into lessons, (2) take a balanced approach, (3) provide examples, (4) develop PLCs, (5) address strengths and weaknesses of students, (6) evaluate skills, (7) create a culture of learning, and (8) sustain professional development. As one can see from the teacher response above, many of the

practices implemented through job-embedded professional development at the four schools studied supports the goals provided by Partnership for 21st Century Skills.

Theme 4: Showcase and celebrate student success. To promote deeper learning in the classroom, teachers who implement project-based learning (PBL) activities or projects find that this supports the development of 21st century skills, fosters deeper understanding of the content knowledge when it is applied, and allows students to take ownership of their learning (Bellanca, 2015; Kolcotsaki, Menzies & Wiggins, 2016; Partnership of 21st Century Skills, 2015; The Buck Institute, 2016). Teachers benefit from having their colleagues evaluate and provide feedback on their projects prior to introducing them to their students. The feedback they receive helps answer questions they may have about the projects and helps guide the final adjustments to the projects. This process is referred to as protocols because there is a specific process of questioning around this practice to help guide the evaluation and feedback (Blythe, Allen & Powell, 1999; Moore & Carter-Kicks, 2014; National Staff Development Council, 2010).

Findings from this current study show the following practices as successful ways to showcase and celebrate the 21st century skills implementation within the school: (1) exposition nights, (2) project-based learning (PBL), (3) protocols, and (4) student success examples. Participants for this study shared how valuable the protocol process was to support the project-based learning activities and projects in their classrooms. They also shared how valuable it was to allow an opportunity to showcase their work by putting it on display. This also provides a way for teachers to share ideas around project development and encourages cross-curricular projects within the school. John, a school administrator in the study said, “There are just tons of project-based learning activities that are afforded kids and tons of opportunity for them to pursue ownership of their own learning, taking on their interests, and applying that on to the curriculum

and all things that are related to 21st century skills” (personal communication, April 28, 2017).

Cathy, a teacher in the study, said:

We have participated in protocols that help teachers grow ideas for project development. The exhibition night is the culminating event where students showcase their work, and the community is invited to come see their work. All of these activities have been very critical in providing teachers with the toolbox needed to better implement 21st century skills in the classroom. (personal communication, May 1, 2017)

Bobby, a teacher in the study, said, “The protocols were great to help us with problems or to generate ideas for our projects. I think both of these activities were the most successful to our growth as teachers” (personal communication, May 1, 2017). From the participant responses, it is evident how valuable the protocol process and the student showcase of work was to their project-based learning development and growth as teachers.

Theme 5: Getting teachers to buy into change. One factor that was a common theme across all three research questions was the importance of getting teacher buy-in. If teachers do not understand the importance of why they need to implement 21st century skills in their classrooms and do not have the support they need to make the transition, they are likely not to make the change. To help get teacher buy-in, school administrators can practice purposeful leadership using a collaborative approach to include staff in the creation of the vision and mission (Kay & Greenhill, 2013). It will take time to get buy-in across the school, and administrators need to focus on changing the school culture to support the teachers in cultivating a change in their practices (DuFour & Fullen, 2013; Kay & Greenhill, 2013).

The findings in this current study show that getting teacher buy-in is a key component in the successful implementation of 21st century skills in schools. Cathy, a teacher in the study, stated:

The teaching staff has been growing in involvement over the years. We started with a very small group, and each of us gradually encouraged teachers from our departments to join the group, and now we have the majority of the faculty involved. Teachers were allowed to get on board at their own timeframe, and we have teachers who are working as coaches supporting the newer teachers who get on board. The late adopters have coaches that can help support them as well as provide an active example for them to see. Many of us have matched up with the newer teachers and partnered with them for their first project. Once they have experienced it once, they are able to begin designing projects of their own. I think the process has been slow to grow, but we are almost at scale with the faculty after three years, so I think that is pretty good. (personal communication, May 1, 2017)

Research Question Two. Research question two set out to answer the question, “What are the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges?” Four themes originated from the study to help answer this question.

Theme 1: Balance of content knowledge with 21st century skills. This is a common theme that has been presented in the findings of all three research questions in this current study. This speaks to the process of guiding students to experience deeper learning through the use of essential content knowledge with the implementation of 21st century skills or the 4Cs (communication, collaboration, critical thinking, creativity) (Bellanca, 2015; Kay & Greenhill,

2013; Partnership of 21st Century Skills, 2002). This theme was presented in detail under research question one.

Theme 2: Time. No research was presented in Chapter Two related to this theme, but the participants in the current study reported time as a challenge they encountered when trying to implement 21st century skills in their schools and classrooms. Like all new initiatives in education, there never seems to be enough time to commit to the process to support the needed change. School administrators must repurpose the time they have in creative ways to provide the time necessary for teachers to experience the job-embedded professional development they need to grow in their practices. Mark, a school administrator, asserted, “The greatest challenge is time. Providing enough time for the teachers to plan and work collaboratively on ideas. But, this is a problem with anything you do in education” (personal communication, May 2, 2017). Cathy, a teacher, expressed, “I think time is the most apparent challenge. It takes time to design projects and plan with others, and that time is not always available. Obviously, time needs to be protected and teachers need as much time as possible to plan and work with others on collaborative projects” (personal communication, May 1, 2017). Bobby, a teacher, noted:

On the time issue, I say protect at all costs the planning time and common time. The more time you have to think about a project to tweak it, to make materials to talk over with peers and get feedback, the better. At all cost, protect the common planning time and establish the common planning time. Part of that is what we have done here, and I say we need to continue to do that and structure what you would do in a tradition meeting and think about how you could get the message out a different way, so that time can be used for more engaging instructional materials or strategies. (personal communication, May 1, 2017)

Theme 3: Resources. Resources are a common challenge for school administrators who are trying to implement 21st century skills in their schools, and administrators must find ways to reallocate resources to provide the support needed for their teachers (Kay & Greenhill, 2013). Similar to the previous theme, there is little research to support the challenges schools administrators and teachers face when implementing 21st century skills in their school and classrooms. The findings from this current study show that resources are a challenge that school administrators and teachers all face. Whitney, a teacher participant, stated:

Like I said, if we had a common planning time, even if remediation block, or share students and switch off. Smaller class size would be great, more manageable for these activities. Hiring more teachers to lighten that load or a part-time person to come in and help during peer observations time. We do what we need to do with what we have, but it would be on a grander scale if we had those resources. (personal communication, May 22, 2017)

Theme 4: Motivation. Maslow's hierarchy of needs theory (1943) explains why teachers and school administrators must have basic needs met prior to moving to a higher level of the hierarchy. Administrators who can assess where each individual teacher is on the hierarchy of needs can work to motivate him or her to perform at a higher level. Administrators can also help support the needs that are not being met that prevent teachers from moving forward. The findings in this current study suggest motivation is a challenge school administrators and teachers face when implementing 21st century skills in their schools and classrooms. Bobby, a teacher in the study, shared:

The first is the expectation I have for myself that I never become complacent. I don't want to be the teacher that does the same thing every year, year after year. If I do that, it

will no longer be fun for me as a profession, and it definitely will not be fun for my students in my room. (personal communication, May 1, 2017)

Teacher participants reported that self-motivation, support from the leadership, and seeing successful examples were all driving forces behind their decisions to begin implementing 21st century skills in their classrooms.

Research Question Three. Research question three set out to answer the question, “What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers’ ability to implement 21st century skills in the classroom?” Three themes originated from the study to help answer this question.

Theme 1: Lessons learned. The participants in this current study reported six lessons they learned while implementing 21st century skills in their classrooms or schools.

Lesson 1: Slow process. Both teachers and administrators reported the implementation process was slow to grow across the buildings, and teachers needed time to learn, practice, reflect, and make changes to their lessons and projects.

Lesson 2: Start small. Teachers who started with small changes to their lessons by incorporating just one of the 4Cs at a time felt more successful than those who tried larger project development first. By starting small, teachers felt the change was more manageable and they were less afraid of experiencing large-scale failure. A small start allowed teachers to practice adjusting a variety of lessons, receive feedback from peers, and adjust those lessons to strengthen the delivery or content, all in an effort to improve instruction. As this was happening, teachers involved were learning and growing in their practices.

Lesson 3: Provide teacher support. A supportive environment is essential for teachers to feel safe to take risks. They must also feel their efforts are appreciated and celebrated by the administration.

Lesson 4: Do not be afraid to fail. Teachers shared that when they had a supportive environment, they were more likely to take risks. Along with risk, may come failure. Teachers who understood that failure was a part of the process tended to adjust to the implementation more easily.

Lesson 5: Impact of collaboration. Collaboration was reported as a valuable component for 21st century skill implementation. Teachers working in professional learning communities who participated in peer observations and reflections quickly understood the value in other professionals' input and support. Teachers working together reported being stronger than one teacher working alone.

Lesson 6: Student outcomes. When teachers can see a teaching practice or strategy positively impacting learning for their students, they are more open and accepting of trying something new and different. Providing opportunities for teachers in the building to see positive student outcomes is important to growing change across the school.

A study by Daggott (2014) provided lessons learned from the nation's most rapidly improving and transformative schools. Those five lessons were (a) addressing today's challenging issues within the context of emerging trends, (b) creating a culture that supports improvement, (c) leaders taking control with short-term action plans, (d) taking a system approach to student performance, and (e) using data to make decisions. The EdLeader21 framework (Kay & Greenhill, 2015) provides school leaders with a guide for 21st century education which includes the following steps: (1) vision, (2) community consensus, (3)

alignment system, (4) building professional capacity, (5) focusing on curriculum and assessment, (6) supporting teachers, and (7) improving and innovating. Several of the lessons learned from the Daggott (2014) research and the Edleader21 framework (Kay & Greenhill, 2015) support the lessons learned from the current research findings.

Lesson one learned in the Daggott (2014) study, addressing today's challenging issues within the context of emerging trends, speaks to the challenge school administrators encountered in the current study. The current study of the implementation of 21st century skills includes new trends and practices such as project-based learning, peer observation and reflection, and student exhibition of work. The EdLeader21 framework (Kay & Greenhill, 2013) addresses how a vision is important for an administrator to establish for a school and how the use of the emerging trends and challenges encountered in education must be addressed in the vision. Both studies support findings from the current research.

Lesson two learned from the Daggott (2014) study, creating a culture that supports improvement, speaks to four of the lessons learned in the current study. Those lessons learned from the current study are (1) provide teacher support, (2) do not be afraid to fail, (3) impact of collaboration, and (4) student outcomes. All of these lessons learned reflect how essential it is for school administrators to create a climate and culture around learning for both students and teachers. Five of the steps EdLeader21 framework (Kay & Greenhill, 2013) provided as a guide for school leaders for 21st century education speak to how important creating a culture of learning and support is for a school. Those steps are (1) community consensus, (2) build a professional capacity, (3) focus on curriculum and assessment, (4) support teachers, and (5) improve and innovate. All of these steps support the development of a culture that supports improvement. Both of these studies support components of the current research findings.

Lesson three learned from Daggott (2014), leaders take control with short and long term plans, supports two lessons learned from the current study: (1) slow process and (2) start small. School administrators who develop plans to support teachers and provide the necessary professional development must also understand teachers need to start small and progress slowly to build the foundation they need around 21st century skill implementation in the classroom.

Theme 2: Other professional development opportunities. The participants in this current study reported four other professional development opportunities they may have benefited from while implementing 21st century skills in their classrooms or schools. Those were (1) visits to other schools, (2) content-specific professional development, (3) technology training, and (4) attending conferences. One of the questions asked of the participants to help answer research question three was what other professional development opportunities could have supported them during the process of 21st century skills implementation in the classroom or school. The majority of the participants shared how the opportunity to visit other schools could have helped them by seeing this implementation in action and learning other ways teachers and administrators may be approaching this same challenge. No research from Chapter Two addressed any of the professional development opportunities provided because this study is limited to job-embedded professional development.

Theme 3: Results and positive change. The participants in this current study reported five results and positive changes in their schools and classrooms as outcomes of implementing 21st century skills. The empirical literature discussion above related to findings for research questions one and three, all support the current study findings regarding results and positive change. The five results and positive changes in the schools and classrooms, according to the

study participants were (1) improved staff collaboration, (2) improved student engagement, (3) improved school culture, (4) improved teacher morale, and (5) improved teacher leadership.

Together, the literature reviewed in this chapter supports the conceptual framework of this study and the need for ongoing, job-embedded teacher professional development to effectively implement 21st century skills. The findings of this current study did not diverge from previous research presented in Chapter Two. The findings actually extend the previous research by providing examples of implementation in classrooms and the success, challenges, and lessons learned throughout the process presented by both perceptions of teachers and school administrators. The novel contribution of this study is an attempt to provide school administrators with an understanding of the successes, challenges, and lessons learned by other school administrators and teachers who have some experience around the implementation of 21st century skills in their classrooms and schools. With this knowledge, school administrators can plan their approaches of 21st century skills implementation in a more meaningful way and may avoid some of the pitfalls others have already experienced.

Implications

This section addresses the theoretical, empirical, and practical implications of the research study. While this current study's findings cannot exclusively address all the successes, challenges, and lessons learned encountered by teachers and administrators who implement 21st century skills in their classrooms or schools, it can contribute new information to the field. The current study's findings describe how school administrators can use the results of this study to learn from those who have already navigated the path to 21st century skill implementation in their schools.

Theoretical Implications

The theoretical implications of this study suggest ways school administrators can use job-embedded professional development to provide the social support, motivation, skills, and tools needed to implement 21st century skills in their classrooms. Vygotsky's social constructivist theory (1962) identifies the importance of learning in a social setting and how learners make meaning by transferring knowledge discovered when working with others. Jake, a school principal, said:

Modeling the 21st century skill of collaboration has created a dramatic change in our buildings' culture from where people were working in isolation that creates resentment, to a culture where it is all of us in it together trying to meet the needs of kids. Even simple things like teachers working across curriculum to support their efforts. I think it has been culture changing and due to this student outcomes are far better than when people work alone. I think just the sharing, and teachers stealing good ideas to use in their classrooms. No matter the PD you offer, there is always something they can take away through observations. The culture shift is amazing, and now they are all working together, and this has been the best thing. (personal communication, May 11, 2017)

Malcolm Knowles' adult learning theory (1984) suggests adults are motivated by learning opportunities that are related to their job and help them with problem solving that involves self-directed collaboration with others. Bobby, a teacher, stated:

Teachers are more willing to take risks and step outside and do something new. They are willing to see that it may not go well, and it is not the end of the world, just retool it or they see now you can share with others. We can now reflect more honestly with others. Those who have been the most involved are open to negative feedback or constructive

feedback; in fact, we are looking for it. We are not scared of it. We want to hear we have done great because we know we have because we have worked hard for it, but we want to hear ideas that could make it better because we want to make everything better. It is a good mindset for teachers to be looking for ways they could do better than just having to justify they have done a good job. (personal communication, May 1, 2017)

It is recommended that school administrators create a climate in the schools that supports social interaction when teachers work together to solve problems and construct a common knowledge around learning and teaching to support the implementation of 21st century skills. Professional learning communities, Reflective Friends, peer collaboration and reflection around instructional practice, lunch and learns, and a culture of sharing and supporting one another are practices school administrators found to be successful in the current study.

Maslow's hierarchy of needs theory (1943) supports that individuals must have their basic needs met prior to moving up the hierarchy. School administrators can help teachers by understanding where they are on the hierarchy and providing the support and motivation to move to the next level up the hierarchy. John, an assistant principal, shares how his school approached teacher job-embedded professional development:

We are offering professional development opportunities in faculty meetings that are tiered, so if you are someone who is not ready yet, so; for example, if you are not quite ready to take a project full scale and going to exhibition night, we will start you at this level and work through your fears and try to get you to a point where you feel comfortable to dabble in the water, so to speak. (personal communication, April 28, 2017)

It is recommended that school administrators allow teachers to determine when they are ready to participate in the job-embedded professional development rather than mandating that everyone start at the same time. This will require administrators to provide differentiated job-embedded professional development to meet the needs of teachers at a variety of levels of development.

Partnership for 21st Century Skills framework (2002) supports the idea that when students take content knowledge and apply the 4Cs skills to what they are learning, they experience deeper learning. School administrators can use job-embedded professional development to provide teachers with opportunities to practice the 4Cs skills, so they can transfer that knowledge to students in classrooms to help them develop the same skills. Mark, a school principal, stated:

Every professional development opportunity provided support to the 4Cs in some way to help teachers better understand the importance and how to implement them in the classroom by making small changes to their instruction. We also include conversations about the 4Cs in the teacher evaluation conversations that shows the teachers the emphasis that we are placing on 21st century skills as a school. (personal communication, May 2, 2017)

It is recommended that school administrators use the resources associated with Partnership for 21st Century Skills (2015) when implementing 21st century skills in their schools and focus on the 4Cs (communication, collaboration, critical thinking, creativity) as the primary skills to develop with all teachers and students.

Empirical Implications

There is very little empirical research that supports administrators in how to use research-based practices to overcome the challenges in implementing 21st century skills through job-embedded professional development. The study began with two propositions that will guide the

direction and scope of the study, focus the data collection, and form the framework of the study (Miles & Huberman, 1994; Stake, 1995). The first proposition supported research question one surrounding the practices used by school administration to implement 21st century skills. The first proposition addressed how school administration would implement only the practices introduced by central staff within the school division, or those practices introduced by a consultant supported and provided by the school division. Research suggests that school administrators are the driving force for teacher professional development that leads to change in the practices within the school (Archambault, Wetzel, Foulger, & Williams, 2010; Guskey, 2002; Partnership for 21st Century Skills, 2008; Trilling & Fadel, 2009). The current study findings supported this proposition reporting that three of the four schools had only implemented job-embedded professional development provided by the school division or the consultant hired by the division. Only one school sought its own additional approaches to professional development, and this was the school that had made the most progress along the continuum of 21st century skill development. Cathy, a teacher from this school, said:

Each of them have played a part in the professional development and have led by example and been involved as a participant. By sending a consistent message, we as teachers know this is something that is not going away, and there have been multiple ongoing professional development opportunities that allow teachers to get on board at their pace. We have teachers who are learning at multiple levels, and the administration has offered tiered differentiated professional develop during faculty meetings to meet the needs of all teachers at all levels of involvement. (personal communication, May 1, 2017)

The findings of this study support the proposition that school administrators tend to follow the direction presented to them by their district office. Those who tend to have a drive or passion to

make a change will do the work necessary to expand their leadership beyond the district support provided.

The second proposition addresses research question two surrounding the challenges most school administrators encounter when trying to implement 21st century skills in their schools. The proposition suggests there are three major challenges that school administrators must overcome to implement 21st century skills. The first challenge is based around administrators educating themselves on what 21st century skills are and why they are important skills to teach students and then understand how best to share that knowledge with the staff in their buildings to create a common language and understanding (Soule & Warrick, 2015; Kereluik, Mishra, Fahnoe, & Terry, 2013). This challenge was not clearly supported in the findings of the current research regarding this challenge because the interview questions failed to capture responses from the administrative participants. It is difficult for administrators to speak to something that they are not aware they need to be doing or need to know.

The second challenge is based around how to balance standardized testing outcomes with the implementation of 21st century skills. School administrators and teachers have been focused primarily on the success of standardized tests, and to change that focus requires administrators and teachers to take risks, even though they are held accountable for the test results. The third challenge is based around how to provide the resources such as financial support and time needed to support the job-embedded professional development for ongoing teacher professional development (Gunn & Hollingsworth, 2013; National Institute for Excellence in Teaching, 2012). Mark, a school principal, shared how he worked to overcome challenges such as financial and time constraints:

This has to be shown in every way, how we dedicate time, money, and the language we use with staff at all times. We can't talk about the importance of the SOLs and then talk about the importance of implementing 21st century skills. The message must be consistent. As for the financial part, I think we just have to evaluate where to put our funds, and the focus must be on supporting this growth in our teachers. (personal communication, May 2, 2017)

The findings of this study support the second proposition related to the challenges school administrators encounter when implementing 21st century skills. Two of the three challenges listed under proposition two were supported by the findings of this study as challenges that administrators must find ways to overcome.

Practical Implications

Findings in this study have important implications that secondary school administrators could use when implementing 21st century skills in their schools. The findings of this study support the following recommendations for secondary school administrators who use job-embedded professional development to support teachers in implementing 21st century skills in the classrooms. The recommendations are based around the successes, challenges, and lessons learned that other school administrators have experienced during the implementation process.

The findings from the current study listed five practices teachers and administrators noted as being successful practices experienced in their schools that supported the implementation of 21st century skills: (1) focus on 21st century skills supported by a strong vision and mission, (2) importance of principal leadership with a focus on 21st century skills, (3) colleague classroom observations with reflection and sharing of ideas to improve instruction, (4) showcase and celebrate student successes, and (5) getting teachers to buy into change. Several of

these successful practices that were noted from the current research are also supported in other research related to 21st century skills implementation (Daggott, 2014; Kay & Greenhill, 2015). It is recommended that administrators use these five practices as a foundation when developing a plan of 21st century skill implementation in their schools.

The findings from the current study listed four challenges teachers and administrators encountered in their schools when implementing 21st century skills: (1) balance of content knowledge and 21st century skills, (2) time, (3) resources, and (4) motivation. It is recommended that administrators anticipate similar challenges, and, when designing a plan of implementation, take into consideration ways to overcome these challenges. Strategies for overcoming the balance of content knowledge with 21st century skills involve maintaining a consistent vision and focus on 21st century skill implementation and structuring a support system for teachers, so they feel safe to take risks and try new lessons that may result in failure (Bellanca, 2015; Kay & Greenhill, 2013; Partnership of 21st Century Skills, 2002). Strategies for overcoming the challenge of time involves repurposing the way teacher time is used during planning, duty periods, and faculty meetings so as much time as possible is given back to teachers to use for planning, observations, and reflection on their practices. Strategies for overcoming the challenge of resources needed to support the implementation involves repurposing current resources. Reallocation of funding may be needed if additional financial support is not available (Kay & Greenhill, 2013). Strategies for overcoming a lack of teacher motivation involves an understanding that getting teacher buy-in is essential to the implementation process. Allowing teachers to get on board when they are ready rather than mandating that all conform at the same time is recommended. Once teachers see how 21st century skill implementation positively impacts their students, they will be more motivated to buy into the process.

The findings from the current study offer several lessons learned by teachers and administrators while implementing 21st century skills in their classrooms or schools. It is recommended that school administrators keep the following six lessons learned in mind when developing an implementation plan: (1) recognize the growth of implementation will be slow, (2) start small with minor lesson changes, (3) provide teacher support, (4) encourage teachers not be afraid of failure, (5) do not underestimate the importance of collaboration, and (6) celebrate student successes and outcomes. Several of these lessons learned from the current research are also supported in other research related to 21st century skills implementation (Daggott, 2014; Kay & Greenhill, 2015). School administrators who follow the recommendations provided may avoid timely and costly setbacks or misdirection during the process of 21st century skills implementation in their schools.

Delimitations and Limitations

A delimitation of this study was only involving secondary schools within the same school division that had a district strategic plan framework that supported the implementation of 21st century skills. Schools chosen within this school district had been engaged in job-embedded professional development for at least the past two years with a focus on the implementation of 21st century skills. In order to be included in this study, each teacher and administrator was selected based on his or her active involvement in 21st century skills implementation in the classroom or school over the past two years. The rationale for the delimitation was to ensure the four secondary schools chosen had the same division directive to begin the implementation of 21st century skills and had been participating in job-embedded professional development as a vehicle of implementation. Teachers and administrators were chosen who had knowledge and

experience to support the strength of the data around job-embedded professional development of 21st century skills.

A limitation of this study is that the boundaries of this case may not allow for naturalistic generalizations (Stake, 1995). The findings of this study from one school district can only be generalized to similar school districts with similar philosophy, demographics, or geography. Another limitation of the study is that the researcher's knowledge and experience around the implementation of 21st century skills through job-embedded professional development may have created bias in self-reporting of data analysis and discussion. To address this concern, researcher journaling was used as triangulation of data to ensure accuracy and non-bias. A final limitation of this study is the large collection of data collected that involved participant perceptions, descriptions, and feelings. To address this limitation, participant perceptions were cross-referenced with data collected from documents and artifacts to ensure perceptions were valid.

Recommendations for Future Research

This study analyzed the successes, challenges, and lessons learned by teachers and administrators when implementing 21st century skills through job-embedded professional development. Through the collection of data from focus groups and individual interviews, documents, timelines, budgets, and researcher's memos and journal, the researcher gained an understanding of the implementation of 21st century skills using job-embedded professional development. Further research is needed to study the outcomes of secondary schools that perform lower on standardized tests as compared to schools that perform higher on standardized tests. This typically indicates that the two populations of students would vary greatly and the comparison of results would be of interest because the schools would encounter different

challenges. This leads into another area of needed research, a study from another state, school division, or grade level to add to the research literature.

A needed study would be to compare schools that have made progress in the implementation process of 21st century skills against those who have not made progress and to study the reasons associated with the variation among the level of progress made at each school. In addition, further research is needed to study how leadership qualities influence the 21st century skills implementation progress in schools and what qualities result in the most progress toward 21st century skill implementation.

Further future research needed would be a quantitative research focused on comparing Virginia SOL results or Common Core results between schools who have a primary focus on teaching to pass the tests compared to schools who take a more balanced approach with 21st century skill implementation. Taking it one step further, a comparison could be made between schools that are focused on a school-wide project-based learning structure and are not held accountable for successfully passing standardized tests with schools that promote project-based learning but are held accountable for passing standardized tests. Because 21st century skills balanced with content knowledge has a desired outcome of deeper learning, any quantitative study that could provide measurable results to support this idea would be extremely valuable to educators.

Summary

The current study explored the successes, challenges, and lessons learned by teachers and administrators when implementing 21st century skills in their classrooms or schools through the use of job-embedded professional development. The data gathered from four secondary schools were combined in this collective case study to present common themes school administrators and

teachers experienced. The findings revealed the following successful practices for school administrators to consider: (1) maintain a focus on 21st century skills supported by a strong vision and mission, (2) embrace the importance of principal leadership with a focus on 21st century skills, (3) encourage colleague classroom observations with reflection and sharing of ideas to improve instruction, and (4) provide ways to showcase and celebrate student success.

The challenges for school administrators to overcome were identified as (1) supporting teachers through their fears of moving from a standardized testing focus to a balanced approach of content knowledge with 21st century skills, (2) protecting teachers' time, allowing them to plan, implement, and reflect on their teaching practices with their colleagues, (3) finding a way to provide the resources needed during the implementation process, and (4) looking for ways to continually motivate teachers to take risks and try new ways of providing instruction to their students.

The lessons learned by teachers and administrators who have experienced 21st century skill implementation include (1) be patient; the process is slow, (2) start with small lesson changes that include examples of the 4Cs, (3) provide constant teacher support, (4) encourage teachers not to be afraid to fail, (5) encourage and support collaboration among the staff, and (6) celebrate successful student outcomes. School administrators developing a 21st century implementation plan for their schools can use the information provided in this collective case study from teachers and other school administrators who have already experienced the process and can bypass some of the pitfalls along the way.

Based on the findings of this study, there are two main implications suggested for school administrators to consider when developing a plan to implement job-embedded professional development to support teachers with 21st century skill development in the classroom. The first is

to take time to review the information provided on the successful practices shared in this study and to use those to design a plan based around research-based best practices. The second implication is for administrators to examine the lessons learned presented by the participants from this study and to use these lessons to guide their planning and implementation of 21st century skills in their schools. Many of these practices and lessons learned are the collective result of trial and error by the teachers and administrators in this study. Using the research provided in this study, administrators can streamline the implementation of the 21st century skills process without repeating the same mistakes and without getting caught up with the identified challenges.

As an educator and researcher, it is my hope the recommendations provided through this research study will assist school administrators with the implementation of 21st century skills in their schools. As noted by the participants in this study, the following positive changes were experienced in their schools, and it is my desire for all schools to experience the same outcomes: improved staff collaboration, improved staff engagement, improved school culture, improved teacher morale, and improved teacher leadership.

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APPENDICES**Appendix A****LIBERTY UNIVERSITY**
INSTITUTIONAL REVIEW BOARD

April 4, 2017

Rhonda W. Stegall

IRB Approval 2818.040417: A Case Study of Job-Embedded Professional Development for Implementation of 21st Century Skills

Dear Rhonda W. Stegall,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project. Sincerely,

Administrative Chair of Institutional Research
The Graduate School

Appendix B

CONSENT FORM FOR TEACHERS

“A Case Study of Job-embedded Professional Development for Implementation of 21st Century”

Rhonda Stegall
Liberty University
School of Education

You are invited to be in a research study of job-embedded professional development for implementation of 21st century skills. You were selected as a possible participant because you are a secondary teacher who has been identified as a teacher who is actively implementing 21st century skills with your students. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

Rhonda Stegall, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this collective case study is to understand the challenges, successes, and lessons learned when school administrators implementing ongoing teacher job-embedded professional development, in four middle schools, to successfully promote 21st century skills by changing teaching and learning through the use of best practices.

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Meet with the researcher and other participants from your school and you will participate in a one hour focus group meeting at your school. Notes will be taken and the interview will be recorded for researcher review at a later time. All information shall remain confidential throughout the entire process and will later be destroyed.
2. Meet with the researcher for an approximate one hour interview. Notes will be taken and the interview will be recorded for researcher review at a later time. All information shall remain confidential throughout the entire process and will later be destroyed.

Risks and Benefits of being in the Study: The risks involved in this study are minimal, no more than you would encounter in everyday life.

There are no direct benefits to participating in this study. However, participation may yield a benefit to education in general, specifically in regard to recommendations provided to school administrators on how to implement 21st century skills in their schools.

Compensation: There will be no compensation for participating in this study.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- All information collected from participants will remain confidential throughout the entire process. At no time will anyone other than the researcher or the professional

transcriptionist have access to the data. The transcriptionist will sign a confidentiality agreement as well.

- Paper data will be stored in locked storage areas, while any electronic data will be stored in a password-protected environment. At the end of the research, all identifiable data will be destroyed either by shredding of paper documents or by deletion of electronic media.
- Verbal recordings of the interviews will only be made available to the researcher and the paid professional transcriptionist, who will sign a confidentiality agreement. These recordings will be held in a locked storage area until they are downloaded into password-protected professional software called MAXQDA. These recordings, and then the written transcriptions, will assist the researcher in reviewing the interview material discussed. Once the research is concluded, all recordings and transcriptions will be permanently erased.
- There are no limits of confidentiality for these teacher participants. All information shared with the researcher will remain completely confidential.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study:

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Rhonda Stegall. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at ----- . You may also contact the researcher's dissertation committee chair.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Carter 134, Lynchburg, VA 24515.

Please notify the researcher if you would like a copy of this information to keep for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

The researcher has my permission to audio-record me as part of my participation in this study.

Signature

Date

Signature of Investigator

Date

CONSENT FORM FOR ADMINISTRATORS

“A Case Study of Job-embedded Professional Development for Implementation of 21st Century”

Rhonda Stegall
Liberty University
School of Education

You are invited to be in a research study of job-embedded professional development for implementation of 21st century skills. You were selected as a possible participant because you are a secondary school administrator working in a school that is actively implementing 21st century skills. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

Rhonda Stegall, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this collective case study is to understand the challenges, successes, and lessons learned when school administrators implement ongoing teacher job-embedded professional development, in four middle schools, to successfully promote 21st century skills by changing teaching and learning through the use of best practices.

Procedures: If you agree to be in this study, I would ask you to do the following things:

3. Provide a timeline of job-embedded professional development (PD) at your school since the 2014-2015 school year to the present, any documents related to the PD, and the budget associated with all PD opportunities during the designated time.
4. Meet with the researcher and other participants from your school, and you will participate in a one hour focus group meeting at your school. Notes will be taken, and the interview will be recorded for researcher review at a later time. All information shall remain confidential throughout the entire process and will later be destroyed.
5. Meet with the researcher for an approximate one hour interview. Notes will be taken and the interview will be recorded for researcher review at a later time. All information shall remain confidential throughout the entire process and will later be destroyed.

Risks and Benefits of being in the Study: The risks involved in this study are minimal, no more than you would encounter in everyday life.

There are no direct benefits to participating in this study. However, participation may yield a benefit to education in general, specifically in regards to recommendations provided to school administrators on how to implement 21st century skills in their schools.

Compensation: There will be no compensation for participating in this study.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- All information collected from participants will remain confidential throughout the entire process. At no time will anyone other than the researcher or the professional transcriptionist have access to the data. The transcriptionist will sign a confidentiality agreement as well.
- Paper data will be stored in locked storage areas, while any electronic data will be stored in a password-protected environment. At the end of the research, all identifiable data will be destroyed either by shredding of paper documents or by deletion of electronic media.
- Verbal recordings of the focus group will only be made available to the researcher and the paid professional transcriptionist, who will sign a confidentiality agreement. These recordings will be held in a locked storage area until they are downloaded into password-protected professional software called MAXQDA. These recordings, and then the written transcriptions, will assist the researcher in reviewing the focus group material discussed. Once the research is concluded, all recordings and transcriptions will be permanently erased.
- There are minimal limits of confidentiality for these assistant principal/principal participants. While all information shared with the researcher will remain completely confidential on her part, there is no way to guarantee the confidentiality of other focus group members present. They will, of course, however, be asked to keep all information discussed confidential.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study:

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is Rhonda Stegall. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at . You may also contact the researcher's dissertation committee chair.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Carter 134, Lynchburg, VA 24515.

Please notify the researcher if you would like a copy of this information to keep for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

The researcher has my permission to audio-record me as part of my participation in this study.

Signature

Date

Signature of Investigator

Date

Appendix C

Participant Demographic Form

Name _____

School _____

Position _____

Years of experience in education _____

Subjects you have taught _____

Years you have been implementing 21st century skills in your
classroom/school _____

Circle - Male or Female

Appendix D

A Case Study of Job-embedded Professional Development for Implementation of 21st Century Skills

Individual Interview

Date _____ Time _____ Location _____

1. *EdLeader21*. A network of schools and district leaders across the nation focused on integrating the 4Cs (communication, collaboration, critical thinking, and creativity) into education (<http://www.edleader21.com/>).
2. *EnGauge 21st Century Skills*. The EnGauge 21st Century Skills framework was developed using literature and research reviews, input from educators, and workforce needs of businesses to help change school policy and practices and to provide students with the 21st century skills and knowledge they need to thrive in a global society (Burkhardt et al., 2003).
3. *Every Student Succeeds Act (ESSA)*. The reauthorization of the Elementary and Secondary Education Act (ESEA) signed by President Obama on December 10, 2015, as law to show continual commitment to ensuring schools are providing equal opportunity for all students (<http://www.ed.gov/essa?src=rn>).
4. *Job-embedded professional development (JEPD)*. The day-to-day teaching practice that occurs regularly and consists of teachers analyzing students' learning and finding solutions to problems of practice that align with student standards and school goals. It is classroom or school based and is integrated into the school day. Teachers will assess and problem-solve for authentic and immediate problems of practice as part of ongoing improvement. (Hawley & Valli, 1999; National Comprehensive Center for Teacher Quality (2010)).

5. *No Child Left Behind (NCLB)*. The 2002 reauthorization of the Elementary and Secondary Education Act (ESEA). The provisions of the NCLB presented significant change in the influence the federal government had over public schools and districts throughout the United States in the areas of assessment, accountability, and teacher quality (<http://www2.ed.gov/nclb/landing.jhtml>).
6. *Partnerships for 21st Century Skills*. A group of education, business, community, and government leaders who have built collaborative partnerships to serve as a catalyst to position 21st century skills at the forefront of K12 education in the United States (<http://www.p21.org/>).
7. *Professional Development (PD)*. Meaningful, ongoing learning through the use of data analysis, collaboration, inquiry, sharing best practices, and reflection to improve daily practice (Darling-Hammond & Adamson, 2010; Gunn & Hollingsworth, 2013; Guskey, 2002; Kay & Greenhill, 2013; Partnership for 21st Century Skills, 2008; Trilling & Fadel, 2009).
8. *Professional learning community (PLC)*. Environment where educators are committed to working collaboratively in an ongoing process of collective inquiry and action research to achieve better results for students (DuFour et al., 2008).
9. *21st century education*. The process that includes all aspects of teaching, learning, assessing, and implementing of a curriculum designed to support 21st century skills (P21, 2008; EdLeader21, 2016; Kay & Greenhill, 2013).
10. *21st century skills*. The skills students need to succeed in work, school, and life. They include core subjects (as defined by ESSA), 21st century content, learning, and thinking skills; information and communication technology literacy; and life skills (P21, 2009).

This study will be focusing on the challenges, success, and lessons learned through job-embedded professional development of 21st century skills in the classroom. The study will seek to provide information for school administrators on how to overcome the challenges encountered during the process of 21st century skill implementation in their schools.

Appendix E

Administrator Interview Questions

Research Question 1: What are the practices implemented through job-embedded professional development at the school that are designed to increase teachers' ability to effectively implement 21st century skills in the classroom? (Croft, et al, 2010; Kamehameha Schools Research & Evaluation, 2010; Partnership for 21st Century Skills, 2009).1. Does your school have a vision of implementation of 21st century skills, and if so, what is that vision?

Does your school place an emphasis on 21st century skills such as the 4Cs (communication, collaboration, critical-thinking, and creativity), and if so, how?

1. How would you describe your school's approach to 21st century skills implementation professional development?
2. Describe the professional development your school has offered teachers regarding 21st century skills implementation.
3. Describe how effective you believe the professional development was in preparing your teachers to implement 21st century skills in the classroom.
4. How engaged has your school administration been in the implementation of 21st century skills?
5. How engaged has your school's teaching staff been in the implementation of 21st century skills?
6. List all the practices your school has participated in to help prepare the teachers for the implementation of 21st century skills. Discuss your perception of how successful each practice was at meeting the intended goal.

Research Question 2: What are the challenges encountered when implementing 21st century skills through ongoing job-embedded professional development, and what is needed to overcome those challenges? (Kamehameha Schools Research & Evaluation, 2010)

7. What are the challenges that keep you from implementing 21st century skills in your school?
8. What are some ways in which the school could overcome the challenges you encounter in the implementation of 21st century skills?
9. List the positive changes you have seen at your school that you believe are an outcome of the 21st century professional development. (Students, teachers, administrators, school climate, student engagement, etc.)

Research Question 3: What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom? (Cornell, 2002; Partnership for 21st Century Skills / Learning Environment)

10. List the lessons you have learned and ways your school has grown as a result of the experiences with the 21st century skills professional development.
11. List any opportunities you would have liked to experience that you believe would have been beneficial in supporting your teachers with the implementation of 21st century skills in the classroom.
12. List the positive changes you have seen at your school that you believe are an outcome of the 21st century professional development. (Students, teachers, administrators, school climate, student engagement, etc.)

Appendix F

Teacher Interview Questions

Research Question 1: What are the practices implemented through job-embedded professional development at the school that are designed to increase teachers' ability to effectively implement 21st century skills in the classroom? (Croft, et al, 2010; Kamehameha Schools Research & Evaluation, 2010; Partnership for 21st Century Skills, 2009).

1. Does your school have a vision of implementation of 21st century skills, and if so, what is that vision?
2. Does your school place an emphasis on 21st century skills such as the 4Cs (communication, collaboration, critical-thinking, and creativity), and if so, how?
3. How would you describe your school's approach to 21st century skills implementation professional development?
4. Describe the professional development your school has offered you regarding 21st century skills implementation.
5. If you participated in the professional development, describe the effectiveness of the PD in preparing you to implement 21st century skills in the classroom.
6. How engaged has your school administration been in the implementation of 21st century skills?
7. How engaged has your school teaching staff been in the implementation of 21st century skills?
8. List all the practices your school has participated in to help prepare the teachers for the implementation of 21st century skills. Discuss your perception of how successful each practice was at meeting the intended goal.

Research Question 2: What are the challenges encountered when implementing 21st century skills through ongoing, job-embedded professional development, and what is needed to overcome those challenges? (Biancarosa, Bryk, & Dexter, 2010; Croft, et al, 2010; Saunders, Goldenbert, & Gallimore, 2009).

9. What are the challenges that keep you from implementing 21st century skills in your classroom/school?
10. What are some ways in which the school could overcome the challenges you or the school encountered in the implementation of 21st century skills?
11. What are the factors that influenced your decision to begin implementing 21st century skills in the classroom?
12. What is the major driving force at your school for the implementation of 21st century skills?

Research Question 3: What are the lessons learned during the process of implementing the practices through job-embedded professional development designed to increase teachers' ability to implement 21st century skills in the classroom? (Kamehameha Schools Research & Evaluation, 2010)

13. List the lessons you have learned and ways you have grown from your experiences with the 21st century skills professional development.
14. List any opportunities you would have liked to experience that you believe would have been beneficial in supporting you with the implementation of 21st century skills in the classroom.

15. List the positive changes you have seen at your school that you believe are an outcome of the 21st century professional development. (Students, teachers, administrators, school climate, student engagement, etc.)