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Teachers' Perceived Barriers to Technology Integration as Prescribed by 21st Century Learning Skills

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COLLEGE OF EDUCATION

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2012

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MA, Rowan University, 1996

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Abstract

Technology is a learning and teaching tool that enhances students' communication, innovation, and critical thinking skills, also known as 21st century learning goals. Successfully using technology in the classroom to promote these learning goals, however, has presented some challenges for teachers. While research has identified a variety of obstacles that prevent teachers from using technology, little investigation has been done on the barriers of technology integration as related to 21st century learning goals. The purpose of this qualitative case study was to examine teachers' perceived barriers to technology integration related to 21st century learning goals. Guided by a conceptual framework that posited a relationship between the digital divide and students' learning, the research questions in this study investigated teachers' perceived barriers to technology integration. Twenty-three elementary school teachers from a local school district completed an open-ended questionnaire, and 6 of the teachers participated in interviews to gather data to investigate the problem. Coding using the constant comparative analysis was the primary strategy for data analysis. Findings indicated that teachers perceived a lack of technology resources to allow students individual access to technology as the primary obstacle to technology integration. These findings led to the implementation of a program for to allow students to bring their own technology to school. Social change resulting from this study could include a transformation of teachers' instructional practices and student learning; this transformation might, in turn, affect student achievement of 21st century learning goals.

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Dedication

This work is dedicated to my family who supported me through out this entire journey. I am grateful for their unconditional support and love. I hope my efforts to achieve a doctorate will inspire my children to have the confidence and work ethic to achieve their goals in the future.

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Section 1: The Problem

Introduction

Rapid changes in the 21st century, due in part to technological innovations, have dictated a need for educational reform. Skills promoted as 21st century learning skills are critical thinking, problem solving, communication, collaboration, and innovation (International Society for Technology in Education, 2011; Prensky, 2008; Trilling & Fadel, 2009; Wagner, 2008). Although students needed these skills in the past, today these skills are more crucial for prosperity in an economy dependent on knowledge workers (Trilling & Fadel, 2009). As the need for labor-oriented workers has diminished, the demand for knowledge workers has increased in the United States (Wagner, 2008). Wagner (2008) reports that knowledge workers need to have 21st century skills in order to be successful, and that utilizing technology is an essential element of modern skill development. Additionally, technology is a tool that assists students to develop current learning skills, and many of today's students expect technology integration in their classrooms (Prensky, 2008; Trilling & Fadel, 2009; Wagner, 2008).

Current students, inundated with technology, enter school with different needs than those of previous generations of students (Prensky, 2001). Prensky (2001) refers to this new generation of students as "digital natives" and to older generations as "digital immigrants" (p. 1). Digital natives have had access to technology at a very young age, which has provided them with a plethora of information, entertainment, and experiences

through videos and digital communication (Prensky, 2008). Therefore, digital natives enter school with a different set of needs and expectations compared to past generations of children (Prensky, 2001; Trilling & Fadel, 2009). Prensky (2008) maintains that students come with more knowledge and information but need to be taught how to make meaning out of the information they are bombarded with on a daily basis. Students require personalized learning experiences and opportunities to work collaboratively with peers on authentic learning assignments (Prensky, 2008; Trilling & Fadel, 2009).

Although people working in the 21st century are dependent on current technology, there is a disconnect between what is taught in school and what is needed to be successful now and in the future (Smith & Evans, 2010; Wagner, 2008). In most schools, even for those considered to be exceptional, the focus is on students' achievement on standardized assessments (Trilling & Fadel, 2009; Wagner, 2008). Teachers supply massive amounts of content and students memorize the information, developing their rote skills (Prensky, 2008; Trilling & Fadel, 2009). This focus on rote skills detracts from time spent developing skills that will prove essential in the future (Prensky, 2008). According to the Partnership for 21st Century Skills (2008), the global achievement gap between students in the United States and students internationally is increasing. United States students' poor performance on the Programme for International Student Assessment (PISA) is evidence of this trend (Partnership for 21st Century Skills, 2008). Meanwhile, students demonstrating high proficiencies in 21st century skills perform better on the PISA and are

more competitive with their peers internationally (Partnership for 21st Century Skills, 2008).

Educational leaders, government officials, and teachers have a responsibility in the transformation process. Educational leaders have a responsibility to create a school environment that supports technology integration by creating a community of adult learners who work together to foster a vision that values digital learning (ISTE, 2011). In order for educational leaders to promote technology integration to support the development of 21st century skills, the Partnership for 21st Century Skills (2011) has advocated for increased governmental support to ensure that students have access to technology and the internet. In a letter to Congress which introduced the National Education plan, a plan which advocated for increased technology integration in schools, United States Secretary of Education Arne Duncan wrote:

> The plan calls for applying the advanced technologies used in our daily personal and professional lives to our entire education system to improve student learning, accelerate and scale up the adoption of effective practices, and use data and information for continuous improvement. (United States Department of Education, 2010, para.2)

Similarly, the International Society for Technology Integration (2011) promotes standards for teachers that include using technological resources and tools effectively to help students develop critical thinking skills, creativity, communication skills, and collaboration skills necessary to be successful in the 21st century workforce.

Technology integration in classrooms can reform current instructional practices, which will enable students to develop 21st century learning skills (Partnership for 21st Century Skills, 2011). The United States Department of Education (2010) has recognized technology as a vehicle for schools to create more authentic and engaging learning experiences for students. Sheehan and Nillas (2011) have determined that technology integration, in which students are the primary users of the technology, results in increased student understanding, engagement, and critical thinking. Consequently, Tamim et al. (2011) completed a meta-analysis study to investigate studies related to student achievement and technology. The results of the researchers' comprehensive analysis indicate that when technology is used as a support for students rather than primarily for direct instruction, students perform at a higher level. Furthermore, Suhr, Hernandez, Grimes, and Warschauer (2010) report that students who have access to individual laptop computers achieve at a higher level in reading comprehension and writing. These studies confirm Prensky's (2001, 2008) observations that technology integration promotes higher levels of student engagement, motivation, and the development of problem solving and critical thinking skills. However, it is important to recognize that technology is simply a tool for students to develop modern learning skills and, that without the implementation of effective pedagogy, technology in the classroom is not sufficient.

According to Lei (2010), the quantity of technology use in the classroom has no impact on student achievement, but high-quality technological usage is beneficial to students academically. Similarly, Weston and Bain (2010) have found that one-to-one

laptop initiatives are only successful when teachers incorporate effective instructional practices such as project based learning, differentiated instruction, and cooperative learning. Therefore, it is critical for teachers and educational leaders to recognize the difference between using technology as a modern learning tool and using technology to deliver the same instruction that was provided to the past generations.

Definition of the Problem

Understanding teachers' perceived barriers to the effective integration of technology in the classroom is critical for the attainment of School District X's mission, which is to prepare students to be successful adults. In order to meet the needs of students living in the 21st century, teachers need to use technology in their classrooms as a learning tool (Prensky, 2008; Trilling & Fadel, 2009; Wagner, 2008). Technology in the classroom can be a powerful tool when integrated effectively. Although a small percentage of teachers at School District X use technology as consistent with learning goals expected in the 21st century, most teachers there use technology as a teaching tool or organizational tool rather than a way for students to create, problem solve, and think critically. In 2009, the New Jersey Department of Education adopted technology standards focused on using technology as a tool to achieve 21st century learning goals. The New Jersey Department of Education created curriculum objectives focused on students using technology to develop critical thinking, problem solving, communication, literacy skills, and creativity. Although 21st century learning goals have been mandated in New Jersey since 2009, teachers at School District X are not using technology to promote

modern learning, which is evident during both formal and informal observations. There are many barriers that prevent teachers from effectively integrating technology to promote 21st century learning skills, but those specific obstacles as they pertain to the teachers employed at School District X were not known.

Rationale

As a result of informal feedback from teachers and administrators, it is apparent that technology is primarily utilized by School District X's teachers as a presentation and organizational tool. Many teachers use SMART Board technology to project instructional information and to display videos. Technology is also used by teachers as a communication tool. Some teachers use technology for testing, and all teachers use technology to report student grades. However, students are rarely assigned independent projects using technology, and few teachers use technology as a means to help students develop 21st century learning goals such as critical thinking, problem solving, and creativity.

Evidence of the lack of effective technology use in the classroom is also substantiated in current literature. According to Kurt (2010), teachers are still using technology primarily for administrative tasks, organization, and visual support. Students typically receive instruction in technology in a computer course, and rarely is technology instruction integrated into core curriculum subjects such as math, literacy, and science (Kurt, 2010). As the United States Department of Education (2009) maintains, most states had not developed a definition of technology integration by 2009. In those states

with a definition, approximately half of the schools had met the state requirements for technology integration. Palak and Walls (2009) found teachers in schools with vast technology resources used technology mainly for administrative and organizational purposes, and few used technology consistent with 21st century learning goals.

Definitions

The purpose of this section is to define terms related to this particular study. The terms and definitions are:

21st Century Learning Goals: Critical thinking, problem solving, communication, collaboration, creativity and innovation (Partnership for 21stCentury Learning Skills, 2011)

Technology Integration: Incorporating technology resources and technology-based practices into daily routines, work, and management of schools (NCES, 2011)

Professional Development: The New Jersey Department of Education (2011) defines professional development as activities that improve educators' knowledge and skills to provide students opportunities to meet rigorous academic standards.

Authentic Learning: "Simulating the real-world environment with media or by actually being in a place where the particular skill or knowledge is used in the world" (Trilling & Fadel, 2009, p. 31).

Significance

Technology is an important part of life in the 21st century. Children are exposed to technology at a very young age, which has changed the way children experience the

world and how they gain information. The rapid developments and innovations in the area of technology have resulted in the need for people to process new job skills on a larger scale than ever. Businesses are in need of people who are able to solve problems, to think critically, to communicate effectively, to collaborate with others, and to be creative (Wagner, 2008). As it is the responsibility of teachers to prepare students to be successful members of the workforce and society, educators need to implement instructional practices focused on 21st century learning skills. Twenty-first century skills can be developed through the integration of technology as a learning tool. Although successful technology integration focuses on 21st century learning goals, most teachers currently are using technology for management, organization, and communication. According to the Department of Education (2009), most teachers report using technology to develop curriculum assignments, visual presentations, and to assess students.

This phenomenon has been observed at School District X. Research was necessary to determine teachers' perceived barriers to technology integration as prescribed by 21st century learning goals. There were many possible barriers that prevent teachers from successfully integrating technology into their classrooms. Lack of time, lack of professional development, lack of appropriate resources, teachers beliefs about technology integration, teachers self-efficacy regarding technology usage, and lack of parental support are all barriers present in current research. Understanding the barriers to technology integration could allow district leaders to effectively plan ways to alleviate obstacles to the successful integration of technology. In addition, understanding teachers'

perceived barriers to technology use could result in increased professional development opportunities for staff to ensure that they are knowledgeable about technology integration related to 21st century learning goals. Data collected from an online questionnaire and individual interviews will provide insights regarding technology integration related to 21st century learning that could be utilized by district personnel to reform current practices related to technology support and resource management. Because there is one technology director who manages all aspects of technology within the school district, the findings from this study could possibly benefit the elementary schools in the district. In addition, this research study may contribute to the literature regarding barriers that prevent technology integration because the focus is not just on using technology in the classroom, but also on using technology to promote 21st century learning skills. Therefore, this research study has the potential to create social change by providing in-depth information to guide leaders at School District X as they work to transform educational practices to prepare students for the 21st century workplace.

Guiding/Research Question

In order to understand the obstacles preventing staff at School District X from integrated technology to help students develop modern learning skills, a qualitative case study will be conducted to answer the following research question: What are teachers' perceived barriers to technology integration related to 21st century learning goals at School District X?

Review of the Literature

This literature review consists of a four sections focused on research regarding technology integration in schools. The first section is a summary of the conceptual framework guiding this study, which is that the integration of technology in schools is essential to the development of 21st century learning skills. Section 2 explores research describing the benefits of technology integration in schools. Understanding students' perceptions of technology integration and 21st century learning goals is described in section 3. Finally, research related to the barriers that prevent teachers from successfully integrating technology in their classrooms as well as solutions to overcome the obstacles is the focus of section four.

Research for the study was retrieved online primarily from Walden University's on-line databases. Most research articles were located through the ERIC and Education Research Complete databases. In addition, the researcher used Google Scholar as a tool to locate additional sources. Key terms used to search the databases were: technology integration, 21st Century Learning, technology, student achievement, and computers in the classroom. The World Wide Web provided access to important websites relevant to technology integration. They included the United States Department of Education website, the New Jersey Department of Education website, the Partnership for 21stCentury Skills website, and the International Society for Technology in Education or ISTE website. Various research studies reported the benefits of technology integration in the classroom as well as the barriers that prevent teachers from effectively integrating

technology in their classrooms. Comprehensive research on the topic of technology integration framed the study to determine teachers' perceived barriers to technology integration as prescribed by 21st century learning goals at School District X.

Conceptual Framework

The conceptual framework guiding this study is based on Prensky's (2011) work that promotes using technology in the classroom in order to engage and inspire students while developing their 21st century learning skills. Technology is the learning tool that enables students' authentic learning experiences and that cultivates critical thinking, problem solving, creativity, collaboration, and communication skills (Trilling & Fadel, 2008). As a result of the advent of technological devices, children have been exposed to substantial amounts of information by the time they enter school (Prensky, 2008). Therefore, children in the 21st century need to be taught skills that help them to understand the large amounts of information they have acquired (Prensky, 2008). Additionally, the present and future economy requires knowledge workers who are able to solve problems, to communicate effectively, and to be innovative (Trilling & Fadel, 2008). This requires educators to approach instruction differently than in the past (Prensky, 2008). Prensky (2008) maintains that every aspect of schools needs to change to accommodate the 21st century learner. The teacher's role needs to change from transmitter of knowledge to facilitator of learning by engaging students in authentic project-based activities using technology (Prensky, 2010). Utilizing technology but teaching the same content the same way is not meeting the present and future needs of

students living and eventually working in the 21st century (Prensky, 2011). Therefore, it is important for educators to use Prensky's framework to understand the benefits of technology integration, the methods to effectively integrate technology in the classroom, and the barriers that prevent teachers from successful technology integration.

Benefits of Technology Integration

When teachers effectively use technology in the classroom, the benefits can be significant. According to Lei (2010), when technology is used in conjunction with quality teaching practices, students show associative gains in a number of areas. Glasset and Schrum (2009) studied the impact of a technology integration program called MINTY over a two-year period. The researchers found that when technology and effective teaching practices are integrated simultaneously, there is a significant positive impact for both students and teachers (Glasset & Schrum, 2009). Glasset and Schrum (2009) maintained that successful technology integration results in improved attitudes about teaching and learning, higher levels of student achievement, and deeper understanding of curriculum content. Judson (2010) reported that students using technology had increased scores on the language arts section of the TerraNova. Bebell and Kay (2010) conveyed comparable findings with regards to technology use and improved writing skills, while Suhr, Hernandez, Grimes, and Warschauer (2010) reported that when students used technology as a learning tool, students' ability to critically analyze literature, along with their writing skills, increased. In addition, Sheehan and Nillas (2010) maintained students math scores were positively impacted when students used technology in the classroom. In

addition, students benefited from the use of technology as a communication tool, increased their proficiency with technology use in general, and improved their learning habits (Lei, 2010).

Although Lei (2010) reported students benefited from technology in the classroom, the researcher found a minimal relationship between technology use and student academic achievement. However, Sheehan et al. (2010) stated when teachers used technology rather than students, there was no impact on student achievement. For example, Sheehan and his partners found that teachers using interactive white boards were less successful as compared to teachers whose students were the users of technology in the classroom. Lei's study supports Sheehan et al.'s finding that the quality of technology use impacts student achievement more than the quantity of use.

Research related to specific technology use is helpful to determine what types of technology are most effective learning tools. Yang and Lin (2010) explored the use of personal digital assistants or PDAs, which would include many types of cell phones, as a learning tool in the classroom. The results of the study demonstrated students were able to effectively collaborate with their group members and benefited from the visuals provided on their technological devices (Yang & Lin, 2010). Prensky (2009) reported the benefits of cell phones and I-Touches to enhance student learning in children as young as four years old. Personal digital assistants allow students to explore reading, writing, math, and many applications that require creativity and problem solving while learning to become technologically literate (Prensky, 2009).

Blogging is a social networking tool that can be used in the classroom to promote better understanding of lesson content and collaboration amongst peers. Stevens and Brown (2011) reported that the results of their qualitative study revealed blogging allowed students to communicate with their peers about course content, which led to deeper understanding. Additionally, students who would not typically participate in a discussion were able to share their views (Stevens & Brown, 2011). Sun (2010) and Stevens and Brown (2011) both recounted how blogging provided students the opportunity to reflect on their learning as well as on other students' perspectives. Sun (2010) maintained blogging can also have a positive impact on students' writing skills.

Like blogging, wikis are a web 2.0 capability that can be used in the classroom as an instructional tool. Wichadee (2010) detailed how wikis are an effective technology tool that enhances students' writing. The students who participated in Wichadee's (2010) study reported that wikis helped them to learn from each other, and because their work would be shared with their peers, they were more motivated to do their best work. Marks (2010) found wikis alleviated problems associated with face-to-face cooperative learning such as inequality in participation and accountability. Wikis allowed for more equal communication among the members and each member's contributions could be substantiated (Marks, 2010). Although wikis are promoted as a technology that can increase collaboration among students, Brodal, Hadjerrouit, and Hansen (2011) found in their case study research that wikis did not increase students' ability to collaborate on a writing task. Judd, Kennedy, and Cropper (2010) reported similar results. However, Judd

et al. reinforced the fact that teacher support and guidance to help students understand the elements of successful collaboration were not present in their particular case study, and that this, in turn, impacted students' ability to efficaciously use the wiki as a cooperative learning tool.

Likewise, Zucker, Moody, and McKenna (2009) upheld in their research that e-books had little impact on students' reading skill development, but when teachers used the e-books in conjunction with effective reading instruction, the impact was likely more effective. In addition, DiGregorio and Sobel-Lojeski's (2010) literature review on the impact of interactive whiteboards on student learning revealed no conclusive evidence that whiteboard use improves student achievement. However, when students interact with the whiteboard technology, their motivation and attention increased (DiGregorio & Sobel-Lojeski, 2010). DiGregorio and Sobel-Lojeski reported that one danger of whiteboard technology is that it promotes teacher-directed instruction rather than student-centered instruction that is interactive. Prensky (2008) supported the use of interactive whiteboards in the classroom when students used the board as a vehicle to present their new learning. Similarly, when the interactive features of the whiteboard technology were utilized by the teacher using quality instructional practice, the benefits to students increased (DiGregorio & Sobel-Lojeski, 2010).

Falloon (2010) investigated the integration of virtual environments and avatars as a way for students to communicate their knowledge of learned curriculum content. Falloon's study revealed MARVIN, an avatar story telling program, was an effective

technology learning tool that allowed students to work collaboratively to design a presentation. MARVIN required students to think critically about the unit content and to produce a creative final project that communicated their understanding of the unit objectives. The student projects revealed the use of MARVIN allowed for a motivating and valuable learning experience for students (Fallon, 2010). As previously reported, Fallon (2010) stressed the success of the technology project using an avatar-based story telling program was due, in part, to the teachers' ability to support the students and implement effective instruction practices.

Several researchers have investigated the effect of laptop technology in the classroom, particularly one-to-one laptop usage. Gulek and Demirtas (2005) completed a longitudinal study to explore the impact of one-to-one laptop use on student achievement. Gulek and Demirtas examined a variety of student achievement data including students' GPA, standardized assessments, and end-of-course grades over a three year period of time. The results of the study showed little impact of laptop use on students' achievement in year one, but significant gains in student achievement in years two and three (Gulek & Demirtas, 2005). The results of Suhr, Hernandez, Grimes, and Warschauer's (2010) longitudinal study confirmed that student academic gains were not significant until the end of the second year of technology infusion. Likewise, Bebell and Kay (2010) described significant achievement gains for students who participated in a pilot one-to-one laptop program for three consecutive years. Suhr et al. (2008) reported students entering fourth and fifth grade typically reported a decrease in the rate of literacy gains

because students are required to read to learn versus learning to read. However, the researchers reported the integration of technology in the classroom has the potential to lessen the impact of the decrease in students' literacy gains from fourth to fifth grade (Suhr et al., 2008).

Researchers also reported other gains from the infusion of laptops in the classroom (Bebell & Kay, 2010; Suhr, et al., 2010). First, teachers indicated the laptop initiative resulted in more innovative and motivating lesson designs for students (Bebell & Kay, 2010; Suhr et al., 2010). Furthermore, Shapley, Sheehan, Maloney, and Caranikas-Walker, (2010) found that following the infusion of laptops in the classroom, teachers planned more learner-centered instruction and used technology more frequently as a learning tool. Bebell and Kay (2010) maintained teachers also improved their own computer skills. Shapley et al's (2010) research regarding technology immersion with laptops in the classroom also revealed teachers' technology skills and knowledge improved immensely. Secondly, as a result of the laptop program, students, including low achieving students, were more engaged in their work and were more motivated to learn (Bebell & Kay, 2010; Suhr et al., 2010). Moreover, students increased their collaboration and research skills (Bebell & Kay, 2010). Lei and Zhao (2008) found that another benefit of one-to-one laptop use in the classroom was that parents became more involved in schools. The laptop computers provided better communication between parents, teachers, and students, which resulted in parents having a better awareness of school activities and learning goals (Lei & Zhao, 2008). Although, Lei and Zhao (2008) also reported parents

voiced concerns that their children were spending too much time on their computers, which was a potential negative to the laptop project.

Students' Perceptions of Technology Integration in the Classroom

As Prensky (2010) stated, it is important to consider students' perceptions of the benefits of technology use in the classroom. Wolfe (2011) maintained 69% of the 70 students surveyed in his study reported they learned best using technology. Additionally, Lei and Zhao (2008) confirmed students believed using the computer helped them to learn better and to improve their technology skills. Baytak, Tarman, and Ayas (2011) conducted a phenomenological study to understand students' perceptions of technology use. The researchers reported that students found technology made learning easier and helped them become independent learners (Baytak et al., 2011). Similarly, Lewin and Luckin (2010) maintained students enjoyed using technology in both the classroom and at home. Additionally, Batak et al. (2011) conveyed students who used technology as a learning tool at school were more proficient using the technology away from school as compared to students who only used technology as a means of entertainment at home.

Atici and Bati (2010) investigated 21st century students' expectations of technology integration in the classroom. The researchers reported students desired the power to formulate standards of excellence in collaboration with their teachers as well as to develop personal learning goals, which was possible with technology (Atici & Bati, 2010). Wagner (2008) confirmed the need for students to be able to explore their interests through technology, which leads to increased motivation and engagement in the learning

process. Students also wanted to have more authentic learning experiences that were interactive and collaborative in nature (Atici & Bati, 2010). Again, Wagner (2008) confirmed the utilization of authentic learning experiences, possible with technology, resulted in students' development of 21st century skills.

Barriers to Technology Integration

When technology is utilized in conjunction with effective instructional practices, there can be a positive impact on student achievement, motivation, problem solving, and communication. Therefore, it is important to understand the barriers that prevent teachers from effectively incorporating technology into instruction. The first barrier to technology integration, repeatedly noted in the literature, is the lack of training or quality of training for teachers. According to Ogwu (2010), teachers did not utilize the technology in their classrooms because they did not have the skills necessary to use the equipment. Lin and Lu (2010) found teachers reported the need for training related to integrating technology into their content curriculum as well as a need for training on how to use specific technological devices. However, Almekhlafi and Almeqdadi (2010) reported the results of their quantitative analysis showed teachers felt proficient in the use of technological equipment, but lacked training on how to integrate the technology into their classrooms as a sound learning and teaching tool.

Ogwu (2010) maintained teachers felt the solution to the lack of professional development focused on technology was to employ a technology specialist to assist teachers with technology integration. Inan and Lowther (2010) confirmed the need for

schools to employ a technology specialist. The results of their study indicated support for technology integration is a major obstacle confronting teachers as they integrate technology into their classrooms (Inan & Lowther, 2012).

Varma, Husic, and Linn (2008) researched the impact of targeted professional development for teachers to support the integration of technology as a learning and as a teaching tool. Targeted professional development allowed for a differentiated approach to teacher training based on teachers' readiness levels (Varma et al., 2008). The results of Varma et al.'s study indicated that differentiated professional development and support increased teachers' ability to use technology effectively, which resulted in increased student achievement. Likewise, Beglau et al. (2011) reported the benefits of school districts participating in coaching programs that allowed teachers to work closely with a coach to learn effective practices required for successful integration of technology. Thus, the International Society for Technology in Education developed a model of technology related professional development that included three critical elements: (a) effective coaching, (b) collaboration through online learning communities, and (c) technology rich learning experiences (Beglau et al., 2011). Almekhlafi and Almeqdadi (2010) revealed teachers felt frequent training opportunities, along with time to collaborate with peers regarding technology integration, provided a solution to the technology training obstacle. Robinson and Sebba (2009) confirmed teachers needed professional development opportunities to learn about new technological resources since teachers' time was limited. Therefore, providing opportunities for professional development and teacher

collaboration within the school day can also address the time barrier that impedes effective integration of technology.

Harris and Hofer (2011) reported positive results of professional development that focused on technology and effective pedagogy. The professional development program was referred to as Technology Pedagogical Content Knowledge or TPACK (Harris & Hofer, 2011). The TPACK training provided teachers with content materials and sound instructional practices that utilized technology (Harris & Hofer, 2011). The results of Harris and Hofer's study indicated TPACK was a successful professional development framework to support both effective pedagogy and technology integration. Polly (2010) maintained that while TPACK did result in more technology integration, it had limited impact on teachers' improved instruction. Although Polly found that when teachers collaborated, their success at both integrating technology and improving pedagogy was evident. Similar outcomes were reported by Allan, Erickson, Brookhouse, and Johnson (2010), who reported teacher collaboration along with TPACK training resulted in increased technology integration by teachers as well as a deeper understanding of how to best teach subject content. According to Cifuentes, Maxwell, and Bulu (2011), creating a professional learning community of educators within a school, who were dedicated to reformed instructional practices using technology, resulted in increased technology use in the classroom, increased student engagement, more student-centered instruction, and positive student achievement.

However, teachers who participated in the professional learning community indicated that many barriers, such as the lack of resources, inhibited successful technology integration (Cifuentes, Maxwell, & Bulu, 2011). Almekhlafi and Almeqdadi (2010) reported teachers needed more appropriate software to support their curriculums. Similarly, Ogwu (2010) maintained teachers believed the lack of materials and the inability to access technology was a barrier that prevented the use of technology in the classroom. Varma, Husic, and Linn (2008) stated that when teachers had to rely on computer labs or mobile laptop carts, the lack of availability and time required to reserve the lab or cart were major obstacles to technology use in the classroom.

Nevertheless, according to the United States Department of Education (2011), the number of computers in schools has increased to a ratio of 4 computers to 1 student, and internet access is available in the majority of classrooms. Inan and Lowther (2010) pronounced that despite the increase in resources, technology integration is still not implemented in many classrooms. Correspondingly, Pallak and Walls (2009) found the availability of technology did not result in the integration of technology by teachers in the classroom. Conversely, Robinson and Sebba (2010) maintained the importance of educational leaders' commitment to providing financial resources to purchase new technologies and maintain current resources. However, Prensky (2011) cautioned against investment in technology if it was going to be used to perpetuate 20th century learning. Prensky (2010) supported the view that educational leaders need to be knowledgeable

about technology resources and, likewise, find creative ways to fund technology in schools.

Another barrier to the effective integration of technology is parental support. Lewin and Luckin (2010) studied parents' impact on successful integration of technology as a learning tool in the home and classroom. Parents had concerns about student safety and technological difficulties when students were provided laptops by the school for home and classroom use (Lewin & Luckin, 2010). Additionally, Robinson and Sebba (2010) revealed parents in their study did not support the use of personal digital assistants at home, which made teachers reluctant to use them in the classroom. Likewise, Almekhlafi and Almeqdadi (2010) reported that parents' negative attitudes toward the use of technology in the classroom represented another obstacle to successful technology integration. Furthermore, Robinson and Sebba (2010) cautioned that not involving parents in the process of increasing technology use in schools could significantly obstruct progress despite educators' perceptions of positive gains as a result of increased technology usage.

Lewin and Luckin (2010) provided recommendations for ensuring parent involvement and support when integrating technology in the classroom and at home. Those recommendations included: (a) providing meaningful assignments, (b) implementing a parent support group, (c) understanding parent needs and encouraging parent involvement, (d) understanding that school and home activities may need to be different, (e) slowly integrating technology at school and home to ensure parents can

meet the demands, and (f) creating a culture of collaboration between home and school that is continually fostered.

The next obstruction preventing the amalgamation of technology in schools is teachers' beliefs about technology usage in the classroom. Palak and Walls (2009) concluded teachers' beliefs impacted their use of technology in the classroom, and teachers' beliefs about instruction influenced how the technology was used in the classroom. Therefore, the researchers advocated for professional development focused on student-centered instruction rather than training staff to use the machinery (Palak & Walls, 2009). Nevertheless, Inan and Lowther (2009) maintained that teachers' beliefs impacted teachers' willingness to integrate technology, but teachers' skills and readiness level had a higher impact on the successful incorporation of technology in the classroom. In addition, teachers' ability levels related to technology proficiency influenced their beliefs about technology integration (Inan & Lowther, 2009). Teachers who felt more skilled using technology in their classrooms had more positive feelings regarding the integration of technology and vice versa (Inan & Lowther, 2009). Similarly, teachers who recounted positive experiences integrating technology in their classrooms had positive feelings regarding the utilization of technology in their classrooms (Glasset & Shrum, 2009). Additionally, Inan and Lowther reported teachers' beliefs about technology integration were influenced by the school community's feelings about technology as well as the level of support they were provided. Therefore, it is critical for educational leaders

to consider the necessary elements for the successful incorporation of technology as a learning and teaching tool in the 21st century classroom.

An additional barrier to teachers' technology integration was teachers' level of self-efficacy related to the utilization of technology in the classroom. Niederhauser and Perkman (2008) maintained teacher self-efficacy was the greatest obstacle to technology use in the classroom. Lin and Lu (2010) revealed high levels of teacher self-efficacy resulted in increased time and commitment dedicated to the amalgamation of technology. Similarly, according to Inan and Lowther (2010), teachers who felt ready and had the confidence to integrate technology in their classrooms did so more frequently than other teachers in their study.

In order to increase teachers' self-efficacy, increased training in the area of technology integration is needed. Several researchers have maintained that teachers who received professional development related to the utilization of technology increased their levels of self-efficacy (Inan & Lowther, 2010; Niederhauser & Perkmen, 2008). Niederhauser and Perkman (2008) surveyed teachers after participation in staff development focused on technology training and found teachers' levels of self-efficacy increased regarding technology usage. As part of Niederhauser and Perkman's study, teachers were surveyed again six years following their professional training. The results indicated teachers' self-efficacy levels had remained consistent (Niederhauser & Perkman, 2008).

Additionally, Ogwu (2010) maintained that large class size and excess curriculum mandates were significant barriers to technology integration. According to Anthony and Clark (2011), too many school initiatives impacted teachers' ability to focus on incorporating technology in their classrooms. Correspondingly, Yaratan and Kural (2010) reported that teacher perceptions that technology interfered with the time it took to cover curriculum mandates represented a significant obstacle, one which prevented teachers from integrating technology. Therefore, Anthony and Clark maintained that in order for technology integration to be successful, the schools' educational leader must create a clear vision of successful technology use. Other issues related to curriculum were the ability for teachers to connect curriculum objectives to software applications (Varma, Husic, & Linn, 2008).

Varma et al. (2008) reported technological problems impacted teachers' ability to use technology in their classroom. Employing a technology specialist who was able to provide teachers with immediate technological support was important to alleviate issues related to technological problems (Varma et al., 2008). This confirms the results of Demps, Lincoln, and Cifuentes's (2011) study findings that strong support for teachers resulted in rewarding experiences and opportunity for teachers to concentrate on quality instruction using technology.

In addition to technological problems, Robinson and Sebba (2009) maintained that restrictions on Internet access were a barrier to successful integration of technology in the classroom. Likewise, Varma et al. (2008) found firewalls limited students' access

to the Internet and problems with networks created hindrances for teachers when utilizing technology. According to Prensky (2009), schools restrict students' access to important information that is available via YouTube. Prensky conveyed that YouTube is a significant part of communication literacy that should be included along with reading and writing objectives. YouTube provides students access to quality information on almost every topic, allows students to gain information through their preferred learning style, and provides for authentic learning experiences (Prensky, 2009). Blocking students' access to YouTube prohibits their ability to gain valuable information and prevents teachers from instructing students on how to critically review information found on YouTube and other websites. These critical review strategies are a crucial skill needed in the 21st century (Prensky, 2009).

There are many barriers to technology integration in schools which impact successful integration of technology to develop 21st century learning. In order for educational leaders to provide an environment conducive to 21st century learning using technology, leaders must be knowledgeable of the perceived obstacles teachers face in their schools. Therefore, conducting research to understand barriers that prevent effective technology integration related to 21st century learning at School District X could positively impact teaching and learning.

Implications

A qualitative research study that aims to provide comprehensive data regarding teachers' perceived barriers to effective integration of technology as prescribed by 21st

century learning goals may contribute to scholarly literature. The current literature regarding technology integration maintains that technology integration focused on project-based learning, students' interactions with technology, cooperative learning, differentiated instruction and other best practices results in increased student achievement, motivation, and engagement. Additionally, technology use in the classroom enhances students' and teachers' computer literacy skills, increases communication, and serves as an efficient management tool. The benefits to proper technology integration are significant, but without teacher commitment and proficiency, technology integration will not have a positive impact on the school community.

The obstacles, such as lack of professional development, teacher beliefs and self-efficacy, lack of time, lack of resources, and students' inability to access the Internet are all documented in research, and those impediments could be impacting the successful integration of technology at School District X. The qualitative data gathered from this project study may provide information that could guide educational leaders as they implement a school-wide initiative to increase technology integration in conjunction with sound educational practices that develop students' 21st century skills.

Additionally, the leaders of School District X may be able to utilize information from the project study to provide better opportunities and supports for their teachers to overcome obstacles to the incorporation of technology use. The district technology director could benefit from detailed data regarding teachers' perceived barriers to technology integration related to modern learning skills.

As more mandates from both the federal and local governments regarding the use of technology in the classroom are initiated, School District X will need to have a plan for increased technology use in the classroom. Currently, resources are lacking in School District X and the availability of funding for technology has diminished (Brean, 2010). Opportunities exist for professional development, but the focus is not on using technology as a tool to develop 21st century learning goals. When technology is used by teachers, it is most often used as either a tool to proliferate traditional teacher-centered practices or as a management tool. Therefore, this project study could have a significant impact on the ability of educational leaders in School District X to increase technology integration as a learning tool used to develop the skills necessary for students to be successful in the 21st century.

Summary

There is no question that the advent of new technologies has changed how people in our current and future society communicate, learn, and work. These rapid changes have influenced the skills students require to be successful in the 21st century workforce (Prensky, 2008; Trilling & Fadel; 2009, Wagner, 2008). These skills include critical thinking, problem solving, communication, collaboration, and innovation (ISTE, 2011; Prensky, 2008; Trilling & Fadel, 2009; Wagner, 2008). Therefore, educational leaders have a responsibility to reform their school environment so “digital natives” have opportunities to develop modern skills (Prensky, 2001, p. 4; Prensky, 2008). Technology

is the tool that allows students increased access to authentic, collaborative, and differentiated learning experiences (United States Department of Education, 2010).

The United States Department of Education, under the leadership of Secretary of Education Duncan, has recognized the impact technology integration in the classroom can have on student achievement (United States Department of Education, 2010). The plan to improve education under the leadership of Secretary of Education Duncan requires educators to use technology to provide learning experiences that meet the diverse needs of all students to prepare them for the 21st century workplace. Similarly, the New Jersey Department of Education has partnered with Partnership for 21st Century Skills to ensure the successful integration of technology in all classrooms in the state of New Jersey. The goals of these initiatives are to guarantee that students achieve the necessary skills to be productive members of the United States workforce, and to permit American students to compete with their international peers (Partnership for 21st Century Skills, 2008).

When instructors implement sound instructional practices using technology, the benefits are significant. Researchers have documented increased student achievement when technology is integrated successfully in the classroom (Bebell& Kay, 2010; Judson, 2010; Suhr et al., 2010). Students also develop critical thinking and problem solving skills when teachers integrate technology-infused learning activities (Fallon, 2010). In addition to increased academic achievement, technology integration results in increased and better collaboration and communication among peers (Stevens & Brown, 2011; Yang

& Lin, 2010). Subsequently, students who have had opportunities to use technology as a learning tool, are more motivated, engaged, and independent (Baytak et al., 2011; Bebell& Kay, 2010; Fallon, 2010). Another benefit of technology integration is better communication between members of the school community (Lei & Zhao, 2008). Understanding the benefits of technology integration is essential to a successful initiative to increase and improve technology integration.

Furthermore, it is important to understand students' perceptions of technology use as a learning tool. Prensky (2008) explored the impact of technology on children's brain development and determined students learn differently as a result of exposure to technology on a daily basis. Prensky maintains that when students enter school, they require teachers to use technology as an instruction tool. The research supports Prensky's premise that students learn better when they interact with technology (Lei & Zhao, 2008; Wolfe, 2011).

Although the impact of technology integration is well documented, many teachers are not using technology in their classrooms, and when teachers use technology, it is mainly for management and organizational purposes (Palak & Walls, 2009). Therefore, it is important for educational leaders to recognize the barriers that prevent successful integration of technology as a learning tool to develop modern skills. Common barriers to technology integration included teacher beliefs, teacher level of self-efficacy, lack of time, absence of resources, lack of professional development, and low levels of support (Almekhlafi & Almeqdadi, 2010; Inan & Lowther, 2010, Lin & Lu, 2010; Niederhauser

& Perkmen, 2008; Ogwu, 2010; Robinson & Sebba, 2009). Almekhlafi and Almeqdadi (2010) also state negative attitudes of parents are a barrier to successful integration of technology. Ogwu (2010) maintains that large class size and excess curriculum mandates are significant barriers to technology integration. Finally, Robinson and Sebba (2009) maintain that restrictions on Internet access are a barrier to successfully integration of technology in the classroom.

Consequently, the focus of this project study will be to determine the perceived barriers to technology integration at School District X. The goal of this project study will be to use the acquired knowledge to implement a district wide initiative to increase technology infusion at School District X to develop students' 21st century learning skills. Section 2 of the project study will describe in detail the qualitative research design, participants in the study, data collection plan and procedures, and format for data analysis.

Section 2: The Methodology

A qualitative case study was conducted to determine teachers' perceptions of the barriers that prevented them from effectively integrating technology in their classrooms to promote 21st century skills and knowledge. According to Merriam (2009), qualitative research is commonly used in education to understand how people make sense of their experiences. Qualitative research also permits researchers to gain a deep understanding of a problem (Creswell, 2009). Additionally, the goal of conducting qualitative research is to understand an issue from the participants' perspective and not from the perspective of the researcher (Hancock & Algozzine, 2006). Therefore, using qualitative methods was the most appropriate choice because I was able gain meaningful insight regarding obstacles to technology integration at School District X.

Case study research is a type of qualitative research that is used to describe and analyze a phenomenon of a bounded group or individual (Merriam, 2009). According to Creswell (2012), a bounded system is a specific group that is categorized based on time, place, or physical boundaries. For this particular study, the bounded group was teachers from School District X and the phenomenon to be explored and described in detail was teachers' perceptions of the barriers that prevent them from integrating technology in their classrooms as prescribed by modern learning goals. Case study research is different from other types of research because it allows a researcher to describe behavior of a group without focusing on the behavioral patterns therein. Thus, case study research allowed me to understand each barrier that impacts technology integration within the

group without searching for patterns because each obstacle is important to gathering a deep understanding of the research problem.

Creswell (2012) defined three types of case studies: intrinsic, instrumental, and collective. Intrinsic case study research is conducted when a researcher is interested in the specific case (Creswell, 2012). Instrumental case study is implemented by researchers focused on a particular issue (Creswell, 2012). Finally, collective case study research is employed when multiple cases are described and compared (Creswell, 2012). For this particular research, an instrumental case study most closely related to the research purpose, which was to understand a problem related to an issue in the specific case of School District X. The staff members employed in School District X have their own unique experiences with regard to technology integration related to 21st century learning skills. Executing an instrumental case study at School District X permitted me to gather in-depth information regarding obstacles that prevent technology integration, which could result in positive social change for the school community.

Other qualitative designs considered included ethnography, a qualitative research strategy focused on a particular cultural group over a prolonged period of time (Creswell, 2009). In order to improve technology integration at School District X, it was critical to focus on the perceptions of all teachers rather than a single cultural group. Quantitative survey research was also considered, but a closed question survey might not produce the data needed to thoroughly understand the barriers that prevent successful technology integration related to modern learning skills in School District X.

Participants

School District X is a suburban school district in a predominately upper class community as defined by the State of New Jersey (New Jersey Department of Education, 2011). School District X is a pseudonym to guarantee confidentiality of the study site. There are four elementary schools and a middle school in School District X. The five schools serve 3,150 students in grades K through 8. Four hundred and sixty-three certified teachers, including content area, related arts, and health and physical education teachers, are employed in the district.

Because the purpose of the study was to determine the barriers that prevent teachers from using technology related to 21st century learning skills at School District X, all elementary school teachers were invited to participate in the study by first completing a questionnaire (see Appendix C). Twenty-three certified elementary education teachers completed the 18 open-ended questions in the questionnaire. After the questionnaires were completed, the same teachers were asked to participate in an interview (see Appendix D). Six of the 23 teachers who responded agreed to participate in an interview. The indicated sample of participants for both the questionnaire and interview was considered purposeful. As maintained by Creswell (2009), purposeful sampling is the most commonly used sampling procedure in qualitative research. Purposeful sampling allows the researcher to choose participants with the most relevant information to contribute. The intention of the study was to understand the obstacles to technology

integration in a specific school district; therefore, the purposeful sample provided detailed information from each participant. The interview participants were referred to as Teacher 1, Teacher 2, Teacher 3, Teacher 4, Teacher 5, and Teacher 6.

Table 1

Participant Information Interview

	Years Teaching	Grade	School	Available Technology in Classroom
Teacher 1	6	4	C	Smartboard/One-to-One Netbooks/ITouches
Teacher 2	2	4/5	D	Smartboard/3 P.C. Computers
Teacher 3	12	3	B	Smartboard/3 P.C. Computers
Teacher 4	18	3/Computer Specialist K-5	C	Smartboard/30 P.C. Computers/IPads
Teacher 5	11	5/2	C	Smartboard/3 P.C. Computers
Teacher 6	3.5	2/3	A	Smartboard/Shared Laptop Cart

The interview participants represented a variety of grade levels and all elementary schools within School District X. All of the teachers interviewed used technology in their classrooms frequently as both a teaching and learning tool. Some of the teachers had more access to technology than others, but all of the teachers indicated they felt their students benefited from technology use in the classroom.

Ethical Considerations

The highest ethical standards were maintained throughout the study. According to Creswell (2009), researchers conducting a study must protect participants from harm,

must gain informed consent, and must maintain confidentiality. Prior to conducting research, consent was gained from Walden University's Institutional Review Board (Walden Institutional Review Board Approval # 06-07-12-0187416). Additionally, consent to conduct the study at School District X was granted by the superintendent of School District X and was approved by the district's board of education. Furthermore, each school's principal granted their permission before I contacted their teachers.

All potential participants were informed in detail about the purpose of the study and informed consent was granted (see Appendix D). Potential participants were asked via email to complete an online questionnaire. The questionnaire, provided via SurveyMonkey at https://www.surveymonkey.com/s/techstudy, allowed participants to remain anonymous. Participants were instructed in the introduction of the questionnaire not to include their names unless they volunteered to participate in the interview part of the study (See Appendix B). In that case, participants indicated their interest in being interviewed and included contact information. After participant interviews were scheduled, participants' names and contact information were deleted from all documents and notes. The participants were referred to as Teacher 1, Teacher 2, Teacher 3, Teacher 4, Teacher 5, and Teacher 6. All interviews were audio taped and names were kept confidential. After the interviews were transcribed (See Appendix F), any specific names were deidentified immediately. All data collected was stored on my personal, password protected computer and a flash drive, which was stored in a lock box.

Researcher's Role

For this particular study, the role of the researcher was to gather qualitative data from an open-ended questionnaire and interviews to determine barriers to effective technology integration related to 21st century learning. Before conducting the interviews, I determined, reflected upon, and recorded potential instances of personal bias. I frequently reviewed my personal biases to ensure that researcher bias did not influence the collection or analysis of the data. According to Creswell (2012), it is essential for researchers to determine their biases related to the study to guarantee their biases do not impact the reliability or validity of the study. Because I am passionate about the benefits of technology integration in the classroom, I worked hard to remain neutral about the topic when conducting the interviews. I also did my best to remove my feelings about technology integration when gathering and analyzing the data.

Moreover, when conducting qualitative research, the researcher should be the primary collector of the data and should be involved in the site where the research occurs (Hancock & Algozzine, 2006). I conducted the interviews and I was the only person who collected the data from the questionnaire.

Since I did not personally know all of the participants who volunteered to participate in the interview, I developed a rapport with the participants prior to the interview by introducing myself and reminding them of the purpose of the interview. I thanked each participant for volunteering to participate in my research study. Moreover, I guaranteed the participants that their responses would be confidential and I told the

participants that they would be asked to review the findings of the study for the purpose of member checking.

Careful consideration was given to the formulation of the interview questions. According to Glesne (2011), it is important that the researcher construct questions that are simple and easily understood. The questions focused on experience or behavior since they are the easiest for participants to answer (Glesne, 2011). Knowledge questions are the most intimidating for most participants and were avoided since these types of questions often make participants feel they are being tested (Glesne, 2011). With regard to interviewing techniques, I listened attentively to the participants and was cognizant of my body language.

Data Collection

The first stage of the data collection process was to recruit certified teachers, employed at the elementary schools in School District X, to complete the open-ended questions from *The Teacher Technology Use Questionnaire* used in a study by Cifuentes, Maxwell, and Bulu (2011). Dr. Maxwell provided me the original questionnaire used in her research that included a statement granting permission for researchers to use the questionnaire for non-profit scholarly research. The original questionnaire consisted of 23 questions, 18 of which were open-ended (Knezek, Christensen, Miyashita, & Ropp, 2000). Because this study is qualitative, only the 18 open-ended questions were included. SurveyMonkey, an online survey program, was used to create and distribute the questionnaire to the staff. Twenty-three certified elementary education teachers

completed the questionnaire located at https://www.surveymonkey.com/s/techstudy and their responses were transferred to an Excel spreadsheet. After reading through the responses several times, I copied the responses for each individual question from the spreadsheet to a Word document. This allowed me to clearly review the data related to the individual questions. I took notes during this process, which were logged and kept in a journal.

Following the collection of the questionnaire data, one-to-one interviews were scheduled with volunteer participants. As maintained by Creswell (2012), a one-to-one interview requires a researcher to interview participants one at a time and record their individual answers. The interview protocol was semistructured, and the questions were generated based on the literature review (see Appendix D). The interviews lasted between 30 and 45 minutes and took place in a location convenient for the participants. Brief notes were documented during the interviews. General reflections were noted following each interview. The audio of the interviews was transcribed.

Data Analysis

Data gathered from each questionnaire was read carefully and similar responses were color coded. According to Creswell (2012), the coding process helps the researcher to better understand the data and to derive themes from the information gathered. After all the data was color coded, similar codes were determined and added to a table. Each category of responses was labeled and related text segments were placed in a table. As maintained by Creswell (2012), the individual sentences or paragraphs related to a code

represent a text segment. Careful analysis of the text segments listed under each code permitted me to clearly see patterns in the data, which resulted in themes that were constructed and used to determine results of the study. This process was done by hand. Creswell (2012) notes that hand analysis is labor intensive, but it allows the researcher to be more involved and closer to the data.

Similar coding techniques were employed to determine themes in the data gathered from the interviews. Following each interview, I reviewed the interview notes and recorded general reflections in a journal. As maintained by Creswell (2012), data collection and analysis are completed simultaneously. Therefore, I simultaneously reviewed data from the questionnaire and interviews. The audio from each interview was transcribed verbatim except in the instance where specific names were mentioned during the interview. Specific names were deidentified to ensure confidentiality. Each transcription was read and reflective notes were recorded. Next, the transcriptions were printed out and colored markers were used to highlight similar topics to identify codes in the data. Similar codes were listed in a table and each text segment was copied and pasted under the appropriate category. This permitted me to more clearly determine patterns in the data and to compare the data with data collected from the questionnaire.

At this point, questionnaire and interview responses were grouped into common categories and analyzed. Common codes as well as differences between participants, were identified. The codes from the questionnaires were compared with the codes from the interview transcripts. Codes were also compared to previous information gained in

current literature. This process allowed me to determine the most common barriers and themes related to obstacles that prevent technology integration in School District X, as prescribed by 21st century learning goals.

Results

The results of this qualitative case-study were substantiated from data collected via an open-ended questionnaire and 6 one-to-one interviews collected over a 4 week period from June through July, 2012. The problem the research addressed was the lack of technology usage to promote 21st century learning by elementary certified teachers in School District X. The research question - what are teachers' perceived barriers to technology integration as prescribed by 21st century learning skills? - directed this qualitative case-study.

Data from the questionnaire is summarized in Table 2. There were 13 barriers identified after analyzing the responses. The most common barriers that teachers perceived to inhibit their use of technology related to modern learning were lack of resources, lack of working computers, insufficient professional development, complicated network systems and limitations caused by firewalls. Elementary teachers shared in their responses that they need to have more one-to-one computer access for their students in the classroom. Those who had such computer usage in their classroom described technology problems as an inhibitor to technology integration. Many of the responses regarding training focused on how to integrate the technology into the curriculum as compared to how to operate the devices. Although 43% of the

respondents indicated they were concerned about students accessing inappropriate content on their computers, the firewalls and security that prevent Wi-Fi access were determined to be a major obstacle to technology integration. Finally, complicated networking systems that cause confusion among the teachers and slow the system were seen as a barrier to technology integration as prescribed by 21st century learning skills.

Table 2
Barriers Identified in Questionnaire

Barriers	Common Responses
Training	Technology is constantly being updated so we also need to be trained to keep up with our students.
	IPad with workshops on how to utilize them in the classroom.
	Just would like more ideas on how to use the tools we have.
	Someone to teach me.
	It is essential for teachers to have access to a variety of professional development activities including workshops, on and off-site courses, and before and after school training sessions.
	More training is needed for teachers to see how to incorporate the technology, especially for teachers who do not personally have "I" products, i.e., phone, pad, or touch, at home. Many teachers want to use the technology but do not feel competent enough to use it in the classroom without looking like they don't know what they are doing.
	Professional development training can be major inhibitor of technology integration.
Lack of Resources	Newer versions of software (such as Print Shop, Numbers Undercover and Type to Learn) to work with Windows 7 PCs.

(table continues)

	We have few laptops, and most are too slow, or need more maintenance.
	It is difficult in that I do not use the notebooks or laptops often and I often need to be retaught how to use them.
	Difficult because there is not enough for everyone in the school.
	Not enough to go around (inhibits hands-on activities).
	There are not enough computers for students to be on at the same time in the classroom in the lower grades.
	Having the same technology for all of my students is an obstacle. I can do a group lesson for the IPad but only have one. I can do a group lesson for the computers but don't have enough for everyone.
	Lack of sufficient resources and support can obstruct the implementation of any technology initiative. If every child had a computer at home.
	If teachers were allowed to bring and use their own technology (many teachers have their own IPads, Kindle Fires, Nooks, etc.) and if students were allowed to bring their own devices (iPod Touch, etc.). This would help schools with budgeting issues in regards to buying new technology.
Problems with Technology	We have few laptops, and most are too slow, or need more maintenance.
	Teachers need access to working technology.
	Often times the computers have log in issues.
	Sometimes, the internet is down.
	If something isn't working there isn't always a tech person to figure out the problem therefore the technology can't be utilized.
Security/Firewalls	Due to security and protection of the students, there are limitations.

	Teachers (and students) do not have experience to traverse blocked resources, our "access denied" educational technology philosophy is not welcoming or engaging for teachers or students.
	There are constant network problems and firewall issues that slow the use of the computers down, block sites and cause extra steps to get where you want to go.
	Limited user accounts, while necessary in certain situations, hinder the ability of teachers and students to get the maximum benefits of the technologies being used. In some circumstances, those same limitations disrupt or prevent the students or teachers from using the technology altogether.
Time	The programs are a lot to remember and when you are trying to teach a variety of subjects as I do in the elementary grades it is time consuming and it is time we often do not have.
	So much has to be on my own time to learn.
	The pressure of time is seen as the greatest impediment to technology integration. Because of this, few teachers have mastered technology skills and have made fundamental changes in their method of instruction.
	School administrators who support technology integration would be wise to incorporate time for the aforementioned activities by providing curriculum development opportunities or extended grade-level planning sessions by utilizing permanent substitutes, student teachers or support staff.
Lack of Collaboration Opportunities	Giving teachers more time to work collaboratively with peers.
	More opportunities to have collaborative time to develop technology-laden lessons and activities.
Support	An additional obstacle to support technology use is support.

(table continues)

	Multiple levels of support are needed, including training by the way of professional development, administrative assistance with planning, scheduling and time to implement initiatives, technical hardware and software training, on-demand help when problems arise, and instructional assistance incorporating technology into instruction.
	If teachers are given the proper technical support, it will allow them more time to explore new technologies.
	I would need a personal technician in my classroom daily for when the computer does not work properly. :) To have to wait for a technician to fix the problem is discouraging.
Complicated Network	Teachers (and students) do not have experience to navigate complicated instructions, traverse blocked resources, or find “work-a-rounds” for faulty technology.
	I personally have found that the "Zen Agent" seems to cause computers to log on different for EACH user. Here is just ONE example of a problem: While one teacher can access their Report Card/Grade book because they activated Adobe PDF Reader under THEIR log on on the ZEN. The NEXT staff member will forget to activate the Adobe Reader and their Report Card program WON'T work. It's a very frustrating system. No matter how many times, as the technology specialist, I try to explain to teachers the correct way to log on in the lab, I find most staff members make more and more mistakes. The biggest barrier, in my opinion, is once teachers and staff members learn the latest way to log onto the computer, or check their email, or find their files, or use their grade book, or print to their printer...everything changes and everything is different.
	The amount of time it takes to start up the laptops and the inconsistent ability to access the tree and server. Kids get frustrated, and are not as excited to use technology.
Administrator Knowledge/Support	Admin. Somewhat unsure of its benefits and therefore possibly reluctant?

(table continues)

	Although administrators are not on the "frontline" or in the classroom, they can provide a level of support for teachers with the purpose of alleviating the intrinsic and extrinsic barriers that inhibit technology integration in the classroom.
Age/Lack of Flexibility with Staff	I also find that some teachers as they get older … truly lack the ability to remember some of the steps when it comes to any type of technology. I find some of the older teachers get frustrated and upset. I try to have empathy and patience with many of the older staff members that find a challenge in figuring out a problem.
Student Behavior	The behavior of my students sometimes hinders the students' ability to use hands-on technologies.
Lack of Connections to Curriculum	If there were more connections to the school curriculum and technology that would be more conducive to the use of technologies.
Fear or Lack of Buy in by staff	I am sometimes intimidated by technology.
	Some technology is wasted due staff's fear of liability issues

Data gathered from one-to-one interviews were analyzed and 13 barriers that prevent technology integration related to 21st century learning goals were identified. Those barriers are summarized in Table 3.

Table 3
Barriers that Prevent Successful Technology Integration from Interview Data

	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
Lack of Resources		X	X	X	X	X
Lack of Working Technology	X	X	X			X
Lack of Training on Technology Integration related to Effective Pedagogy	X	X	X	X	X	X
Staff Fearful of Technology	X		X	X	X	
Technology Support			X	X	X	
Age of Staff				X		X
Complicated Networking/Systems	X			X		
Negative Attitudes regarding Technology Integration	X	X		X		
Security/Firewalls	X			X		

(*table continues*)

Time for Learning			X	X
Staff Not Wanting to Put in the Effort		X		X
Lack of a Clear Vision for Technology Integration	X	X		
Fear of Students Accessing Inappropriate Content		X		

The most common barriers to successful technology integration were lack of resources or working resources and lack of professional development training. As reported in the questionnaire data, the interview participants communicated the need for one-to-one computer access for their students in order to effectively integrate technology in their classrooms. All of the participants interviewed felt that not having enough technological devices was a significant barrier to technology integration. Teacher 1 was the only teacher who had one-to-one access to netbooks for all students for the entire school day. Her ability to integrate technology was largely inhibited by the number of working netbooks that were dated and in need of updating. When asked during the interview if she experienced many technical problems, Teacher 1 responded, "I would say a year ago, and two years ago, I was able to do more things because now that [the computers] are outdated, they're not as useful in that way." Additionally, the need for

technology training that focused on pedagogy rather than equipment operation was a significant barrier also reported in the interview data. Finally, four of the six participants believed the staff was fearful of using technology in their classes to promote 21st century learning.

As a result of careful, in-depth analysis of the data collected from both the questionnaire and interviews, four themes emerged that addressed the research question. The themes were determined based solely on the codes and frequency of the codes derived from the participant responses to both the open-ended questionnaire and interview questions without researcher bias. The themes were developed by connecting the identified barriers to convey a clear description of the obstacles that prevent technology integration to promote modern learning in School District X. Those themes that inhibit successful technology integration prescribed by 21st century learning goals are: (1), A lack of easily accessible, properly functioning technology resources, (2) A lack of on-going professional development that focuses on how and why to promote 21st century learning via technology, (3) A lack of accessible technological support and guidance for staff who are intimidated by technology, (4) A complicated network system that unintentionally inhibits Internet access for teachers and students alike.

Theme 1: A Lack of Easily Accessible, Properly Functioning Technology Resources

The need for resources in order to integrate technology in the classroom was communicated frequently in both the questionnaire and interview data. When

participants were asked, “What the biggest thing that prevents you from integrating technology in your classroom?” the responses included:

> (Teacher 1) I’ve been quite fortunate to have a lot of technology in my classroom, but my netbooks are now three years old, they’re slowing down.
>
> (Teacher 2) I would say at least a small quantity of IPads, at least enough for one for every group.
>
> (Teacher 3) Number one thing would be if it doesn’t work. That would be the biggest thing, when connection fails, the server is down.
>
> (Teacher 4) Another barrier is that not everything always works, so there is a frustration and I think some people just maybe quit because it’s easier to just pull out paper and pencil because they can count on that.
>
> (Teacher 5) Well, that’s an easy one, it’s just the resources - not having them.
>
> (Teacher 6) When it doesn’t work.

Additionally, 48% of the teachers who completed the questionnaire communicated that they would need more access to technology to better integrate technology in their classrooms. Current research also substantiated the need for teachers to have access to technology in order to successful integrate it into their instruction. Ogwu (2010) maintained teachers believed the lack of materials and the inability to access technology was a barrier that prevented the use of technology in the classroom. Varma, Husic, and Linn (2008) stated that when teachers had to rely on computer labs or mobile laptop carts, the lack of availability and time required to reserve the lab or cart

were major obstacles to technology use in the classroom. However, researchers maintained that providing teachers access to technology did not automatically result in successful technology integration (Inan & Lowther, 2010; Pallak and Walls 2009). Yet, all the participants who were interviewed communicated that when provided with technology, they had little initial training, but took the time to figure out how to use it on their own. Teacher 3 indicated, "I was terrified when I heard we were getting the Smart Board. Now I don't know how I could live without it." Teacher 6 stated in response to getting the opportunity to utilize IPads next year, "I will be ok, as long as I get the chance to go in and just look at it and see what it is, what is on there, over the summer. I will be fine."

Theme 2: A Lack of On-Going Professional Development That Focuses on How and Why to Promote 21st Century Learning via Technology.

When asked, "If you could have specific training in a certain area related to technology instruction, what would it be?" the responses were:

(Teacher 1) I would say to optimize the use of IPads in the classroom, because I think that probably has the greatest opportunity as of right now because of all the apps and really where it can go. I think we've only scratch[ed] the surface, and I think until you really get that training or you see how its been implemented in other classrooms successfully, even just being able to observe.

(Teacher 2) I'm not trained to instruct others. I'm no more trained to fix a TV because I use one at home. I think you would need really intensive long-term professional development that is ongoing because it is going to change.

(Teacher 3) Well, fortunately, children know a lot about computers, but I would assume I would need training. I would need to be trained on how to implement it in my classroom.

(Teacher 4) I would love to either see a classroom, how do they use it, like I would love to see what they're doing in a real example.

(Teacher 5) …how to monitor it and train them (the students) basically, how to get them trained.

Thirty-five percent of participants who responded to the questionnaire said they needed more training in order to better integrate technology in their classrooms. Additionally, the need for quality professional development that focuses on how to integrate technology into the classroom has also been substantiated in research. As the result of studies conducted by Lin and Lu (2010) and Almekhlafi and Almeqdadi (2010), teachers reported the need for training related to integrating technology into their content curriculum.

However, professional development provided to teachers must include information about the benefits of technology integration to promote 21st century learning and must include a clear vision of how to develop students' modern learning skills using technology as the vehicle to achieve 21st century skills. Teacher 1, who has had one-to-

one access to computers for her students and is teaching her students 21st century objectives, responded that in order for there to be successful integration of technology focused on modern learning, “the vision needs to be shared among us all, and I don’t think we’re there yet.” Teacher 1 also stated, “Its just getting past that, I think, and realizing the benefits outweigh the barriers.” Teacher 5 responded, “I just think some of them don’t want to change the way they’re doing what works, and then when they go out of the comfort zone, they realize it’s a good thing, but I think some are afraid of change.”

Theme 3: A Lack of Accessible Technological Support and Guidance for Staff who are Intimidated by Technology

The lack of support for teachers when they experience technical difficulty was evident in both the interview and questionnaire data. When asked if there was enough support when there are technical problems the following responses were noted;

> (Teacher 3) No. I think that is nobody’s fault, it’s just I think we only have the one guy who comes in. There’s only the one guy for the district. So that’s an issue, there’s not enough help.
>
> (Teacher 4) For me being provided enough support, no. Me, as a tech person I have not been provided enough support. I work at the biggest elementary school and I get the same technician twice a month to come and support, as far as the director, the head of technology maybe at my school, maybe twice a year.
>
> (Teacher 5) I think there’s some people who need their hands held and won’t take the initiative to just restart the computer. They need somebody to show them

> every single thing. I'd say yes and no. I'd say yes for the teacher who is comfortable with what they're doing, but I think if you're a teacher who is afraid of it not turning on or there is a glitch, I'd say that's the one pitfall because there are only so many people who can help you.

When asked in the questionnaire the barriers that prevented technology integration and what teachers needed to integrate technology, some of the responses included: "If teachers are given the proper technical support, it will allow them more time to explore new technologies"; "Support can obstruct the implementation of any technology initiative"; "I would need a personal technician in my classroom daily for when the computer does not work properly"; Lack of technological support was reported as a barrier in research. Demps, Lincoln, and Cifuentes's (2011) study found that strong support for teachers resulted in rewarding experiences and opportunities for teachers to concentrate on quality instruction using technology.

Theme 4: A Complicated Network System That Unintentionally Inhibits Internet Access for Teachers and Students Alike.

Complicated networking systems and firewalls were another barrier that inhibited technology integration as prescribed by 21st century learning goals. Interview participants confirmed these concerns during the interview.

> (Teacher 1) …can be a little confusing and cumbersome for the person in charge of those IPads and so forth. There needs to be more of a smoother transition in my opinion that we're not quite there yet but I think we will be.

(Teacher 1) The access to the internet at times. To the firewall and so forth, the security.

(Teacher 4) Oh, the teachers that are using it [technology], the barriers they run into are kind of these network, filter, security, top down, like we're Fort Knox.

(Teacher 4) I think there's just a frustration with a lot of people that they can't even find their files sometimes or get to the right program they need.

Questionnaire responses related to complicated networks, firewalls, and security that inhibits technology integration included: "Access to the network for students who have their own technology"; "due to security and protection of the students, there are limitations"; "teachers do not have the time or experience to navigate complicated instructions, transverse blocked resources"; "access denied educational technology philosophy is not welcoming or engaging for teachers or students". Restrictions on access to the Internet were also validated in a research study by Robinson and Sebba (2009). The researchers maintained that restrictions on Internet access were a barrier to successful integration of technology in the classroom. Similarly, Varma et al. (2008) found firewalls limited students' access to the Internet and problems with networks created hindrances for teachers when utilizing technology.

Validity and Reliability

Creswell (2009) summarized procedures for researchers to follow to ensure that their qualitative study is valid and reliable. Validity measures included triangulating the results to ensure compatibility with other sources, using member checks to ensure

accuracy of findings, providing thick and rich descriptions, identifying biases, including information that contradicts themes, and spending significant time in the setting (Creswell, 2009). Following the analysis of the data, the interview participants were provided a summary of the findings via email for the purpose of member checks. The participants did not dispute the findings or contribute additional information. I was able to triangulate the information gathered from the questionnaires, interviews, and current literature. The information was conveyed using thick, rich descriptions, and my personal biases regarding technology integration were reflected on frequently to ensure these biases did not interfere with an accurate portrayal of teachers' perceived barriers to technology integration at School District X.

Reliability procedures for this study included carefully reviewing transcripts to guarantee accuracy, constantly comparing data with codes, and documenting each step of the data collection process (Creswell, 2009). Additionally, negative case analysis was utilized to locate discrepant data. As maintained by Glesne (2011), negative case analysis is used by researchers to purposefully search for discrepant cases because it permits the researcher to clarify the research question. However, there were no instances of discrepant data in this study.

Conclusion

A qualitative case study was implemented to determine teachers' perceived barriers to technology integration at School District X as prescribed by 21st century learning skills. Information was collected during a four week period from June through

July, 2012 via a questionnaire and through interviews. Participation in the study was voluntary, all questionnaire information was reported anonymously, and interview confidentiality was maintained. The data were analyzed by coding and categorizing the participant responses to determine themes. Triangulation of the data was used to ensure that the information was valid. In addition, member checks were utilized to guarantee the validity of the content collected.

The study revealed that the lack of easily accessible, properly functioning technology resources; the lack of on-going professional development that focuses on how and why to promote 21st century learning via technology; the lack of accessible technological support and guidance for staff who are intimidated by technology; and a complicated network system that unintentionally inhibits Internet access for teachers and students alike were the most significant barriers inhibiting technology integration related to modern learning in School District X. Using the information gained from the qualitative data, a project was developed to address the barriers that impact technology integration in School District X. Included in Section 3 are a detailed depiction of the project goals, rationale, literature review, implementation, evaluation, and implications for social change.

Section 3: The Project

Introduction

Clearly, teaching and learning in the 21st century require schools to transform current practices in order to meet the needs of students entering a rapidly-changing work force. This transformation has been documented by the United States Department of Education (2010) in its technology plan. The plan calls for educators to create student-centered classrooms that encourage individualized learning using technology as the vehicle to help students achieve the skills needed to be successful in the 21st century (United States Department of Education, 2012). The purpose of this study was to identify those barriers teachers in one school district encountered that prevented them from utilizing technology as a tool to create a 21st century learning environment. Results from this study revealed that the most significant barriers to technology integration promoting modern learning were the lack of resources or the lack of efficient, easily accessible resources. Hence, the results of this study and current literature focused on 21st century teaching and learning, led to the development of a bring your own technology or Bring Your Own Technology (BYOT) Implementation Guide for school leaders. The purpose of this research project is to provide school administrators a research-based plan to execute a BYOT initiative in their schools. Section 3 provides a description of the project goals, rationale, literature review, implementation plan, and implications for social change as a result of the project.

Description and Goals

The Bring Your own Technology (BYOT) Implementation Guide, located in Appendix A, was created to assist educational leaders in developing a program that allows students and staff to bring their own technology to school for use as a learning tool. The BYOT plan is in response to the need for students to be able to access technology throughout the school day in order to create a 21st century learning environment. Such access was supported by the majority of participants in the study as well as supported in research (Buckenmeyer, 2010). Experiences in the research setting, coupled with current literature on the subject, maintain that the cost of technological devices and their short life spans have made it impossible for schools to afford the necessary technological equipment (Costa, 2012; Downes & Bishop, 2012). Therefore, BYOT would allow for students to have access to technology and would help alleviate budgetary constraints. The creation of the guide was based on information gained from this qualitative case study as well as current research on 21st century learning and BYOT resources (Costa, 2012; New Jersey Department of Education, 2012). The guide also takes into consideration the other barriers identified in this study as deterrents to technology integration to promote modern learning, such as professional development, security, complicated networking systems, and support. The guide was divided into three phases to allow for a comprehensive plan that may result in the successful implementation of BYOT in schools. The goals of the BYOT initiative include:

1. To create an environment conducive to individual technology usage in each school in the district
2. To integrate technology in the classroom as a teaching and learning tool that promotes 21st century learning
3. To support teachers and students to enable efficient, productive, and safe use of technology in the classroom and access to the Internet
4. To involve all members of the school community, including parents, in the implementation and support of the BYOT initiative
5. To provide ongoing professional development through a variety of forums to ensure the successful integration of technology and 21st century learning goals
6. To reform current policies with regard to technology usage in the classroom and students' personal technological devices

Rationale

The BYOT Implementation Guide was developed in response to the evidence gained from this in-depth study that answered the research question focused on what teachers perceive are the obstacles that inhibit technology integration to promote 21st century learning. Overwhelmingly, the study participants indicated the need for adequate technological resources in order to promote modern learning. Teacher 1 had the most access to technology in her classroom and was able to create a modern learning environment. However, as her resources aged, her ability to implement modern learning practices diminished. Additionally, participants without resources indicated they were

not able to benefit from training because they did not have access to the necessary resources. Consequently, most participants indicated they experienced little to no professional development with regards to technology integration, yet the teachers who were provided access to resources specified that they were able to train themselves and eventually were able to use the resources successfully as teaching and learning tools. Thus, in order to transform educational practice as dictated by the Department of Education at the federal and state levels, teachers and students must have access to technological resources throughout the school day (New Jersey Department of Education, 2007; United States Department of Education, 2010). "Only with 24/7 access to the Internet via devices and technology-based software and resources can we achieve the kind of engagement, student-centered learning, and assessments that can improve learning in the ways this plan proposes" (United States Department of Education, 2010, p xix).

Additionally, 21st century learning requires engaging, collaborative, authentic, personalized experiences that are possible when students and teachers have access to technology in schools (Trilling & Fadel, 2009). This type of teaching and learning differs from using technology to deliver the same content in a teacher-centered learning environment, which happens frequently at the research site and is documented in literature (Kurt, 2010; Palak & Walls, 2009). Therefore, allowing students access to technology through a BYOT initiative would provide teachers and students the tools they need to create a 21st century learning environment and would reduce the need for the

school district to purchase technological devices for all students. According to Costa (2012), smaller, less expensive devices, open source and cloud based software, and customization of hardware make BYOT initiatives an attainable option for school districts.

However, this initiative would require careful planning that is research based. A BYOT initiative would be a significant change that would require administrators to understand the impact of such an initiative related to modern learning goals, and ultimately, student achievement. Shapley et al (2010) maintained that true technology integration requires a change in the school culture as well as a change in teaching and learning. Thus, the BYOT Implementation Guide provides educational leaders information regarding the benefits of initiating a BYOT program-- its effect on teaching and learning and its impact on student achievement. Additionally, the BYOT Implementation Guide offers educational leaders a research based framework to follow when implementing a BYOT initiative in their school district.

Review of the Literature

The BYOT Implementation Guide will support educational leaders in executing an initiative that would permit students to bring their own technological devices to school to use as a learning tool. The BYOT initiative addresses the need for teachers and students to have access to technological devices during the school day, which was determined to be a significant barrier that prevented teachers from developing students' 21st century skills. Since the BYOT initiative is a new phenomenon, there is little

research on the topic. However, there are several resources that provided insight into planning for bringing your own technology to school. Those resources, along with research about one-to-one technology programs, were used to inform the literature review. Furthermore, a BYOT initiative requires significant changes that will impact the entire school culture. Thus, research on change theory provided the framework for implementation of the project and therefore, included in the literature review.

Change Theory

According to Rutherford (2009), comprehensive school reforms require educational leaders to understand change theory. When educational leaders apply the elements of the change process, it can result in positive, comprehensive transformation that is embraced by the members of the educational community (Rutherford, 2009). Kotter (1999) describes the process leaders can follow in order to promote positive change in an organization. The first stage of the change process is to create a sense of urgency, which requires the majority of the organization's leaders to support the change and see the value in change. Next, it is critical to develop a group of people to lead the change. However, the members of the group must include diverse members of the organization. Similarly, Senge (2012) recognized the importance of including all members of the community in the change process. This includes parents, teachers, students, and other community members.

Once a coalition has been established, the group must create a clear vision of the desired change (Kotter, 1999). Senge (2012) maintained that the group must focus on

what they desire to create versus what they want to fix. Focusing on creating something new leads to shared expectations and when the group experiences success, the change is valued and motivating (Senge, 2012). Rutherford's (2009) study revealed that change was possible when all members of the school contributed to the vision for reform rather than having educational leaders mandating the change.

The next critical element of the change process is effectively communicating the vision to all members of the community (Kotter, 1999). Not only is the communication of the vision important, but it is also imperative that members of the coalition act on the vision and serve as models (Kotter, 1999). Similarly, Senge (2012) argued that people in the organization need to work together to create innovative reforms within the organization. This requires organizational leaders to determine the obstacles that prevent the change and to remove the barriers (Kotter, 1999).

Once the change starts to take hold, it is critical for leaders to recognize the improvements and to reward employees who contributed to the positive change (Kotter, 1999). However, Kotter guards against "declaring victory too soon" (p. 88). It is important to celebrate positive change, but to also communicate the changes that still need to occur. Finally, sustainable change requires continual reflection and improvements within the structures that are needed to support the changes (Kotter, 1999; Senge, 2012). Since implementing a BYOT initiative would require significant change, it will be important for leaders to consider these elements of the change process in order to produce effective, sustainable change. Executing a BYOT initiative would be a

significant change in School District X that will permit individual access to technology, which has proven to contribute positively to student achievement.

Benefits of One-to-One Computing

The benefits of one-to-one laptop programs were documented in the previous literature review. Researchers found that access to individual laptops during the school day increased student achievement, engagement, and motivation toward learning (Bebell & Kay, 2010; Gulek & Demirtas, 2005; Shapley et al., 2010; Suhr et al., 2010). Additionally, students improved their technology, research, and collaboration skills (Bebell & Kay, 2010; Shapley et al., 2010). Similarly, Downes and Bishop (2012) studied students who were provided individual laptops in schools over a six-year period. The results of the researchers' study showed that students developed better collaboration skills and were more creative, engaged, organized, and responsible (Downes & Bishop, 2012). In a study by Lowther, Inan, Ross, & Strahl (2012), students also increased 21st century skills such as collaboration, creativity, and technical skills through one-to-one laptop programs implemented in 90 schools in Michigan. Finally, the United States Department of Education (2010) recognizes the critical need for schools to provide one-to-one technological access to students in order to prepare them for the future.

Another positive impact of one-to-one laptop use is more learner-centered classroom instruction (Grimes & Warschauer, 2008; Lowther, et al., 2012). Teaching modern learning skills in a student-centered environment using technology has impacted new initiatives. This includes the adoption of Common Core Standards, which focus on

21st century learning, in many states including New Jersey (Costa, 2012; New Jersey Department of Education, 2012). Additionally, mandated state assessments will require students to complete standardized assessments using a computer (Costa, 2012). A BYOT initiative would help alleviate the need to supply students with individual computers, which would be necessary for students to complete standardized assessments. Therefore, implementing a BYOT initiative could have a positive influence on teaching and learning that ultimately may affect student achievement at School District X as well as alleviating the financial burden of supplying students individual computers.

Implementing BYOT

A BYOT initiative requires careful planning in order to be successful. Although it seems that it would be simple just to let students bring their own technology to school, a BYOT initiative has the potential to transform a school's culture. If executed successfully, a BYOT initiative focused on 21st century learning will impact teaching, learning, the school's infrastructure, and finances (United States Department of Education, 2010). Therefore in-depth research focused on one-to-one laptop programs, technology integration, BYOT, and 21st century learning led to the consideration of five significant elements of BYOT that need to be addressed when executing a BYOT initiative. The five elements include creating a vision, preparing infrastructure, establishing support systems, providing professional development, and reforming policies.

Vision

When implementing a new initiative, the first step in the process is to create a common vision that is clear and includes intended results (Costa, 2012; Trillings & Fadel, 2009; Samsung & Meru, 2012). Creating a vision for technology integration requires input from stakeholders and should focus on teaching and learning related to the district's curriculum, technology skills, and 21st century learning objectives (Costa, 2012; Samsung & Meru, 2012; Trillings & Fadel, 2009). Trillings and Fadel (2009) maintain that the members of the group should focus on answering four questions that will help guide the development of a clear vision for 21st century learning using technology. Those questions are: (a) What will the world be like 20 years after children today are out of school?; (b) What skills will they need to be success in that world?; (c) What are the conditions that make high-performance learning experiences so powerful?; (d) What would learning be like if it is was designed around the answers to the first three questions? (Trilling & Fadel, 2009). Once the questions are answered and the vision created, the vision should be communicated frequently to all members of the community and referred to throughout the process (Costa, 2012; Trillings & Fadel, 2009;).

Infrastructure

Before the vision of BYOT can be realized, certain structures must be in place to ensure technology may be used efficiently and productively. According to Rideout, Foeher, and Roberts (2010), 76% of students age 8 to 18 have their own iPods, 66% have their own cell phones, and 29% have their own laptops. Additionally, 93% of the same

population of students have a computer at home, and 84% have access to the Internet. Before students can bring their own technology to school, there must be enough bandwidth and wireless access points to accommodate the increased number of technological devices that need to connect to the Internet (Samsung & Mehr, 2012; United States Department of Education, 2010). The United States National Technology Plan recommends school transition their in-house datacenters to professional data managers that use cloud technology since this will allow for more efficiency and productivity (United States Department of Education, 2010). However, another option is for districts to utilize a device that allows all computers access to the Internet and filters access, but only allows certain computers access to the main network (Costa, 2012).

Another important consideration is to ensure that access to the Internet is secure for students (Costa, 2012; Samsung & Mehr, 2012; United States Department of Education, 2010). However, there needs to be a balance between security and the ability to access necessary information (Costa, 2012; United States Department of Education, 2012). The United States National Technology Plan recognized Florida's Escambia County Schools for creating a system that allows students to access the Internet while complying with the requirements of the Children's Internet Protection Act or CIPA regulations (United States Department of Education, 2010). Thus, creating a system that is safe and accessible is possible within a school building. Costa (2012) maintains the importance of working with technology directors to help them see their jobs as not only

protecting the network but also as supporting the usage of technology by all members of the school community throughout the day.

Support

Gaining support for a BYOT initiative that creates a 21st century learning environment is critical, as is maintaining systems of support that ensure sustainability of BYOT in any school or school district. As maintained by Costa (2012), all members of the community must be involved in the change process, including teachers, students, and parents. Therefore, it is critical for educational leaders within the school to build collaborative teams that include teachers, parents, students, and community members (Costa, 2012; Trillings & Fadel, 2009). Leaders must gather the support from the teams by communicating the need for change and its purpose (Costa, 2012). Building partnerships with businesses, other schools, and community groups is also an important way to generate support for a BYOT initiative focused on 21st century learning (Trillings & Fadel, 2012; United States Department of Education, 2010). Community partnerships may allow schools to find creative ways to provide technological devices to students who are not able to afford their own devices (Spires, Oliver, & Corn, 2012). Furthermore, schools that have implemented BYOT are excellent resources for school leaders and members of the planning team (Costa, 2012; Samsung & Mehr; United States Department of Education, 2010).

Additionally, parent support is extremely important because parents will need to help students develop responsibility for their devices and ensure that they are using them

appropriately (Spires et al., 2012). Downes and Bishop (2012) reportparent organizations within the school provided a forum to address concerns proactively and provided great ideas regarding implementation. Samsung and Mehr (2012) suggestcommunicating frequently with parents regarding their concerns related to BYOT. It is important to provide parents specific information through parent meetings, e-mails, letters, and personal experiences of BYOT in the classroom (Samsung & Mehr, 2012). Finally, gathering parent feedback throughout all phases of the BYOT initiative and considering parent input is critical to building positive parent support (Samsung & Mehr, 2012).

Support from members of the community is necessary prior to implementing a BYOT initiative in a school district (Costa, 2012; Samsung & Mehr, 2012). Once the initiative is implemented, other supports must be in place to ensure its success and sustainability. According to Langran (2010), technology teachers within the school can fulfill different roles than in the past. These staff members can take on a leadership role within the building to promote school initiatives focused on technology (Langran, 2010). Therefore, technology teachers are no longer working with students in the school lab, but are instead communicating the vision of the new initiative, providing professional development, and supporting teachers with their instruction and technology concerns (Langran, 2010). It is imperative for school leaders to help forge positive relationships between technology teacher leaders and classroom teachers (Alberta Education, 2010). Additionally, maintaining a reporting system for teachers and analyzing reports will help

technology leaders provide effective, efficient supports to staff implementing one-to-one technology programs in their classes (Alberta Education, 2010).

Kopcha (2008) created a mentoring framework for technology integration that could be used by technology resource staff in individual schools. The framework is divided into three phases of support. In the first stage, the mentor works to ensure that teachers have access to technology and time to explore and learn about how to integrate technology. During the second stage, the mentor works with teachers to use technology to create a student-centered learning environment. The third stage requires the mentor to expand student-centered practices and introduce new technology as needed. Finally, during the last stage, the mentor trains staff to become teacher leaders who are able to support other teachers in incorporating technology in a learner-centered classroom environment (Kopcha, 2008).

Professional Development

Once systems are in place to support a BYOT initiative that creates a 21st century school environment, training needs to be provided to all members of the school community. First, teachers need to be provided with comprehensive professional development focused on technology, pedagogy, and content knowledge or TPACK (Koehler, & Mishra, 2005). According to Koehler and Mishra (2005), the TPACK framework enables teachers to collaborate to create technology rich learning activities and experiences for students that integrate technology, pedagogy, and content. Wong and Li (2011) reported the importance of teacher collaboration and collegiality when using

technology integration to reform learning practice from teacher-centered to student-centered. Training should occur in the teachers' school in content specific cooperative learning groups and consideration should be given to virtual training in order to save time and allow for more collaboration (Kliger, Ben-Hur, Bar-Yossef, 2010). Similarly, An and Reigeluth (2012) confirm that successful training focused on technology integration provides teachers opportunities to explore using technology to deliver content-related, learner-centered activities. Additionally, Ertmer and Ottenbreit-Leftwich (2010) convey the need for teachers to observe technology integration in a 21st century learning environment in order to truly comprehend how to effectively use technology as a foundation for learner-centered practice. Observing the impact of a 21st century learning environment on student achievement is also powerful (Ertmer & Ottenbreit-Leftwich, 2010). Allen et al. (2010) maintained that allowing select, interested teachers to collaborate to create a curriculum based on the TPACK framework was a method to provide resources to all teachers in the school or school district, which would promote technology integration. However, Dexter (2011) warned that providing resources for technology integration without training may inhibit teachers' willingness and ability to successfully integrate technology in the classroom. Moreover, developing teachers' technology skills in isolation did not support the teachers' ability to effectively integrate the technology in the classroom (An & Reigeluth, 2012). Thoughtful implementation, then, is key for the success of TPACK programs. On the whole, however, TPACK proves to be a strong framework that enables professional development that is

collaborative. Therefore, the TPACK framework enables professional development that is collaborative, hands-on, and specific to teachers' individual learning needs while developing technology proficiency and pedagogical skills (Koehler, & Mishra, 2005).

Students also need access to training related to BYOT. Hollandsworth, Dowdy, and Donovan (2011) report the need for students to develop digital citizenship, which requires training. Hollandworth et al. (2011) maintain the importance of educating students, beginning in kindergarten, about issues related to Internet safety. Costa (2012) encourages schools to recognize the risks of technology usage for students and then use that knowledge to teach students how to make good decisions about technology use that will keep them safe. Costa (2012) warns educators that rigid security systems do not guarantee that students are 100% safe; therefore, implementing training for students focused on digital citizenship is a much more valuable system for keeping students safe. In the National Education Technology Plan, a school in New Jersey was acknowledged for having their students create videos regarding technology safety and security that were shared with the student population (United States Department of Education, 2010).

Although many educators and parents may be concerned about students keeping their devices safe and secure, Costa (2012) found that when students are provided their own technology devices, they are much more responsible. According to Costa, a school in California with a large Bring Your Own Device program reported that the damage/loss rate is only 1%. Similarly, Downes and Bishop (2012) reported that students having individual access to a laptop for use at school and home demonstrated increased

responsibility and recognized the importance of security measures. Appropriate policies regarding acceptable use can contribute to a safe, secure BYOT initiative.

Policy Reform

A BYOT initiative requires changes to school policies and regulations (Costa, 2012; Samsung & Mehr, 2012; United States Department of Education, 2010). Allowing students to bring their own technology to school still requires schools to be in compliance with the Child Internet Protection Act (CIPA) (Costa, 2012; United States Department of Education, 2010). However, the United States Department of Education encourages school leaders to fully understand the provisions of the law since many schools have allowed CIPA to become a barrier for BYOT initiatives. The National Technology Plan recognized the Escambia County School District in Florida for creating an acceptable use policy that complies with CIPA and affords students to opportunity to bring their own technological devices to school (United States Department of Education, 2010).

According to Costa (2012), many acceptable use policies focus on defining the negative, which create inflexible policies that inhibit effective use of technology. Therefore, Costa (2012) recommends providing a purpose for technology use based on goals and standards related to learning and the school's vision for technology usage related to 21st century skills. However, Samsung and Mehr (2012) recommend including the following when constructing an acceptable use policy for BYOT: (a) a list of any devices that are not allowed, (b) a waiver of liability, (c) teachers' roles, (d) parents'

roles' and (e) specific rules for usage including Internet acceptable use and Internet safety.

Implementing a BYOT initiative requires an in-depth understanding of the necessary elements that impact its success. Those elements include creating a vision of BYOT that includes a focus on 21st century teaching and learning practices. Additionally, it is critical to ensure that school buildings have the appropriate infrastructures in place to enable efficient technology use and Internet access. It is also imperative to gain support for the BYOT initiative from all members of the school and local community as well as technical and pedagogical support within the school and district. Professional development for teachers using the TPACK framework and ongoing coaching are needed to ensure that technology is used as an effective teaching and learning tool that promotes modern learning. Finally, policies need to be reformed to allow for students to bring their technological devices to school in a safe and secure school environment.

Implementation

Implementing a BYOT initiative at School District X will require all educational leaders in the school district to comprehend the value of allowing students to bring their own technology to school. Sharing the results of this study, current research, and the state and federal plans and goals related to technology integration will be a significant first step in the implementation process. Once the administrators in School District X commit to executing a BYOT initiative, the implementation guide will be shared with the

educational leaders . The comprehensive BYOT Implementation Guide will provide administrators step-by-step, research-based procedures to allow for successful implementation throughout the school district.

Potential Resources and Existing Supports

There are many potential resources and existing supports within School District X that will positively contribute to the implementation of the BYOT initiative. First, School District X is located in an affluent community with approximately 5% of the students receiving free or reduced lunch. Therefore, many students have access to technology outside of school. When asked during the interview if students had access to technology outside of school, Teacher 6 indicated that all her students were afforded access to technology and many had multiple devices.

In addition to the availability of students' personal devices, each school in the district employs technology specialists. Although their job requires them to teach students for a large part of the school day, they are viewed as leaders in the building who are responsible for supporting technology resources, planning professional development for teachers and parents, and planning project-based learning activities. Therefore, it would be an easy transition for technology specialists to provide support for BYOT as described in the implementation guide.

Although schools do not have the capacity for one-to-one computing, there are many laptops and other technological devices available for use in each school in the district. Therefore, students who do not have access to their own personal devices would

be able to utilize a device during the school day. Since parents are very involved in the schools throughout the district, creating a donation program for students who do not have technology should be easily implemented. Currently, there is a textbook swap program at the middle school in the district that allows parents to share textbooks for use at home. The program has been a huge success and is implemented solely by the parent and faculty association.

Finally, the Board of Education and other community members are very supportive of new and progressive educational initiatives since they pride themselves on being a part of a school district that boasts an outstanding reputation for providing all students an excellent education. Thus, sharing the potential positive impact of a BYOT initiative on teaching and learning should generate excitement and support from the local community.

Potential Barriers

Although there are so many supports in place that would allow for the successful implementation of a BYOT initiative, there are potential barriers. The first barrier to successful implementation is the potential cost of creating an infrastructure that supports personal devices. The second barrier is the very inflexible and complicated networking system that exists and has become a barrier to successful technology integration as indicated in the interview findings. Costa (2012) maintained that many IT personnel are overly focused on protecting the network from harm, which inhibits technology integration efforts. However, IT personnel are critical to the adoption of a BYOT

initiative and should be included in all aspects of the implementation process (Costa, 2012).

Another significant barrier that was documented in all interviews and questionnaire responses and was substantiated in current research is the concern among the school community that students will access inappropriate content on the Internet or will use their devices in a way that causes harm to others. Therefore, it will be important to establish a program to encourage digital citizenship and to create policies that conform to the CIPA regulations. It will also be important to balance security and access as stated in the National Education Technology Plan (United States Department of Education, 2010).

Proposal for Implementation and Timetable

The proposed implementation plan for the BYOT initiative will take three years to complete. The implementation guide is divided into three phases, and each phase will be completed in a year. The first phase is the preparation phase, which guides administrators and committee members as they prepare for a BYOT initiative. The second phase is the implementation phase, which guides the execution of a BYOT pilot in one grade at one elementary school. Finally, stage three is the expansion phase, which focuses on implementing BYOT for additional students throughout the school district. Specific time lines (See Appendix A) are provided in each phase of the implementation plan.

Roles and Responsibilities of Student and Others

As the creator of the implementation guide, it will be important for me to serve as a support in all aspects of the plan. I will need to be attentive to potential concerns expressed by all members of the school community. Providing research-based information to members of the BYOT committee will be an important part of the implementation process. Additionally, I will need to be flexible and adaptable as changes may need to be made to the implementation guide as potential issues specific to School District X are realized.

Project Evaluation

To make decisions regarding the BYOT initiative and to evaluate the success of the BYOT initiative, a program evaluation will be implemented. As maintained by Lodico, Spaulding, and Voegtle (2010) program evaluation is a type of research that is employed to gather information about the effectiveness of a program. The data gathered is used to make immediate improvements and guide decisions that need to be made regarding the implementation of the program. When conducting a program evaluation there is generally two types of data that is gathered by the researcher. Formative feedback is ongoing and is used to make decisions and improvements while the program is being implemented. Summative feedback provides data to determine if the goals of the program have been achieved (Lodico, Spaulding, and Voegtle (2010). According to Lodico et al., a participant-oriented program evaluation approach examines the impact of

a program on the population of people it serves. Thus, the participants help to create the evaluation tools and collaborate to analyze the data.

Formative data would be gathered from surveys provided frequently to students, parents, and teachers to determine ways to improve the BYOT initiative. In addition, summative data will be collected to determine whether the goals of the BYOT initiative were achieved. The committee of school community members will be responsible for creating surveys to gather formative and summative data. The summative survey will focus on the established goals for the implementation of BYOT. The goals include: (a) creating an environment that is conducive to BYOT, (b) promoting 21st century learning goals, (c) supporting teachers and students to enable safe, yet efficient, productive access to technology and the Internet, (d) involve all members of the community in the BYOT process, (e) provide on-going professional development through a variety of forums, and (f) create policies that help ensure student safety and protect the district from liability. It will be important to ensure that the surveys produce reliable and valid data. Analysis using qualitative and/or quantitative methods will help to provide data that is meaningful.

Furthermore, it will be important to determine if the BYOT has had an impact on student achievement, which is the ultimate goal. Evaluating the impact of BYOT on student achievement will take time. Longitudinal studies regarding one-to-one laptop usage in the classroom revealed that student achievement was not impacted until the second year of implementation (Bebell & Kay, 2010; Gulek & Demirtas, 2005; Suhr, Hernandez, Grimes, & Warschauer, 2010). Additionally, since the state assessments will

be new, it will be difficult to determine the impact of BYOT on student achievement. However, if the assessments are implemented in the first year of implementation, comparing students in the pilot program to other students may demonstrate the impact of BYOT on student achievement. Costa (2012) provides a rubric for educators to utilize that evaluates students' 21st Century skills. This evaluation tool could provide insight into students' growth on modern learning skills as a result of the BYOT initiative. Another indicator of student achievement is the use of common summative assessments. Such assessments could be analyzed to compare student achievement in the pilot group to others in the same grade.

During each stage of the evaluation process, it will be important to share the results with all members of the school and local community. Celebrating successes and sharing improvements to the plan will help to motivate all of the stakeholders to create a BYOT program that transforms teaching and learning in School District X to ensure that students are successful in the 21st century workforce.

Implications Including Social Change

Local Community

This project impacts the local community by providing a solution to the lack of technological resources that has become a barrier to successfully integrating technology that will promote modern learning. The mission of School District X is to provide educational opportunities to students that will prepare them to be successful in the future. Clearly, students entering the 21st century workforce will need modern learning skills that

include collaboration, critical thinking, creativity, and problem solving (Partnership for 21st Century Skills, 2011; United States Department of Education, 2010). Technology is the tool that can transform how students learn and how teachers teach (Costa, 2012; Partnership for 21st Century Skills, 2011; Trillings & Fadel, 2009; United States Department of Education, 2010). However, as a result of this study it was determined that access to technology is a significant barrier to such technology integration. Other studies have also recognized the lack of resources as an obstacle to technology integration (Cifuentes, Maxwell, & Bulu, 2011; Varma, Husic, & Linn, 2008). The cost of providing individual access to technological devices makes it difficult for schools to provide adequate technology access for students (Costa, 2012; United States Department of Education, 2010). Therefore, a BYOT initiative is a solution for School District X to increase students' access to technology. Such an increase can result in reforms to teaching, which will create learner-centered practices that support 21st century learning goals. This will ultimately assist educators in fulfilling the mission of the school to prepare students to be successful in the 21st century workforce.

Far-Reaching

This project has the potential to significantly impact social change in other school communities and to contribute to scholarly research. Other school communities may be struggling with budget constraints that prevent them from purchasing technological devices. Similarly, districts may be hesitant to implement BYOT initiatives because of fears with regard to student safety and device security (Costa, 2012). Therefore, the

successful implementation of a BYOT initiative could provide a model to other school districts that plan to pursue the same goal. Furthermore, scholarly research regarding the impact of BYOT and best practices for the implementation of BYOT initiatives are needed. Thus, School District X could provide a forum for future scholarly research focused on both BYOT and modern learning practices.

Conclusion

In response to the results of this research study regarding barriers that impact successful integration of technology as prescribed by 21st century learning goals, a BYOT Implementation Guide was created. The most significant barrier to technology integration was the lack of resources; however other barriers were indicated and considered when creating the BYOT Implementation Guide. The guide provides educational leaders at School District X with goals, procedures, and resources to support the implementation of a BYOT initiative. The guide was created based on information gathered from scholarly research, BYOT resources, and change theory. The BYOT Implementation Guide has the potential to significantly impact social change locally and in other schools that are faced with budget constraints that prevent one-to-one computing.

This section provided information regarding the project, research related to the project, and its potential implications for social change. Section four provides information about the strengths and limitations of the project. It also provides a reflection and analysis of my abilities as a scholar and educational leader.

Section 4: Reflections and Conclusions

Introduction

Pervasive changes in society because of technological advances have dictated the need for schools to reform their practices to meet the needs of students entering the 21st century workforce. However, many schools have not changed the way instruction is delivered or what content is being taught (Wagner, 2008). Researchers recognize technology as a tool that can reform educational practices to meet the needs of students to ensure they are prepared for the 21st century (Costa, 2012; Partnership for 21st Century Skills; United States Department of Education, 2010). However, research at School District X determined that the lack of resources was an obstacle that prevents teachers from transforming their teaching to meet the needs of modern learners. Therefore, a BYOT Implementation Guide was developed to support educational leaders in the execution of a program that would permit students to bring their personal technological devices to school. In this section, a reflection on the creation of the implementation guide is described along with my growth as a scholar and educational leader.

Project Strengths

The purpose of this study was to determine the obstacles that prevent successful technology integration as prescribed by 21st century learning goals. This research was conducted in response to the concern that technology was being utilized by teachers primarily for presentations and organization, which did not produce changes in teaching and learning as required for 21st century proficiency. The study determined that the lack

of individual student access to technological resources was the most significant barrier to technology integration related to modern learning. The results of this study were also substantiated in current research (Cifuentes, Maxwell, & Bulu, 2011; Varma, et al. 2008). Therefore, an implementation guide was created to direct the execution of a BYOT initiative.

A BYOT initiative could alleviate the financial burden School District X has encountered when seeking to purchase technological devices that are quickly outdated. Another strength of the project is that the implementation guide was created based on scholarly research regarding one-to-one computing and 21st century learning. Theories focused on creating sustainable change provided a framework for the implementation guide. Moreover, other resources were consulted regarding BYOT and the goals of both the state and federal government regarding 21st century teaching and learning. An additional strength of the implementation guide is that it is easy to use since it provides leaders a thorough description of each step in the program process. Furthermore, consideration of the other barriers that prevent technology integration, as found in this study and confirmed in current scholarly research were included when creating the guide. Those barriers include the lack of ongoing professional development and effective support systems and concerns over Internet access (Almekhlafi & Almeqdadi, 2010; Demps, Lincoln, & Cifuentes, 2011; Lin & Lu, 2010; Robinson & Sebba, 2009; Varma, et al., 2008). Finally, although the BYOT Implementation Guide was created based on

the needs of School District X, administrators from other schools could use the guide to direct implementation of a BYOT initiative in their facilities.

Recommendations for Remediation of Limitations

Limitations exist in most projects, and those limitations may not be realized until the project is implemented. However, it is important to consider limitations of the project and to address those limitations proactively. The first limitation of the implementation guide is that it requires one school in the district to implement the BYOT plan prior to implementation in other schools. Although piloting BYOT in one school will allow for a more controlled and supportive implementation, community members may believe that students outside the pilot school are not receiving the same quality of education. Conversely, community members in the pilot district may be concerned that implementing BYOT may distract from the quality of education students deserve. Hence, it will be important to address those concerns publicly and to effectively communicate the complexity of the BYOT effort and the commitment to ensure that implementation is successful.

Another limitation is the diversity among the staff regarding their willingness to change and their experiences with technology integration. It will be important to provide a differentiated approach to professional development. Differentiated professional development will require the committee to establish procedures for assessing staff technological proficiencies and creating time for professional learning communities to work together. Additionally, generating a variety of professional development

opportunities that include providing access to online resources could help teachers who need more intensive support or are confronted with time constraints. Finally, change can be difficult for many people who will be impacted by the BYOT initiative. Therefore, it will be important to listen and address people's fears and concerns. Consulting resources focused on change theory will help members of the committee who are leading the change.

Scholarship

The journey to complete this research study, along with the course work that I have completed to earn a doctoral degree, provided me with many insights that have helped me to be a better school administrator. First, I recognize the importance of identifying trends in education and using scholarly research to confront trends that require changes in teaching and learning. It is easy for educational leaders to get caught up in the latest and greatest trend in education without developing a deep understanding of its impact on teaching and learning through scholarly research. Additionally, I recognize the importance of using data to inform educational decisions. Being able to gather data and analyze it using both quantitative and qualitative methods is invaluable and permits me to make better decisions in my position as a school administrator. Finally, I feel more confident reading scholarly research and have become a better communicator.

Project Development and Evaluation

Creating the project provided me with excellent experiences that resulted in new knowledge and skills that will be beneficial as a building principal. The first insight that

I gained from completing the project was the importance of using data to make decisions regarding the project and its implementation. When appropriate, information from surveys and interviews, along with current research, should drive the creation of a project. Gaining input from the stakeholders who are impacted by the project and recognizing personal biases that can skew the development of a project are critical. Additionally, establishing clear goals that can be evaluated is essential to the success of any project. Similarly, the goals of the project should be reflective of data used to guide the development of the project and current scholarly literature.

Evaluating the project requires consideration of the methods of evaluation and a focus on reliability and validity of the project assessments. Continually reflecting on researcher bias helps to ensure validity of assessment data. Using both quantitative and qualitative methods to analyze assessment data can provide information to guide changes and make potential improvements to the project.

Finally, creating a project based on my research study and current scholarly literature helped me to construct a solution to an educational problem. However, creating the project led to the formulation of more questions that will need to be answered based on scholarly literature and information gathered from assessment data. As the project leader, this will require adaptability, patience, effective communication, and continued research.

Leadership and Change

Exploring change theory during this journey provided invaluable information that I will be able to utilize as an instructional leader in my school setting. Change is an important part of school improvement and significant changes because of the advent of technology make understanding the change process even more critical. Creating sustainable change requires careful planning and systematic leadership that is guided by established theories (Kotter, 1999).

My goal is to be a leader who is focused on the future by creating a learning environment for students that prepares them for the 21st century. According to Marx (2006), a leader who is focused on the future has to develop new leadership proficiencies. As teachers are expected to teach in ways consistent with the needs of 21st century students, educational leaders must lead in ways consistent with the needs of both students and teachers in the 21st century (Marx, 2006; Wagner, 2008). Leaders attentive to the future must inspire and encourage leadership from all members of the school community, must be ready to confront complex change, and must create an enthusiasm for reforms (Marx, 2006). Therefore, producing the BYOT Implementation Guide forced me to examine my leadership style and to develop capacities that are needed in order to implement a complex change the has the potential to transform the school culture.

Analysis of Self as Scholar

All of the experiences leading up to and including the project study process helped me to realize how much I love learning about topics related to teaching, learning,

and leadership. Prior to enrolling in the doctoral program, I found myself frequently confined to the routine tasks of managing a school. I neglected to make time to deeply explore new trends in education by reading scholarly literature. Many of my decisions were based solely on intuition and directives from central administration. Presently, I find myself seeking more information about issues from a variety of sources, and I am able to ask better questions. Marx (2006) maintained that future focused leaders are able to ask quality questions and to speculate about the impact of their decisions on the future. It has been empowering to be able to confirm or negate my intuitions and to answer complex questions by reading scholarly research that I now have the capacity to comprehend on a deeper level than in the past.

Analysis of Self as Practitioner

It is such an exciting time to be an educational leader who is charged with the task of inspiring a transformation in teaching and learning that impacts 21st century students. According to Wagner (2009), our world has quickly changed in three very important ways: we have become a global knowledge economy, we have immediate access to a rapidly growing and constantly changing pool of information, and we are teaching students whose motivations differ from students of the past. This knowledge has driven me to think deeply about changes that are required at my school in order to meet the unique needs of today's learner.

However, there are so many obstacles to implementing complex transformations that challenge the status quo. When educational leaders and community members are

consumed by students' achievement on standardized assessments, it makes modern learning reforms problematic. The stifling mission to have the highest scores on the state assessment is a huge barrier to the successful implementation of 21st century teaching and learning. Hence, I am hopeful that my work to complete my study and project will help me to encourage future changes that will ultimately positively impact student achievement in meaningful ways.

Analysis of Self as Project Developer

Developing the project as a result of my study allowed me to recognize that understanding a problem profoundly can lead to a powerful solution that is substantiated by scholarly research and meaningful data. It is empowering to be able to cultivate a project that can result in change that impacts students. However, I understand that creating the project is only the beginning of a long process. Being able to effectively communicate the need to implement the project and inspiring others to be a part of the change process is the most critical part of the venture. I plan to use Kotter (1999) and Senge's (2012) works to support me as I introduce my study and project to the superintendent and to other school personnel who are essential to the implementation of the project.

The Project's Potential Impact on Social Change

Students in School District X and around the world are entering school with different skills, knowledge, and needs than student from past generations (Prensky, 2011). Many schools have started to initiate reforms that are designed to prepare students

for the 21st century and are focused on the unique needs of digital learners (Trillings & Fadel, 2009, United States Department of Education, 2010; Wagner, 2008). However, there are many schools that are consumed by test scores and that operate with a status quo mindset (Wagner, 2008). At School District X, there are examples of 21st century learning taking place in some classrooms; however, most teachers are still teaching the same content using the same instructional practices that they used when past generations participated in their classrooms.

Technology has been the catalyst for rapid changes in society and has the potential to influence reforms in teaching and learning (Partnership for 21st Century Skills, 2011; United States Department of Education, 2010). Utilizing technology in the classroom as the vehicle to 21st century learning goals has been explored in research and encouraged by the United States Department of Education. Therefore, determining the barriers that prevent successful integration of technology to promote modern learning skills was an important part of my study. Based on the scholarly research I had read and my familiarity with the study site, I expected teachers to identify the lack of professional development as the most significant barrier to technology integration to promote modern learning. However, the lack of students' access to individual technological devices was determined to be the most significant obstacle to technology integration at School District X. The results of the study prompted me to explore research-based ways to increase access to technology resources in School District X. The research was positive with regard to one-to-one laptop usage, but budget constraints led me to the determination that

it would be impossible to purchase individual laptops for all students in the school. Therefore, my research led me to thinking about the prospect of allowing students to bring their own technological devices to school. Considering scholarly research on one-to-one laptop programs, BYOT resources, change theory, and 21st century learning led to the creation of a BYOT Implementation Guide to support educational leaders as they execute a program that would allow students to bring their own technological devices to school.

The BYOT project has the ability to impact social change at the local level and beyond. It provides educational leaders an easy to understand, research-based plan to increase students' and staff members' access to technology in school. Schools with the capacity to allow individual access to technological devices may then provide professional development focused on creating the more learner-centered approach to teaching and learning that is required for students to develop 21st century skills (Costa, 2012; Partnership for 21st Century Skills, 2011; Trillings & Fadel, 2009; United States Department of Education, 2010; Wagner, 2008). In addition to professional development, the plan addresses other barriers to technology integration such as concerns over safety and security, lack of equal access, the presence of complicated networks and firewalls, and the lack of consistent, accessible support.

Implications, Applications, and Directions for Future Research

This project addresses the need for students and staff to have individual access to technological devices in school. This need, substantiated by this study and supported by

current literature, is a significant barrier to technology integration that is focused on modern learning skills. The goal of the project was to create a plan that would permit students to bring their own technological devices to school in a safe, secure environment. The project, a BYOT Implementation Guide, can be used by educational leaders to execute an initiative that would permit students to bring their personal technological devices to school to use as teaching and learning tools. The guide is easy to follow and was constructed based on scholarly research. However, a BYOT initiative is significant change that requires careful planning, collaboration amongst school members and the local community, and effective communication to all community members. Ongoing evaluation of the project should be completed frequently throughout the BYOT initiative, and information gathered from evaluations should be analyzed using sound quantitative and/or qualitative methods. Further research should be conducted to determine best practices that result in effective implementation of a BYOT program. Subsequent research is also needed to determine the impact of BYOT on student achievement related to both subject area content and 21st century learning skills.

Conclusion

This section provided me the opportunity to reflect on my growth as a scholar, practitioner, and project developer. It also afforded me the opportunity to evaluate my project and to determine future applications for research after implementing the project. As a scholar, I have established a deeper love of learning and have developed competencies that enable me to better comprehend scholarly literature and to apply

research methods to solve complex problems. As a practitioner, I am more committed to inspiring reforms in both teaching and learning to prepare students for the 21st century workforce. Having the knowledge and tools to create a project that addresses complex issues will allow me to be an educational leader focused on the future.

The project, a BYOT Implementation Guide, is a tool for administrators to initiate a program to permit students to bring their own technology to school. Having individual access to technology in school can help educators create a more learner-centered classroom environment to meet students' needs as digital learners. However, understanding the limitations of the project and addressing them proactively are necessary for the project's success. In addition, frequent evaluation of the project must be completed and sound methods for data collection and analysis employed. Finally, the successful implementation of the BYOT program could have local and far-reaching consequences that could result in possible changes that impact students' future success in a rapidly-changing, global society.

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Appendix A: The Project

TRANSFORMING

INSTRUCTIONAL PRACTICE

THROUGH

BRING YOUR OWN TECHNOLOGY INITIATIVE

IMPLEMENTATION GUIDE FOR EDUCATIONAL LEADERS

JULY, 2012

A PROJECT STUDY FOR WALDEN UNIVERSITY

CREATED BY DIANE YOUNG

IN CONSULTATION WITH DR. SCOTT KIRST

BYOT IMPLEMENTATION GUIDE

INTRODUCTION:

The Bring Your Own Technology Implementation Guide was developed to direct the school district's execution of an initiative that would allow students to bring their own technology to school. This initiative is in response to research regarding the integration of technology in schools to promote 21st century learning, state and federal mandates regarding technology use in the classroom, and a recent study of the barriers that prevent teachers in the school district from integrating technology as prescribed by 21st century learning goals.

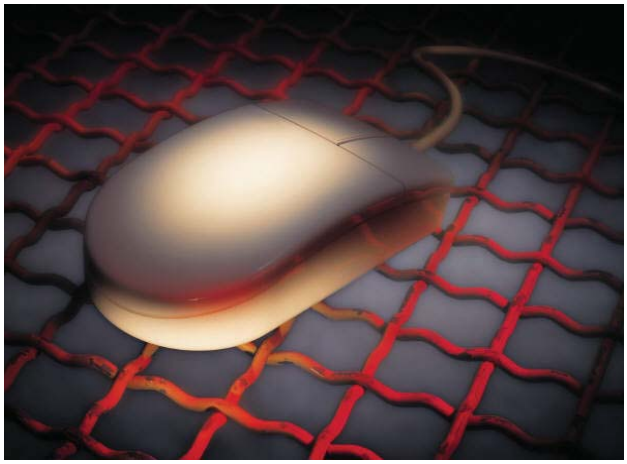
BENEFITS OF BYOT:

- Allows for students to have one-to-one access to technology without burdening the school's budget and technology maintenance staff
- Allows students to have a better connection between home and school
- Access to individual technological devices during the school day positively impacts student achievement
- Allows students to develop 21st century learning skills such as research, collaboration, critical thinking, creativity, and technology proficiencies
- Allows for increased student motivation, engagement, responsibility, and organization
- Results in learner-centered classroom environments that fosters modern learning
- Supports Federal and State education initiatives requiring students to have access to technology. This includes the adoption of the Common

Core State Standards and future mandated standardized digital assessments that will require students to have access to a computer.

GOALS:

- To create a student-centered learning environment conducive to individual technology usage in each school in the district
- To integrate technology in the classroom as a teaching and learning tool that promotes 21st century learning
- To support teachers and students to enable efficient, productive, and safe use of technology in the classroom and access to the Internet
- To involve all members of the school community including parents in the implementation and support of the BYOT initiative
- To provide on-going professional development through a variety of forums to ensure the successful integration of technology and 21st century learning goals
- To reform current policies with regard to technology usage in the classroom and students' personal technological devices



PHASE I- PREPARATION

GOALS:

- Create a vision for technology integration to promote 21st century learning through BYOT
- Create a committee of parents, teachers, and administrators to support the BYOT initiative
- Create an infrastructure that supports personal devices and allows safe access to the internet for students and staff
- Redefine the job descriptions of the technology specialists in each elementary school
- Provide comprehensive professional development to technology specialists and select teachers
- Survey teachers and students to determine access to personal technological devices
- Reform policies regarding personal technological devices

IMPLEMENTATION:

1. Create a vision of technology integration that promotes 21st century learning

   a. The vision should focus on 21st century learning skills that include creativity, communication, collaboration, and creative thinking
   b. Involve members of the school community in the creation of the vision, which includes parents, teachers, administrators, board members, and other community members
2. Create a committee of parents, teachers, and administrators to support the BYOT initiative
   a. Discuss and revise (if needed) the vision for BYOT
   b. Present the benefits of BYOT as well as technology integration and 21st century learning goals
   c. Discuss concerns for BYOT
   d. Brainstorm a way to support students without access to computers or other technology in the home
3. Create an Infrastructure that supports personal devices and allows safe access to the internet for students and staff
   a. Work with the technology director to develop an infrastructure that allows students and staff to utilize their personal devices and connect to the internet safely
   b. Develop a plan to store personal devices when students are not in their classrooms
4. Redefine the job descriptions of technology specialists in each building
   a. Technology specialist will no longer be responsible for teaching students in the computer lab
   b. Technology specialists will be provided training and network access to be able to remediate technological problems in their individual buildings
   c. Technology specialists will be provided training related to technology integration that promotes modern learning skills
   d. Technology specialists will provide professional development training to teachers and parents

    e. Technology specialists will monitor and support the integration of technology in the classroom as prescribed by 21st century learning goals
5. Provide comprehensive professional development to technology specialists and select teachers
    a. Technology specialists will be provided professional development through a variety of forums, which include out of district workshops, webinars, visits to schools implementing BYOT, and professional learning communities
    b. Technology specialists will train selected teachers to participate in the BYOT program
    c. Technology, Pedagogy, and Content Knowledge (TPACK) will guide the implementation of training to both technology specialists and teachers
6. Survey teachers and students to determine access to personal technological devices
    a. Develop a short survey to determine which technological devices students and teachers have available in their home, which devices they could bring to school each day, and their ability to access the internet at home
    b. Distribute to students and ask them to have their parents review and sign off on the survey
7. Reform policies regarding personal technological
    a. Review model policies such as Middletown Township School District or Forsyth County Schools computer and acceptable use policies
    b. Create policy for School Board Approval

PHASE II-IMPLEMENTATION

GOALS:

- Pilot BYOT at one elementary school for fifth grade students
- Train teachers and technology specialists implementing the Pilot BYOT using the TPACK framework
- Provide information sessions and workshops to parents and other community members on the BYOT initiative
- Train students on the elements of BYOT as well as safety and security procedures
- Create a program to provide technology to students that do not have access to technology
- Evaluate the BYOT program

IMPLEMENTATION*:*

1. Pilot BYOT at one elementary school for fifth grade students
    a. Introduce program to fifth grade staff, students, and their parents
    b. Survey students to determine the technology available to students
    c. Provide teachers with a cabinet to lock technology when not in use
    d. Provide supports from the technology specialists to ensure teachers, students, and parents are provided the necessary resources to ensure successful implementation of the BYOT program
2. Train teachers implementing the Pilot BYOT using the TPACK framework
    a. Continue training focused on technology, pedagogy, and content knowledge
    b. Provide collaboration time for teachers and the technology specialist at least 1 time per month
    c. Begin training for staff members who will participate in the BYOT initiative in the future
3. Provide information sessions and workshops to parents and other community members on the BYOT initiative
    a. Provide an information session to parents about the BYOT initiative in August and during Back to School Nights in the Fall that includes the benefits of BYOT and safety, security measures
    b. Provide parent workshops focused on information about acceptable technological devices, student safety, the acceptable use policy and consequences for inappropriate usage, security procedures to protect technological devices

   c. Meet with parents 1 time per marking period to gain insights into the program and offer support
   d. Have parents complete an evaluation in May to gather feedback regarding the program
4. Train students on the elements of BYOT as well as safety and security procedures
   a. Provide information to students regarding the elements of BYOT technology
   b. Train students how to keep their devices safe and secure during the school day
   c. Review the acceptable use policy for technology
   d. Discuss consequences for inappropriate use of technology during the school day
   e. Explore and adopt a digital citizenship curriculum for teachers to utilize
5. Create a program to provide technology to students that do not have access to technology
   a. Work with parent and faculty association to create a program that would encourage community members to donate their computers they no longer use
   b. Establish procedures to donate used technological devices to students without access to technology outside of school
   c. Find volunteers to configure and restore devices donated from the community
6. Evaluate the BYOT program
   a. Create a survey for staff, parents, and students to complete in order to provide information regarding the BYOT Pilot Program
   b. Have students complete a survey regarding the BYOT initiative each marking period to gain feedback about the program

c. Have parents, teachers, and other community members complete a survey regarding the BYOT initiative mid-year and at the end of the year
d. Analyze the data from the surveys in order to make changes to the program or the future
e. Share the results of the findings with community members
f. Celebrate successes

PHASE III-EXPANSION

GOALS:

- Expand the BYOT program to fifth grade students in all elementary schools and sixth grade students in the middle school
- Train teachers implementing the BYOT program in their classrooms
- Provide information sessions and workshops to parents and other community members on the BYOT initiative
- Train students on the elements of BYOT
- Expand the technology donation program to all elementary schools and middle school
- Evaluate the BYOT program

IMPLEMENTATION:

1. Expand the BYOT program to fifth grade students in all elementary schools and sixth grade students in the middle school
    a. Introduce program to fifth and sixth grade staff, students, and their parents
        i. Include staff, parents, and teachers from the pilot school when introducing the program
        ii. When possible, use data to demonstrate the positive impact of the initiative
    b. Survey students to determine the technology available to students
    c. Provide teachers with a cabinet to lock technology when not in use

    d. Provide supports from the technology specialists to ensure teachers, students, and parents are provided the necessary resources to ensure successful implementation of the BYOT program
2. Train teachers implementing the BYOT program in their classrooms
    a. Continue training focused on technology, pedagogy, and content knowledge
    b. Develop mentoring program to allow teachers from the pilot school to support teachers in other schools
    c. Provide collaboration time for teachers and the technology specialist at least 1 time per month
    d. Begin training for staff members who will participate in the BYOT initiative in the future
3. Provide information sessions and workshops to parents and other community members on the BYOT initiative
    a. Provide an information session to parents about the BYOT initiative in August and during Back to School Nights in the Fall that includes the benefits of BYOT and safety, security measures
    b. Provide workshops for parents that include information about acceptable technological devices, student safety, the acceptable use policy and consequences for inappropriate usage, security procedures to protect technological devices
    c. Meet with parents 1 time per marking period to gain insights into the program and offer support
    d. Have parents complete an evaluation in May to gather feedback regarding the program
4. Train students on the elements of BYOT
    a. Provide information to students regarding the elements of BYOT technology
    b. Train students how to keep their devices safe and secure during the school day

    c. Review the acceptable use policy for technology
    d. Discuss consequences for inappropriate use of technology during the school day
    e. Have students from the pilot school create videos regarding safety and security to share with other students
    f. Incorporate digital citizenship curriculum in instruction
5. Expand the technology donation program to all elementary schools and middle school
    a. Share donation program implemented in the pilot school with Parent/Faculty groups in each school
    b. Reach out to local business to increase technology donations
    c. Solicit more volunteers to configure and restore devices donated from the community
6. Evaluate the BYOT program
    a. Have students complete a survey regarding the BYOT initiative each marking period to gain feedback about the program
    b. Have parents and other community members complete a survey regarding the BYOT initiative mid-year and at the end of the year
    c. Analyze the data from the surveys in order to make changes to the program for the future
    d. Analyze student achievement data to determine the impact of BYOT
    e. Share the results of the findings with community members
    f. Celebrate successes


Time Line Phase III Expansion
Prepare to Expand BYOT to all 5th & 6th grade classrooms
Meet with Committee
Train New Teachers
Develop Mentor Program
Expand Donation Program
Summer Year 3
Provide Parent Information Sessions
Meet with Committee
Continue Training Staff
Train Students
Plan Collaboration Time with Mentors
Fall Year 3
Meet with Committee
Continue Staff Training
Survey Students, Parents, and Teachers
Begin Training New Teachers and Establishing Mentors
Winter Year 3
Prepare Expansion to Grades 2-8
Meet with Committee
Continue Staff Training
Survey Students, Parents, and Teachers
Analyze Student Achievement Data
Share Survey Results with Community Members
Celebrate Success
Spring Year 3

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Appendix B: Consent Form Questionnaire

You are invited to take part in a research study of technology integration in the classroom. The researcher is inviting certified elementary education teachers to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Diane Young who is a doctoral student at Walden University. You may already know the researcher as a principal at Voorhees Middle School, but this study is separate from that role.

Background Information:
The purpose of this study is to determine the barriers that prevent successful technology integration as prescribed by 21st century learning skills.

Procedures:
If you agree to be in this study, you will be asked to complete an online anonymous questionnaire.

Here are some sample questions:

- How are you currently using technologies in your classroom?
- What would you need in order to better use your school's technologies?
- What skills and knowledge do you lack that might be affecting your use of your school's technologies?
- What hardware and software that you currently use is the most useful to you?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Voorhees Township School District will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this study would not pose risk to your safety or wellbeing.

The potential benefits of the study would be the ability for leadership to have a better understanding of teachers' needs related to technology integration.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the

study reports. Data will be kept secure by keeping all information electronically and access will be password protected. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via diane.young@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can

discuss this with you. Her phone number is 1-800-925-3368, extension 1210. Walden University's approval number for this study is 06-07-12-0187416 and it expires on June 6, 2013.

Please print or save this consent form for your records.

Statement of Consent:
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By completing the survey, I understand that I am agreeing to the terms described above.

Appendix C: Questionnaire

You are invited to take part in a research study of technology integration in the classroom. The researcher is inviting certified elementary education teachers to be in the study. The purpose of the study is to determine the barriers that prevent successful technology integration as prescribed by 21st century learning skills. Please **do not** include your name and contact information on the questionnaire unless you wish to volunteer to participate in the next phase of the study. The next phase of the study will include a 45 to 60 minute interview. Please include your name and contact information at the bottom of the questionnaire if you wish to be interviewed. You can access the questionnaire at SurveyMonkey.com

1. How are you currently using technologies in your classroom?
2. What would you need in order to better use your school's technologies?
3. What skills and knowledge do you lack that might be affecting your use of your school's technologies?
4. What hardware and software that you currently use is the most useful to you?
5. What hardware and software would be most useful for you if you had it?
6. Can you easily access the technology resources available in your school or district?
7. What is easy or difficult about access?
8. Are there other kinds of obstacles or barriers (not hardware or software related) to technology use at your site? Please describe them.
9. What practical factors hinder your ability to involve students in hands-on technology activities?
10. With reference to technologies, what are the essential skills for your students to master?

11. What are the essential technology skills for a teacher to possess?
12. Could there be a more equitable and productive distribution of technologies in the school? If so what would that look like?
13. Are you happy with the current status of technologies at your school? Could it be better? How?
14. Can you name any ways that school organizational climate or structure can be made more conducive to the use of technologies?
15. How does your school administration encourage your adoption of technologies in your classroom?
16. What kind of problems would you expect if your students have easy access to a variety of technologies in your classroom?
17. When you envision your ideal classroom, how would you like for your students to be using technology?
18. What technologies do your students access outside of school (cell phones, laptops, handhelds, text messaging, blogs such as MySpace, etc.)?
19. If you are interested in participating in an interview, please include your name and contact information below.

Name: _____
Email Address: _____

Adapted from: Knezek, G., Christensen, R., Miyashita, K., Ropp, M. (2000). *Instruments for assessing educators progress in technology education.* Denton, TX: Institute for the Integration of Technology into Teaching and Learning. Retrieved from http://www.iittl.unt.edu/

Appendix D: Interview Protocol

Thank you for volunteering to participate in a research study of technology integration in the classroom. The researcher is inviting certified elementary education teachers to be in the study. The purpose of the study is to determine the barriers that prevent successful technology integration as prescribed by 21st century learning skills. The interview will take 45 to 60 minutes, and all information will remain confidential. I will be recording the interview and you will be asked to review the findings of the study for the purpose of member checking.

Primary research question to be addressed in the study:

What are teachers' perceived barriers to technology integration as prescribed by 21st century learning goals?

Secondary and probing questions:

What are your experiences with technology in the classroom?

How do you use technology in your classroom?

> What on-line resources do you use?
> What software programs do you use?

What type of learning activities have you planned that include a technology component?

If you described your ideal classroom, what role would technology have in your classroom?

What training have you participated in related to technology integration in the classroom?

> Was the training related to a particular software or hardware?
> Was the training on-site or off-site?

Have you participated in a professional learning community related to technology integration?

> Who provided the technology training you attended?
> Is there specific training you would like to receive related to technology integration in the future?

What prevents you from using technology in your classroom?

Do you have enough time to plan activities that incorporate technology?
Do you have enough resources to integration technology in your classroom?
Do you feel confident using technology in your classroom?
How do your students' parents feel about technology in the classroom?
Do you believe students benefit from technology use in the classroom? In what ways?
Do you feel your administrator is supportive of technology integration in your classroom?
Do you feel you are provided enough support to integrate technology in your classroom?

Have you experienced technical problems with utilizing technology? How did you address the problem?

What would you need in order to increase your use of technology in the classroom?

What is the impact of technology use in the classroom on students?

Is there anything else you would like to add about technology?

Appendix E: Consent Form Interview

You are invited to take part in a research study of technology integration in the classroom. The researcher is inviting certified elementary teachers to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Diane Young who is a doctoral student at Walden University. You may already know the researcher as a principal at Voorhees Middle School, but this study is separate from that role.

Background Information:
The purpose of this study is to determine the barriers that prevent successful technology integration as prescribed by 21st century learning skills.

Procedures:
If you agree to be in this study, you will be asked to participate in an audio-taped interview of 45-60 minutes. You will also be asked to review the study findings for the purpose of member checking. This should take no more than 30 minutes.

Here are some sample questions:
How are you currently using technologies in your classroom?
What would you need in order to better use your school's technologies?
What skills and knowledge do you lack that might be affecting your use of your school's technologies?
What hardware and software that you currently use is the most useful to you?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Voorhees Township School District will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

Risks and Benefits of Being in the Study:
Risks for participation in this study are minimal and would not pose a risk to your safety or wellbeing.

The potential benefits of the study would be the ability for members of leadership to have a better understanding of teachers' needs related to technology integration.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by keeping all information electronically and access will be password protected. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via diane.young@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. Walden University's approval number for this study is **06-07-12-0187416** and it expires on **June 6, 2013**

Please print or save this consent form for your records.

Statement of Consent:
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By replying to this email with the words, "I consent", I understand that I am agreeing to the terms described above.

Appendix F: Interview Transcripts

Teacher 1

Speaker 1: Okay. Thank you for volunteering to participate in a research study of technology integration in the classroom. I invited you, as a certified elementary education teacher, to be in the study. The purpose of the study is to determine the barriers that prevent successful technology integration as prescribed by 21st century learning skills. The interview will take 45 to 60 minutes and all information will remain confidential. I will be recording the interview and you'll be asked to review the findings of the study for the purpose of numbers checking. Once I go through the whole interview and I gather all of the data then I will send you by email, these are the findings, and you could always tell me if I'm missing anything that you wanted to communicate. Okay. Let's start, if you would, describe your experiences with technology in the classroom.

Speaker 2: As far as what I have in the classroom?

Speaker 1: And how you use it, more than what you have.

Speaker 2: Yeah. I think it has allowed my students to feel more empowered, it's more student-centered, they're not just recipients of information, they have one-on-one computing with netbooks, and that allows them to be more independent. We use our website as more of an interactive tool, even within our guided reading, there are certain links for certain groups, so it's individualized, it's differentiated, it provides enrichment as well as remediation, we use appropriate links that are current to the curriculum. We also have iTouch devices that again help with remediation and enrichment, and we've been able to produce a little bit with them. We're a little limited in that as far as not having access to a printer through the iTouches and so forth. It's a great resource tool when they're writing. They use a dictation app to help them with words they can't spell. They just say the word and there it is spelled correctly. We use a lot with the flip video and digital video. Some of my kids have experience with Movie Maker. They're getting content; they're producing content creation through Movie Maker which is really relevant. We use a lot of software programs, of course the SmartBoard and so forth. But I think it's becoming more not me leading the technology but giving the students the opportunity to use the technology to their own device.

Speaker 1: If you were to think back, and I know you're a new teacher, but if you thought back to when you started and you didn't have as much

technology. As far as what the students are learning, do you think it's different or the same?

Speaker 2: I think the students are able to do more, and like I said, I think it really helps with the higher level kids as far as there's less downtime. They are more empowered because they can get on that computer, they can enrich themselves, they are more empowered. I think also with the dynamic of my classroom with having classified students, it helps even the playing field. That's been a great benefit for them and it's a motivator because I think it evens the playing field and that they're using this technology at home. Some of these classified students are using the technology just as well if not better than some of my other higher level students.

Speaker 1: How about when you think about 21st century skills like collaboration, cooperation, communication; do you see that they're able to do more of that, less than that or the same?

Speaker 2: I believed so. I believe it's more of a collaborative effort because they can be working on certain programs together, when they're using it as a resource tool and then more with content creation, they're working together, so I think it definitely provides more of a collaborative opportunity with the use of technology.

Speaker 1 Can you describe a learning activity that you planned using technology?

Speaker 2: Let's see. Within my guided reading groups, that's always used. It does take some time as far as the preparation, especially within my website, but once it's done, it's done, so it's not so cumbersome. Usually, what happens is the students have leveled readers according to their ability levels and when they're on my website they'll click on their group and that will get them the link to their leveled readers so they can listen to it online, they can listen to it on headphones, and then when they're finished they have blogging opportunities. I find that this is really good for the higher level kids, especially when you're talking about collaboration and so forth because they all want to talk at the same time. Blogging allows them to get into a really good book talk and really deep thinking. The blogging has always been, I feel, a great benefit. Also, we have related links to whatever we're currently doing within that week. That helps some of the lower level kids with some of the remediation and so forth and then I make sure that there's some higher level links too as well. They love that. Even if they finish work early, they go on to those links or they go on to their blogging site and they even have their own websites too when they're finished early. That's something routine that happens weekly.

Speaker 1: Are you worried about the security aspects of it when they go onto the internet?

Speaker 2: I haven't run into any problems, especially because I check the links. I know what the links are. We do have the firewall that if anything, prevents more than what I wish It would. I haven't run into any real problems at all and even with the blogging. I think if the expectation is clear in the beginning, you won't find that many offenders. You really won't. They're excited to do it. They certainly don't want their privileges revoked and they take their responsibilities seriously. That's what I have found in the years I've been using it.

Speaker 1: If you had your ideal classroom, how would you use technology?

Speaker 2: I would probably have iPads, one-on-one iPads. However, I think that there's still so much more you can do with those iPads that has yet to even be discovered. I would have students with iPads. I foresee in the future textbooks being on iPads as apps and so forth. I don't think we're that far away from that.

Speaker 1: Are there things that might prevent you from being able to do that? If tomorrow I sit here is a classroom full of iPads, would you be able to implement it? Would there be things that prevented you from implementing it the way you wanted to?

Speaker 2: I think a little of both. I think it would be… Yes, the firewall sometimes does limit what they have access to. I think even, in my personal opinion, Apple needs to be a little more forefront. I know they do a lot with education but coming in with training more and really the syncing and all that stuff, can be a little confusing and cumbersome for the person in charge for those iPads and so forth. There needs to be more of a smoother transition in my opinion that we're not quite there yet but I think we will be. It's certainly been seen that they're using them in the workforce more so than in education, and we're a little behind. I don't think we're that far away.

Speaker 1: What training have you participated in related to technology integration in the classroom?

Speaker 2: I've gotten training through software programs as far as [inaudible], Synergy, some of the things that the schools provide, but a lot of it is kind of exploring on my own, I would say, and not being afraid. As far as we have a program, Study Island, that we don't have formal training, but there are webinars. You just need to take your time to explore, and I think that's probably where you get most of your training from, and then putting it to use.

Speaker 1: Do you feel you have enough time to do that?

Speaker 2: Probably more so in that I'm teen teaching in some… That gives me the opportunity as well. Yeah, of course. I don't think you'll ever have enough time to really feel like an expert with technology because there's so much to learn.

Speaker 1: Have you participated in professional learning communities related to technology integration?

Speaker 2: The one thing I did do is with Tech Sparks and so forth with the EP teacher, we have now took these tech-savvy students and provided an opportunity for them to almost incorporate more of a service learning plan for them that they go and they troubleshoot and they help to train. We also give them the opportunity to explore more the technology that we have, and that's been beneficial and it has allowed me to learn more. It's like a co-learning experience with the students and the staff so it's good.

Speaker 1: Had there been any opportunities for you to go outside of the district to receive training?

Speaker 2: No. I know there was one time but then it got full or something. [Inaudible] incentive.

Speaker 1: I do remember that. If you could have specific training in a certain area related to technology integration, what would it be?

Speaker 2: I would say to optimize the use of iPads in the classroom, because I think that's probably, has the greatest opportunity as of right now because of all the apps and really where it can go. I think we've only kind of scratched the surface, and I think until you really get that training or you see how it's been implemented in other classroom successfully, even just being able to observe. You can do your own and you can YouTube and so forth, but it would just be nice to have that training as well.

Speaker 1: What would you say is the biggest thing that prevents you from using technology in your classroom?

Speaker 2: I've been quite fortunate to have a lot of technology in my classroom, but my netbooks are now three years old, they're slowing down. Of course, funding, the access to internet at times.

Speaker 1: When you say access to internet, now are you saying…?

Speaker 2: To the firewall and so forth, the security and probably just the digital divide among staff and students. Sometimes it is such a range. I think what you need is, the staff, and as well the administrators to kind of all have the same vision, and I think that that's not always that clear or that's there yet.

Speaker 1: Do you feel like you have enough time to plan activities?

Speaker 2: I don't know if there's ever enough time, but I find that once you do something successful, you have it. I think over the years I've kind of developed this kind of repertoire of skills and so forth. I wish there was more time, but I still feel like I've gained a lot.

Speaker 1: Well, we talked about resources. You feel pretty confident using technology in your classroom?

Speaker 2: I do, I definitely do, but I'm not to say I'm an expert. I don't think anyone is at this point in time.

Speaker 1: How about your parents of your students, how do they feel about technology in your classroom?

Speaker 2: I think that they've realized the benefits of it. They're very happy with knowing that the students are provided with all that technology in my classroom. I also think it gives an opportunity for the parents to have a window of what is going on in the classroom because what I try to do is make my website more interactive, more like a parent portal where they can see what's going on in the classroom. If we do any oral presentations, we email them the video. They're getting more insight even if they're working and they never really get to see what's going on. This gives them that opportunity, and I think they're happy to see that. They're always really impressed with some of the projects and so forth that they bring home.

Speaker 1: You haven't had a parent who was upset that maybe their child was on the internet?

Speaker 2: No, I've never had a real issue.

Speaker 1: Very good. What would you say is the biggest benefit students get from using technology in the classroom?

Speaker 2: I think it gives then that cutting edge because in the end we're really helping them better themselves to the workforce and the workforce is using technology far more than what we're using. Any point in time that they're able to use it, then I think that's a true relevance to what goes on beyond the classroom. Even what they're doing at home is probably more so of what they're doing in school. The fact that they are utilizing these devices at home, we really need to be onboard and make sure that they're doing in it school as well.

Speaker 1: Do you think they're using the technology at home in a similar way that they're using it in school, or is it different at home?

Speaker 2: I think you're talking about different age groups too, and a lot of the kids are using it in social networking. We're a little more limited in using it as

far as a social network piece, gaming. But there are some benefits to these simulation games and so forth where we have to now take some part of that and put that into the classroom. Think of the military, they use simulation, all those types of things. You really have to find what they're using at home and make it relevant to the classroom. I think you have to really think beyond that.

Speaker 1: Do you think because you use technology in your classroom that kids then use it differently at home? Do you think it has the opposite…?

Speaker 2: It's funny because I remember when I was in Tech Sparks and they'd bring their own devices and I'd look at all their apps and a lot of them were games and so forth. I used to say, if you're a gifted learner and you have this opportunity to enrich yourself, I'm just looking at these apps and I don't see how this is any source of enrichment. How are you going to better yourself as a learner when you have this great opportunity? That talk maybe benefitted some of the kids, but they do kind of like to… I think they also use is as downtime. I think it's a little of both. Some students, I think that it does allow, especially some of the software programs that we have. I think they're more likely to do that type of program than just sitting there and writing and doing a workbook. In that regard, I think it definitely, they're going to use technology better at home by using it in school, as far our Study Island, they do that a lot at home and stuff. I think it works both ways.

Speaker 1: Do you think that your administrator is supportive of technology integration in the classroom?

Speaker 2: Yeah, I think so. I think do. I think we're limited with funding and budget and I think that's what this point in time limits. I think that some of my administrators have been very forward in their thinking.

Speaker 1: How about going back to the students on what they know and how they're able to use technology; do you think keyboarding is a problem for the younger kids that kind of inhibits your ability to integrate technology in the classroom?

Speaker 2: You mean that they're slow to type?

Speaker 1: Yes.

Speaker 2: I find that there is kind of a range with my kids. Some of the kids type faster than I do and some of the kids are a little slower. But to be honest, the kids that are slower are just as slow with their handwriting. I find that it's more of a fine motor thing, which is unfortunate, because you hope those kids who have a hard time producing with paper and pencil would use the keyboard as another avenue, but sometimes I find they can be just as slow. At times it can be a little bit of a problem but for the

most part, no. I would say absolutely not, that the keyboarding seems they pick it up quickly.

Speaker 1: You saw that there were kids maybe in the beginning of the year who…

Speaker 2: Yeah, they have increased their typing skills just by having more practice with it.

Speaker 1: Do you think that you are provided enough support to integrate technology in your classroom?

Speaker 2: I do. I do. I think that I've been fortunate to work in a district that has been more supportive than other districts.

Speaker 1: If you have a problem with the technology, you don't see it as a barrier to using it?

Speaker 2: No. Like I said, I think now it's more about the budget and the funding, and until we have enough money to be able to maintenance this or update it. That's the only thing that's limiting us right now.

Speaker 1: What if students were able to bring their own technology to school, do you see that there would be problems with that? Do you think it's a good idea?

Speaker 2: I think it would be okay as far as my grade level, and I think sometimes when you get to the upper grade levels is they're a little bit of a worry, maybe, but I think it would be fine for them to use their own devices.

Speaker 1: What would be your worry?

Speaker 2: I mean, with their bringing their cellular phones, they don't have to be using the firewall. Their service plan provides the internet, and so you would you have to just make sure that they are being heavily monitored. I think in my classroom, I have the opportunity to heavily monitor them, and that's not a problem. Will there be some problems? Yes, but at the same time, I think the benefit will outweigh the risk. I think it usually always does.

Speaker 1: How about kids bringing their own laptop or netbook?

Speaker 2: I think that it will be fine. It's just I think that it would be a little harder to make sure that they stay secure, and with my age group, being responsible, bringing that back and forth because it's a bigger item and it's a little more fragile.

Speaker 1: If you have the pick a device, what would you choose?

Speaker 2: I'd probably have them bring their iTouches, in which they're using Wi-Fi and they could use our internet, so then they have that same firewall. I don't know if that's a complication as far as the bandwidth of what our network provides but I guess that would be probably the best way to use it.

Speaker 1 Have you experienced a lot of technical problems using technology? Are you able to…?

Speaker 2: Yes. Like I said, I was so lucky to have this one-on-one computing with these netbooks, but now that they're over three years old, they have very limited working memory and they're very slow. I don't know how the kids can use them. They have to have a lot of patience. When I'm using one it's hard for me to be that patient with them, and there are some network issues and glitches where they're off the network. There are times where there are about six kids who are experiencing problems, and that happened more this year because they're getting a little older. That's what's I'm finding now, where before I would email assignments and then they would create the assignments, send them back to me, but now since they're kicked off the network and so forth, we have to find other ways to do things. I would say a year ago, and two years ago, I was able to do more things because of, now that they're getting outdated, they're not as useful in that way.

Speaker 1: If there was one thing, and I think I know your answer from your previous answers, but if there's one thing that you would need to increase your use of technology, what would it be? The number one thing.

Speaker 2: I guess the funding to be able to provide that. You're saying; what would I want or what…?

Speaker 1: Yeah, if you didn't have to worry about anything, what would be the one thing you wouldn't want in order to increase your use of technology?

Speaker 2: I'd like an iPad cart, probably.

Speaker 1: Do you see any problems with having the iPad cart?

Speaker 2: Like I said, I feel like the transition needs to be smoother. If I could, I would love to work with Apple, alongside Apple, and try to figure out a way to make this work better in the classroom as a far as syncing and so forth. The management piece of them can be quite difficult and cumbersome. Like I said, there are just so many opportunities with the iPad; but how do we truly optimize it? It's a cool device of course, and the kids are going to love to use it, but at the same time there are just so many avenues. You want to hope that it's being used in a true relevant way, where the kids are able to produce with content creation, that they're able to use it as a resource tool, enrichment, remediation and so forth. But you need to find a printer that can use Wi-Fi to the iPad. There are some things where you need that expert to really help you as far saving students' work on the iPad. They have to really have more of a one-on-one on iPads to truly be able to save work and so forth.

Speaker 1: It's just a complicated system.

Speaker 2: Yeah.

Speaker 1: [Inaudible]. If you had the training on how to alleviate it; or do you think there is a way to alleviate it?

Speaker 2: I think there is, and I think that we don't know it yet, but like I said, if I had more training to alleviate those problems, I think it would be beneficial so that we're using it the right way.

Speaker 1: What's the greatest impact of technology use in the classroom on your students? The one thing.

Speaker 2: I would say, I think the big thing is the dynamics in my classroom, where I'm in a teen teaching setting with classified students and you don't know who's who and like I said, it's definitely evened the playing field, it's empowered them, and it's more of now become of a co-learning experience where at times the kids are teaching me tricks that they learn and so forth. I think that a teacher needs to feel comfortable in stepping back, and I don't know if all teachers do. It allows the classroom to be more student-centered where I can be truly just facilitate and know that here they are creating and producing and collaborating, doing all those things that in the end that's what they'll be doing in the workforce. I think that has provided a better opportunity for them.

Speaker 1: Have you had a chance to look at the Danielson Evaluation System that we're going to adopt?

Speaker 2: No.

Speaker 1: Do you even know anything about it?

Speaker 2: No.

Speaker 1: Okay. We're getting a new evaluation system in September. We're going to start training staff, and one of the things is that there are levels of proficiency, but in order to be at the proficient level, the top level, it's almost impossible to get there in every category. One of the things is, that I see as a theme, is that the students have so much involvement in what's happening in the classroom. Thinking about that; do you think that you would be able to do that in a classroom without technology where kids are kind of collaborating, but also kind of instructing their own, or they have this idea of where they want to go as learners? Would they be able to do that without the technology?

Speaker 2: Are you saying though…? I'm confused as far as what you're saying; with this program? Are you talking about the program?

Speaker 1: Yes, with the way that the evaluation system is structured, you would…

Speaker 2: This is a way to evaluate students?

Speaker 1: Staff.

Speaker 2: Staff.

Speaker 1: I'm sorry. Staff. Yeah. When I come into your classroom to evaluate you, I would be looking at certain…

Speaker 2: This is for the administrators too?

Speaker 1: Yes, and staff can use it as a self-reflecting tool as well. When you look at classroom instruction and how the classroom operates, the top level is where students are really guiding their own learning, which I felt was really interesting because I don't know that I see that so much when I go in to observe a class.

Speaker 2: Right. It's usually more the teacher integrating the technology but now always allowing the students to be empowered and use it.

Speaker 1: Correct, even just if you didn't have the technology going into a classroom and seeing the kids really doing the work versus the staff members. Do you think that…?

Speaker 2: I think technology absolutely has allowed them to do that, to just kind of instruct their own. I think it's made it more open-ended so they can take it as far as they can go. You're not limiting them, you're not restricting them, and I think that's the big piece. When you give those strict guidelines, that kind of leaves the kids stifled, especially in their creativity, and I think the computer allows for creativity. Are there drawbacks with technology? Of course, in a sense that I think that one piece is, and I think that's just the way the generation is, is that information. It's at their fingertips, and what they've become is great knowledge-seekers. They know how to find out the information, they know how to be resourceful. I think having that technology in our classroom, that's what I kind of teach them is, if you don't know it, you can find it. At the same time, I think what's happened is it has not allowed them to be as self-reflective and to think about it first before they find it. I think that one piece is missing. I think it's the teacher's responsibility. We need to at times make them stop and think because some of the computers sometimes think for them, and I think that's the one piece that maybe a traditional teacher is more resistant to.

Speaker 1: How about distractions? Do you think that having the computer in the classroom distracts them from what they need to know?

Speaker 2: No, and I think that it's really built into your management system. I think it's as good as you are as your management piece. If you are confident in the way you manage in the beginning of the year, then the technology is just as smooth a transition as anything else. Like I said, I'm lucky to teen

teach, so that management is probably stronger than if I was a one-man show.

Speaker 1: Is there anything else you want to add about technology that I didn't ask you? Any insights that you have for me as far as technology integration related to 21st century learning and just really how can we make that happen more in our district?

Speaker 2: I think it just starts with biggest picture of, even in government, in U.S., in that way of realizing, listen, we need to… I think I read somewhere that the average student, they spend $200 on technology, but the average worker, it's $5,500. We need to get more funding for technology, and I think it starts even in a bigger place, within the government and so forth, and it needs to be filtered down, and the vision needs to be shared among us all, and I don't think we're there yet. I think that's probably the struggle there. I think that it's probably the same thing as when they allowed calculator usage in school and probably the outrage and so forth. It's just getting past that I think and realizing the benefits outweigh the barriers.

Speaker 1: If you thought about the whole building, where you are, do you think that the majority of teachers believe that technology is good and we should be using it, or do you think they see in it…?

Speaker 2: I think there's a digital divide, and I think it's among generations.

Speaker 1: You do.

Speaker 2: I do. I really do think that kids are being wired differently. If you were to look at brain scans you'd find that they're wired differently. I even noticed that with my own children in the way they use technology to help them and seek out information. They just are able to navigate so quickly and they learn very quickly. They're a quick study when it comes to technology, whereas as older teachers are having a hard time navigating through it because they're just not used to it. These kids were born with the internet and we weren't. I think that's probably the problem.

Speaker 1: Okay. Anything else?

Speaker 2: I don't know. I think that's it.

Speaker 1: All right, thank you. I appreciate you participating, and as I said, this is all confidential and I will share the results with you at the end.

Speaker 2: Okay. Did I do enough, or…?

[END OF AUDIO]

Duration: 32 minutes

Teacher 2

Speaker 1: So thank you for volunteering to participate in a research study of technology integration in a classroom. You are invited to participate in a study as a certified elementary education teacher. The purpose of this study is to determine the barriers that prevent successful technology integration as prescribed by 21st-century learning skills. The interview will take 45 to 60 minutes and all information will remain confidential. I will be recording the interview and you'll be asked to review the findings of the study for the purpose of members checking. Okay? So why don't you tell me a little bit about how you use technology in your classroom.

Speaker 2: Okay. I would say that I use technology on a daily basis and also in an hourly basis, in that, I usually lean on my SMART board as my preferred mode of instruction. It seems to be, even if it's not interactive at times, that I use the SMART Board for presentations. I would say that I definitely use what I would call 'older technology' in the sense that we use cassette tapes and headphones for the reading program. The SMART Board is the main thing that I find that I use at all. We do have laptop carts but those are usually used much more infrequently due a lot of issues with them, but in terms specific instruction definitely our math program is designed to be presented with multimedia. I also find that there's the national, let's see if I say it right - the National Council of Mathematics Manipulatives. Their website has a lot of interactive manipulatives, which for our school, I can't say for our district, cuts down on cost especially being that a lot of our manipulatives are either older or irrelevant since when we changed math programs, we didn't really fund it fully. Same with the reading program, there's "Walkie's Web" that's really popular and it seems that rather than printing things, I find that I would rather the kids transcribe them from the SMART Board and then plug their answers into it. That way there's a publishing effect without it being 30 worksheets every time.

Speaker 1: So, you'll have the information up on the SMART Board and they're just writing it in their notebook?

Speaker 2: Correct. Instead of running like a closed outline, I would rather them write just their responses from the SMART Board and then plug their responses into the SMART Board itself and have them write it up there for everyone to see.

Speaker 1: Okay, so you call on individual kids to come up.

Speaker 2: Correct.

Speaker 1: And respond on the SMART Board so everybody else can see it.

Speaker 2: Correct.

Speaker 1: Okay. All right good. You talked a little bit about websites that you use. Are there specific software programs that you like to use in your classroom?

Speaker 2: Yeah, it's really troubling in our building. I've attempted to purchase licenses for educational software but it's really kind of, 'what you see is what you get' in our building. When I taught fourth grade, there was a wonderful multiplication program called "Times Attack" and it was designed to look just like a retail video game but it was obviously all about multiplication. I was told it's too expensive to acquire a license or five licenses. So really, educational software for fifth-graders and fourth-graders, now I teach fifth grade, really slim pickings. It seems the younger students used it a lot more, with "Star Fall", and there was a math one too, I'm going to forget it but it seems like most of the stuff is geared really towards the true primary grades. For the older students, it really is, there's really nothing there.

Speaker 1: Is there a reason do you think behind that that there's not a lot available?

Speaker 2: I honestly don't know. I was shocked that I wasn't able to purchase them since, I figured, anything would be better than nothing. I don't know if it's just what's going on for some time, so there's no changing it.

Speaker 1: Okay.

Speaker 2: Or if it really is budgetary.

Speaker 1: Okay. You kind of did talk about a learning activity that you do with technology, is there anything else that you've done as far as activity-wise?

Speaker 2: Yeah, definitely with things that cost a lot of money or that are impractical, I think the Internet's just essentially a free resource. I know with labs or science experiments, a lot of times things that couldn't safely be done in the classroom, we'll watch. Things couldn't practically be done; we'll watch images from the Space Shuttle. When we do static electricity, there's a really cool interactive lab by MIT where they can see the charges on the wall and charges on the balloon and they can manipulate the balloon wherever they want. It's corny with the virtual field trips, I think they're really cool. Basically, things you would never get away with. It's so easy to watch someone else get away with it.

Speaker 1: Right.

Speaker 2: Just for example, when we learned about acids and bases, there's no lab in our Science Program for that but we watched a really high-powered acid eat through a table. When the kids are bananas for week over it and we can't paint in the classrooms but we can watch someone else destroy a $1,000 table.

Speaker 1: So, do you feel like you're using the Internet to find the videos or are you using a video program?

Speaker 2: The Internet.

Speaker 1: The Internet.

Speaker 2: The video program our district subscribes to is, really, really good for, not generic but for the vanilla regular run-of-the-mill things and if you want to watch a Bill Nye There's going to be a Bill Nye for chemical reactions but there's not going to be anything modern and anything, really sounds bad, but off color. Everything's going to be super safe, there's going to be nothing that pushes the envelope.

Speaker 1: Okay, so do you find yourself using that software a lot or you rely on the Internet?

Speaker 2: Yeah, we do. For day-to-day stuff we use it and things you can plan around going into the next year, you're going to have a video on the Revolutionary War but there's teachable moments when your kids ask, "How did a musket work? Let's look it up and see if we can figure it out. There's not going to be an instructional how to build a musket on whatever, Safari Montage but I think you use a little bit of both.

Speaker 1: Okay.

Speaker 2: You have to be careful when you're, you have to preview everything so then it becomes time-consuming and you can't jump into YouTube with cold feet. You'll end up with god knows what.

Speaker 1: All right. So, then do yourself, if find a child has a question and you say let's look it up. Are you been doing the research or are they doing it?

Speaker 2: It's a little bit of both at our age group, certainly in the beginning it's, "Let me show you how I go about and look that up," and then it becomes into, we it call it 'the joke.' Let's check the "Interweb" and then the kids know, to go to Wikipedia or they know to ask the kids or all the other safe, ******* keeps, our computer teacher, keeps a group of websites that are safe to check, but the kids only check Wikipedia anyway. They don't want to go to Yahoo Kids or whatever, but I do show them and I explain to them because there's always a pull with Wikipedia. It is unreliable and then there's research that says "It's more reliable than Encyclopedias" but they really quickly get into a conversation of true academics, is this worth researching? Is this something I can really look into? Or is this just you know those magical "What if?" questions or "What if the snake swallows an alligators or something and you go like, "You can't look that up."

Speaker 1: Yeah (Laugh), So the,

Speaker 2: It does shifts and by the end of the year the kids ask, they'll be reading something and we'll say, "We did Benedict Arnold," and all they wanted to know was, "Was his wife in on it?" And it was, "How could we look it up, how do we check?" and they really quickly learn, "All right well, I'm going to look that up, and I'll let you know." Then one kid goes or a group goes off for five minutes, while the others are still working and then they come back and say "Check out what we found out."

Speaker 1: So, do you talk to them about credibility of?

Speaker 2: Yeah, yeah. The big pull for fifth-graders is plagiarism and credibility especially for me personally being from the history field. Teaching them that anyone can make a website, anyone can edit Wikipedia. Anyone can have an opinion, and they learn what's reputable and what's not. They're so much more savvy than we give them credit for.

Speaker1: Yeah. I agree. Do you feel that it's your job as a teacher to communicate that and to teach that the kids?

Speaker 2: Yeah, I think we are I think that, as an academic field, it's our obligation and the onus is on us to demonstrate research methods, and demonstrate good consumption of media and information, what's essential is our job is information, and they need to see that we don't really quickly do a Google search and say, "Oh. No, no, no. Here, I'm right." They need to see that we're patient and we really look up what's true.

Speaker 1: Okay, good. So, if you had the ideal classroom, how would technology play a role?

Speaker2: I think it wouldn't cut corners which is what technology does now. I think a lot of times it's easier to say, "We're all going to go on laptops for an hour." It would be more invested and it would take the place of what's there now. I think it's so easy to look at an iPad and think there's so many ways we could connect with each other, that the kids are already connect with each other anyway. Where the instruction comes from the teacher, that comes through technology to each individual, and then their feedback comes back through technology. It used to be 10 years ago was a laptop on every desk, now it's an iPad on every desk or iPad at least in every group. In an ideal class every kid has an iPad and they're engaged in what they're doing, they've been taught the ways to use it as a tool.

They're not sitting there on YouTube. You're providing instruction in a way that's relevant to them and they're providing feedback to you in a way that's relevant to you, not just output for output's sake. It's something that's data-driven, and something that accumulates statistics so you can point to your instruction and say, "I missed a mark on this, tomorrow I'm going to go back, I'm going to re-teach that." If you put a kid on a laptop, what do you have in the end of it? We've passed an hour's worth of time but you don't know whether they get it, when they read the webpage did they understand it? With something interactive like an iPad or software, that fits the bill and they can answer you like the SMART response system and you can track it. You can say now "Hey you missed three of the five questions. What's going on, what could we work on, how can I change that?"

Speaker 1: Okay good so, if you have the ideal classroom and every student had an iPad, what would you need in order to make that technology an effective tool?

Speaker 2: Okay, cycling to implement a new instructional program, you have to be an expert in that specific skill set and I think that's where teachers miss the mark now. If you're going to use an iPad it can't just be, 'Well, I use an iPad at home." And that's true and I might now how to navigate it but I'm not trained to instruct the others with it. I'm no more trained to fix a TV because I use one at home. I think you would need really intensive long-term professional development that's ongoing because it's going to change. You know, the old saying "Once you open the box the computer's old." Then you're going to need just total devotion of professional development. I'd like to change that.

Speaker 1: Okay so, speaking of training, what training have you had related to technology?

Speaker 2: None.

Speaker 1: None at all?

Speaker 2: None. I think there's, one, there's a bias, I think in two ways. I'm the only male teacher in my building so there's, "You're a guy, you're good with technology and you're young so you have to be good with technology." Old people aren't for some reason. Doesn't make any sense. There's really no training other than if I screw something up I call the computer teacher and I say "****** I broke it up. I don't know what I'm doing." Which is scary, we're putting thousands of dollars of equipment in the hands of people who just aren't, not qualified but just aren't trained specifically to use those things. And even more scary is the fact that we're misusing it time and time again. There's horror stories of people who just put up a pretty picture on the SMART Board, It's a $400 light bulb in there, it's a $4,000 piece of equipment, and it's not just a film projector. So, I would say that's one area where we're really, we're missing the mark.

Speaker 1: So, how did you learn how to incorporate the SMART Board into your instruction?

Speaker 2: It so funny because by happenstance, when I was in high school, which was the very late 90s and early 2000s our Math teacher won a grant to have the very first SMART Board in our town's school district,

Speaker 1: Really?

Speaker 2: It's essentially the same as what they are now, but he would save the notes every day and if you missed a day, you'd come back and check the notes and we would rely on the thing like every day. I was actually pretty familiar with them when they were installed in the district. I'm the kind of person I would rather mess around with it for 15 minutes rather than ask someone what to do. I just learned just by, you know, making mistakes

and playing around with it and then I'm notorious for wandering around into someone else's building, when I should be teaching and seeing other people doing something and going, “How did you do that?” Then they’re clicking and then showing me, “Ahhhh” and then I’d go back and I’d try it on my own.

Speaker 1: Okay.

Speaker 2: You know so I think like all good stuff you learn collaboration but we don’t devote time for technology collaboration as we have other things to do. We have new programs that are coming in.

Speaker 1: Okay, all right, so I know that we’ve had opportunities for staff to work in for professional learning communities. Has any of that work that you’ve done been really related or connected to technology integration?

Speaker 2: It hasn’t, not specifically at least. I’m a pretty big nerd in that I always try and just use technology just because I find that it’s easier. When we did our NJS data analysis, it was all paper and pencil and I was the one sitting there going, “We should just make a table for this. This is silly. Why are we writing all this?” Sometimes I try and kind of infuse it, which infuriates some people. But not really specifically, a lot of our PLCs are data-driven instruction and implementing these new programs because that’s where the money is, I mean logistically. I know we are spending all this money on new programs and we need to see tangible evidence of that.

Speaker 1: Okay, so if there was the opportunity for training, what specifically would you want to be trained in?

Speaker 2: I would definitely want to be trained in how to use ideally, educational hardware but in realistic sense educational software because I think that’s going to be easier to implement. I'd like to see us explore educational software and then be trained to use it in our lesson planning because there’s only so much you can do by tinkering around day in and day out. You can’t devote that much time to it. To have some actual time as a grade level team to say, “Is this is program worth it? Would we work this in or would this just be another gizmo for a month, the flavor of the month? And then are we not going to use it again.” Looking back at Achieve 3000, I felt like I worked in and it worked every day and we moved on. It's not fair to say whether or not it worked or not. You kind of want to say like “Let’s pick something, let’s find something that works and let’s stick with it and see how we do.”

Speaker 1: Okay, so when you talk about training on the software,

Speaker 2: For example, our math software that came with the program, the only way I know how to use it I’ve been using it.

Speaker 1: Okay.

Speaker 2: The training that existed for it was really, “Well you turn it on and you log in and watch the video and then you have a textbook.” That really can't be

all that's there, and then the more we've played with it there's a lot more to it. There's interactive tools and a lot of the textbook is right there and there's a lot of ways to work it in without saying "All right well we are now going to go back to our seats." And it's kind of teasing the children almost.

Speaker 1: Right.

Speaker 2: We've been using the computer for 10 minutes and then you're going to go back and be bored in your seat. I would have liked to see us spend more time ditching the textbook. I mean, they're $90 a pop. Then let's not have 30 of them. Let's have 10 of them and let's work on the computer and when we absolutely need it we can have kids work in groups.

Speaker 1: So, do you think that the training would be better if it was just a group of teachers exploring what was available and given to them or having a trainer come in and really work with you?

Speaker 2: Yeah, I would say the trainer. I always err on the side of, I'm not the expert. Let's get somebody who is, and have that person come in and really show us in how to use it. Unfortunately you run the risk, especially with trainers that sometimes they're not trained themselves but finding someone in that field that's trained to do so.

Speaker 1: And how about the computer specialist, do you feel like that person is able to provide training?

Speaker 2: She provides training in some avenues for us which she'll hold. If you want to learn how to use such-and-such program, you know, Microsoft Office. I'm going to do a training on 8 AM Tuesday and if you want to come, you can come to it. I don't think she's ever tasked with, "Hey we just got this new math program or we just got this new reading program and I want you to turnkey it, or Key Stone it and flip it onto a small group." I don't know if she's ever been told to do that. I don't know if she would. She's certainly a capable presenter. I would think if she were given the opportunity to, she would but I haven't seen it.

Speaker 1: When you think about what prevents you from using technology in your classroom, do you think that you have enough time to plan activities?

Speaker 2: Yeah, yeah. Short answer yes. The long story is, yeah, because you have to make time because it's important.

Speaker 1: Okay.

Speaker 2: I think it's never an issue of how much time do I have. It's always an issue of how much energy am I going to put for this. Am I going to take the easy route and some teachers do, they take the easy route and they say, "Yeah, I use technology." They've done something that resembles technology. What I think you know you have enough time, it has to take the place of other things, and then you have to be willing to take that risk. You're going to run the risk of something not working or you're going to

run the risk of somebody being off task, but it's worth it. You're not going to have a work sheet when you're done and you have to just let that go. Yet for some people is hard to let go of, but if they didn't give me anything, they didn't do anything and that's not true anymore.

Speaker 1: Okay, yeah I think that's interesting when you say that there are going to be issues. What do you think is the biggest issue that prevents you as far as in your classroom and you talked about it's not going to work or you might have a kid that's off task? What do you see is the biggest problem?

Speaker 2: Like from a classroom perspective?

Speaker 1: Yes, the teacher and everybody has an iPad. What's your biggest problem on that today?

Speaker 2: So we are solely looking at just the classroom? The issue is going to be what it has been I would imagine since teaching has been around. You're going to have one kid that no matter what you say, what you do he's not going to do what he's told. And I think it's hard for us as teachers, because if the kid is bad you just remove him from the group. But when they are on the Internet, your greatest fear is you're going to turn around and kids are going to be on porn, the kids going to be watching something graphic or obscene or charged. And I think we have to remind ourselves that it's no worse than a kid hitting another kid. No one ever said "Well, I'm not going to hand out a work sheet because God forbid somebody smacked someone else." And I think it would be awful and you'd have no excuse in the world other than there's 28 kids, he chose to do that and he's in trouble and I think we often think it's a reflection of us but we would never think that way if we turned our back and a kid threw a pencil at another kid. We would say "Well he threw the pencil, he's in trouble". And I think there's an onus on us, to be guardians there and "Well why didn't you shield my child from the dangers of the Internet?" I think it's the same thing but I think that holds a lot of people back. Now what am I going to do if, well how are you going to do, if a kid has an iPad and he's showing his whole group a picture of boobs or something? I don't know what I would do if a kid hauled off and punched another kid in the face, I'd probably figure it out as it was happening but I think people would get scared because that's kind of like a no-going-back scenario.

Speaker 1: Right.

Speaker 2: Once that happens you're fearful, and in our building, especially you're fearful of, if it goes wrong once it'll never happen again. So if somebody screws with an iPad ****** will say, in an email, no more iPads. As soon as a kid gets hurt playing kickball, it's no more kickball this year. As soon as there's a fight over flag football no more football this year. And I think a lot of us are scared that it's going to turn into, "Oh that's it, no more free use of the Internet for the kids."

Speaker 1: Okay, so do you think there are ways to prevent that from happening?

Speaker 2: Yeah I think Bruce and everybody's done a great job with the filters. I mean God, I couldn't even get onto the place where we got married's website because it was three links deep it might have linked to some bar or something. I think they've done an outstanding job, I don't think there's, I mean not that I'm saying they're trying to but I can't think of anything the kids would get to that truly is dangerous. I think the risk there is that it would be something we haven't heard of, or a site that they haven't figured out how to block. I think especially in our district because I'd seen the way kids from other districts, like in grad classes, what they get away with. I think our district set the forefront of that just by being an affluent district and well organized. I personally, I'm not worried at all, there's that seed of doubt but I think it's proactive like all good discipline. We're blocked as much as we can and if someone's that persistent, that stupid; they're probably going to find a way to screw up.

Speaker 1: How about the idea of kids bringing their own technology to school? What do you think about that?

Speaker 2: Yeah, (laugh) it's like all good ideas are good on paper and then you wonder what are they bringing in? How do they connect to the network? How do we control what comes in and what goes out? There was an issue at our concert, kids brought iPads in. They were playing with them and waiting in line, and it's always been, it's better than babysitting them so let's let them do that and then we brought up, they could be taping us. And no one's perfect, well they could be Photoshopping our pictures or something. And then it was a question of, "Hey you're right, you know maybe actually we won't let them have the iPads, a free reign in the gym during line up." And I think that's your biggest concern, you look at what happened in Cherry Hill I think it was. People are people, teachers are people too and the kids, I think just as fearful as we have to be that some kids are going to catch some teacher in just a wrong moment. Some might catch a kid in the wrong moment and it will really quickly open up a can of worms for us. I think that's the overarching storm cloud over the kids bringing in their own technology is, you have no control anymore. That's another scary thing for a teacher.

Speaker 1: Okay, we kind of already asked this but I'll ask it again. Do you feel like there's enough for resources to integrate technology in your classroom?

Speaker 2: Well I think we have enough resources to integrate what we have, *******'s been very good about purchasing technology. It's just that, as with a lot of things in our building, it's dictated by the few. Instead of being a conversation, it's just been all laptops, at least as long as I've been there which is now 5 years, 6 years. They just suck, they're old, we have too much software on them. They are slow, there are so many errors, it

takes forever to boot up, and the computers, the desktops in the classroom are awful because we haven't replace a lot of them or we haven't replaced a enough of them. We're using things that were built with Windows XP and they are falling apart to the point where the kids don't even ask to use them. Really quickly, from me and my co-teacher, it became, just don't bother, just go on my computer just minimize my thing, just go ahead and check it out yourself. By the time the kid gets it booted up and now you've wasted five minutes, you've lost the kid or if the kid have any interested at all on what they were looking up they've lost it. It's really quickly you know, risk versus reward, they're just not willing to pay the price anymore. Same with the laptop carts and I don't know if it's, I'm not sitting in her desk, so I can't say whether or not it's because she doesn't have enough cash, but it's certainly at the point where if there's a one laptop cart of 20 laptops in a grade level of 4 classes of 28, one cart doesn't even cover your class, then you've got to borrow it from somebody else. A lot of times people just say, "Screw it, why bother? Let's just do something else."

Speaker 1: So do you feel confident using technology in your classroom?

Speaker 2: Yeah, I'm also the kind of person, I just shrug it off if something goes wrong, and maybe I just, the kids know that I'm nuts, so they don't really miss a beat with it. I feel that I confident in that, I'm part of the technology generation so I feel just comfortable just by use. And I'm comfortable enough to just go, we call it the stupid-SMART board because there are so many times where you just click on something and it crashes and the kids giggle and, "Oh, it's so stupid it's smart, ha ha ha." You just roll with it, it would be the same thing with any other piece of technology. I think people forget, not that I ever use them, but I'm sure film projectors just broke all the time, you laughed it off; it's just scary because it's new.

Speaker 1: Okay, how about your parents how do they feel about technology in the classroom?

Speaker 2: If my dad were alive I think he would not know what to do with an iPad, I think he would probably say what he always said, which was "Get the hell out of here."

Speaker 1: (Laughter) How about the class, the parents of your kids?

Speaker 2: Oh, I'm sorry, I thought you meant my parents. I was going to say, my mom's in charge of temperature at Campbell's Soup headquarters and she can't check her own email.

Speaker 1: (Laughter)

Speaker 2: No, the parents are very savvy, a lot of times it will be funny because they'll email you and they'll be in the building (Laughter). They will email and say, "I'm down in the gym, could you send Billy down," and you are like, "Oh, smart parents."

Speaker 1: Yeah right.

Speaker 2: They're very savvy.

Speaker 1: Do you think they want the kids to use technology? Do you think they have that fear that their kids are going to go on to bad sites?

Speaker 2: No, I have never had a parent express that to me. Usually it's the opposite where it's, the parents have given free reign, and I'm shocked, we had an issue with someone on Facebook this year and then the mom came in. You know I explained everything, I can't have stuff spilling over in the school building that just can't happen. She said "Well it's my fault, he has Netflix in his room and he has the Internet in his room and his laptop, and he just stays up there all night on the Xbox and the laptop." And you sit there and you think just like curse words, is there anything else that's taboo? We do such a good job of making school a safe and a happy place and they go home to the real world. I always think it's the other way round, I've never had a parent say to me, "Well I don't want my kid on the Internet." We've had one parent, and I think it was part cultural because they were Russian, who didn't want her child to post anything on the Internet. Then when I sat down with them and explained to them what it meant, then they were okay with it. But no, I've never had a parent say, "Well what if they look such and such up?" Normally it's, I don't know if they're teasing us, "Oh, they can't even go on YouTube?" .

Speaker 1: Okay, so do you believe that the students benefit from technologies in the classroom and what ways do they benefit?

Speaker 2: I think they definitely do, I think it's inherently engaging. I think they, especially now, I don't know if it were always used I don't know if it would have the same novelty, but I think for them it's something they're not supposed to use in school. They've grown up in this climate of, it's like a treat and it shouldn't be because it's how the world works. We were just in DC over the weekend and I couldn't get over how people walking around like this with their smart phone and not looking where they are going, but then they don't want the kids to use any kind of interactive technology in the classroom. So all we are doing is poorly preparing them to go get a job or go to college or graduate school. I think they benefit in so many ways, it's culturally relevant, they're necessary skills and necessary tools for the work place. If they don't learn to email somewhere, they're going to learn it somewhere else. And that's where we get texting message all the time or the texting lingo all the time. If we don't teach them how to write a professional, if there's such a thing, email, where are they going to learn it from? If we don't teach them how to use the Internet, they are going to learn it by accident and they're going to learn it by making mistakes instead of learning from somebody who can help them.

Speaker 1: How about when you think about those 21st century skills like creativity and collaboration and communication, you touched on communication but in what ways can technology help you with increasing collaboration and creativity?

Speaker 2: I think blogs are just the essence of collaboration. They learn how to interact with each other in such a strange way, in a way that's both instant and takes time. They learn to write publicly, really for the first time, in a true sense of publicity. No longer are they writing a response just in the classroom, it's for the whole world to see. And I think the same with creativity, what better way to publish your work than to everyone. I think when they see, we always have these snippets on the main page or pictures, and when they see their art work on there, they went through the roof. They're on the Internet, it's so special, it's so unique. I think it adds to everything and it just makes it the way it's going to be.

Speaker 1: Have you used blogs in your classroom?

Speaker2: We have, we've done, we usually do like a blog question of the week or we'll like a special thematic blog and stuff like that. And I think back to what we were saying before about like the pitfalls of it, well if it doesn't work you can do a blog in person, you can do it on paper, you could post comments on the wall and things like that. There are so many ways to implement that even when things don't work right.

Speaker 1: So do they blog in school or at home?

Speaker 2: In school, I mean they have the option to use it at home, I mean in that they are able to and no one says "Don't," but we've just found that they're, as they walk out the door it's at school, I'm not doing that at home. You'll get a couple of kids who stay involved though.

Speaker 1: Okay, so do you feel that your administrator is supportive of technology integration?

Speaker 2: My individual administrator? I don't think she cares. I think for a lot of different reasons and for a lot of factors, it's really just not on her plate. I think she sees it as a, it should be done but I don't think she thinks it's going to, I feel that what's being done is enough to her. There's not a need to go further, other things are higher on the agenda.

Speaker 1: And so what do you think are the benefits for your students and you kind of did answer that but if she was supportive, what would you want to see her do and why do you think it's important to her to do it?

Speaker 2: I think it's important for her, just like she's the model of instruction for the building, the model for professionalism; she should be the model of being a lifelong learner. Now I think every time you commit yourself to something new, technology-wise, you're showing the kids that you're not done either. You are going to do things in a new way, learn them with them and learn from them. And I think she needs to model that to the staff

and to the students and to the community at large. It's part of her persona to be part of the stakeholders in the community and I think she needs to emphasize that, ******* is a place where all kinds of instruction are accepted, especially in a modern, significant and relevant ones are and here's how. Whether that's through her use of a blog, whether that's through her website, I think it needs to be evident to the community that it's not the status quo, we're part of a global economy and global market place and here's how we're preparing our children for that.

Speaker 1: Okay, so do you think that you have enough support to integrate technology in your classroom?

Speaker 2: To a certain degree, but I think there's definitely a line where you're asking too much and you'll get shot down. But certainly in what we have I feel like anything we need within reason is there, but like I said before, anything new or in addition to is usually a no-go.

Speaker 1: Okay, so what if you have in your classroom, you're supported in using it, and with troubleshooting or problems?

Speaker 2: Yes, ******* is really good about helping out, she gets ******to come over and fix things, when things are broken they're fixed and in a very timely matter. But for example if you ask for like thematic magazines, I got historic magazines, she'll buy them for you. But if you say, and they were a couple of hundred dollars, but if you say, "Give me $400 for such and such," "There's no money in the budget for that, what are you, crazy?"

Speaker 1: Okay, so supported in the fact that there isn't enough technology resources.

Speaker 2: Correct.

Speaker 1: Okay, so do you experience technical problems a lot? And then what do you do when you have a problem?

Speaker 2: Well, I'm an idiot. So I broke my VCR and my DVD player, (Laughter) I put in two tapes at the same time, how good is that? So my room's very notorious for needing repairs. I'm just a scatterbrained kind of person and they are fixed in a timely manner, ******** and I have a very good rapport, she's understanding if I try and fix it myself. Because every once in a while I get it right and if I make it worse she's okay with it. But she's really good about having ****** come over, it's surprising to me that she's not trained to troubleshoot and I understand why but she's more instructional than technology-based. I don't know if that's true in other buildings, *******obviously is phenomenal and ******** is as well. But I'm not sure if that's, I don't know the other technology people well enough to say it's all of them or just her but it's really like she's the intermediary where it would be more prudent for her to be trained in it to

some degree so that if it's something minor she can come right over. But ******'s really good about being in there the next day or so.

Speaker 1: Okay, so do you think that is more important for the computer specialist to be tech-savvy in the troubleshooting areas or more related to instruction?

Speaker 2: I'll be selfish, I have high expectations of people and I think she should be highly trained in both. I think her instruction is demanding in a great way but I don't know, I just think that she should be able to do all of aspects of it to a certain degree, I don't expect her to be a webmaster but, I don't know. If something minor goes wrong, I would think it's in her job description to figure that out. *******'s only one man, that's the part I think that something doesn't add up. You have one person in every building, shouldn't they be just as capable? Poor *****, I don't know how he does it, to be honest.

Speaker 1: All right. So, if there was one thing that you would need, that you could get so that you can introduce technology in your classroom so that's integrated throughout the school day, what would that one thing be that you would need?

Speaker 2: One singular item or one singular,

Speaker 1: Yeah just, it can be broad.

Speaker 2: Yeah I would say at least a small quantity of iPads, at least enough for one for every group.

Speaker 1: Okay.

Speaker 2: I think if you look at a safe prediction for the next 10 years it's going to be Apple technologies. It's going to be interactive and it's going to be cloud-based, it's going to be, submit your work to the cloud and teacher's going to pull it off the cloud and he's going to compile it and spit it back to you and your parents at home who connected to the cloud are going to see how you are doing and there's going to be no more, "How did they get a C?" There's going to be, "I knew he was getting a C, we would have seen it all marking period." Our ideal scenario is that the school is enmeshed in the community and everybody's connected because they're a stakeholder but we have that, it's called the Internet and we are all connected by it. Why isn't the school connected to the community? You know teachers are so scared of, "I don't want the parents to see the grades," but they're going to see them anyway. They see them when you send them home all the time why aren't you scared to send home an 'F' on paper but you're scared from them to see it on the Internet? I think to really use it every day, you have at least had a small group to be able to submit their work via the Internet or via whatever Internet, I don't know. Some small network where it's accessible by all parties, including specialists. The reading specialists should be able to pull everybody's reading scores off the cloud and pull it in and the data's is already there, instead of a reading card, a

unit scorecard, score sheet. We are doing so much paperwork and I'm a money person. We are paying people very handsomely to write the same number four times. I'd rather pay someone who is in expert in data collection to have us store once and then let them do their job. Let the teachers teach and let the people trained to collect data via the Internet do that.

Speakers 1: So, if you had the Smart Boards, I mean the iPads, what would be the next thing you would need in order to make that work?

Speaker 2: You'd definitely need a safe way of having each kid have an email, or having each parent's email connected to that same series of accounts so that when I pass back your work it automatically zips to you and zips right home. I think that's a question that asks more questions. How do you safely keep a hold of all that information? How do you keep it away from each other? We had a big issue this year. I don't know why. Kids hacking, I can't believe that ****** actually used that word, hacking into another kid's account and changing their website to make it say something stupid. You will run that risk. How to keep everything secure because they're kids. It's like the old latchkey thing. Don't lose the key. Don't lose your password. The bozo down the street is going to get it and change your website to say you're a poop face or something. But I think you need a way to keep all that straight and I don't know if that would fall just on one person.

Speaker 1: Okay, so you need somebody to be supporting the whole process.

Speaker 2: Yes, yeah I think just like ******** has track of everybody's passwords and everything, don't know if you want just one person though keeping track of 600 kids and essentially 1,200 parents.

Speaker 1: If I said tomorrow you are getting all iPads and I want you to never use Flux, would you be able to do that?

Speaker 2: Yes. I wouldn't pat it on. I think we're going to be there one day. I think like all change though it's going to be a lot of tape and dragging your feet and waiting for the shift to change so to speak. There's a lot's of people that are afraid of it still and they're the same people that go home and use Facebook and I don't understand that. Do you have an iPhone but you don't want your kids on an iPad.

Speaker 1: Okay, so do you think people think well, they do it in home so they don't need to do it in school?

Speaker 2: No, I think people, I think teachers especially, I think you have to be a control freak to be a teacher at least to be an educator in the true sense of the word and I think people, just like before, we couldn't let go for guided reading groups. We couldn't believe that kids could actually police themselves. I think people just can't believe that kids can use Internet

safely on their own but then they go home and use it. I think they think it's good for personal life but it's not good for anything tangible educationally.

Speaker 1: Okay, so if you, you reminded me of something and now I lost it. Have you looked at or heard about the new evaluations system?

Speaker 2: Danielson, right?

Speaker 1: Yes.

Speaker 2: I've look at it pretty, not deeply. I've looked at it both in my grad studies and then just in my personal interest in becoming an administrator. I've looked at it. I've seen how there's going to be the checklist and you'd be able walk around and hopefully on an iPad just see what you're doing.

Speaker 1: Yeah, with the walkthroughs. When I looked at it, there's levels of proficiency and 4 is the highest and really the whole framework doesn't expect teachers to be a 4 in every category. As a matter of fact, most schools never get to a 4. Mostly it's going to be just ranked as a 3 but when I looked at it to get to a 4 it seemed like a lot of it was the students are kind of running things and they're the ones who have the freedom to explore their interests and kind of run how things go in the classroom. So, do you think technology has an impact on that?

Speaker 2: I really enjoy having kids come in, college kids and one of the first things I always tell them is a good classroom runs itself. You should be able to walk right out the door and nobody misses a beat. I think technology is absolutely is part of that. I think it's like the parent that sits their kid on front of the TV for half an hour so that they can talk on the phone or something. A lot of times it's portrayed as bad. That's bad parenting. You can't let your kid watch TV, then they grow up and watch TV and it's true to a certain degree. You wouldn't let TV raise your kid but why wouldn't you put your kids on a laptop or an iPad or the SMART Board for an activity where then you can target a low student or provide enrichment to a high student or address any other task that the teacher has going on?" Or just be the facilitator of instruction. I've seen tons of research where the kids teach themselves math. You're just there to guide them along the way and again just giving up the control of all these kids and the fear of chaos breaking out. Technology is right there because it's guiding. It's oddly authoritative even though there's no authority. It's not alive, it's not breathing, yet there's something about it that the kids have this respect of. Now when the computer's talking, everyone's listening. It's unbelievable, you know, it's just a bunch of numbers typed into a program. They respect it in a weird way. I think it's absolutely part of it.

Speaker 1: All right, anything else that you want to add that I may be left out? Any insights you have about making technology part of the classroom every day.

Speaker 2: The thing that comes to mind is an educator is interested in using technology every day. Part of it, and I think it's the greater scheme of things, if we are talking about teacher evaluation is, someone who is not really an educator but went into teaching for the wrong reasons has no interest in making things and doing it the right way. Using technology is a lot more work sometimes, some people aren't willing to go that mile and I think from an administrative standpoint and from an evaluation standpoint that's why technology has to be tied to evaluation because it's absolutely weeds out people who are placeholders, instead of people who are willing to pay the price.

Speaker 1: Okay, anything else?

Speaker 2: No, that's it.

[End of Audio]

Duration: 48 minutes 36 seconds

Teacher 3

Speaker 1: Okay. Thank you for volunteering to participate in a research study of technology integration in the classroom, the researchers inviting you as an elementary education teacher to be in the study. The purpose of the study is to determine the barriers that prevent successful technology integration as prescribed by twenty-first century skills. The interview will take 45-60 minutes and all information will remain confidential. I'll be recording the interview and you'll be asked to review the findings of the study for the purpose of members' checking. So if once I'm done and I have all of my findings I'll email it to you.

Speaker 2: Okay.

Speaker 1: And if you say, "I was trying to communicate this" and you didn't put that in, you can give me that feedback.

Speaker 2: Okay.

Speaker 1: Okay? So how about you just tell me a little bit about how you use technology in the classroom.

Speaker 2: Well, I use it every day obviously, especially now with the smart board. I couldn't tell you the last time I wrote on a chalk board. (Laughter) So every day, starting from like a put a journal entry in the morning for them up on the smart board. I use it for we have to our attending through that now so it's just from beginning to end that's how we correspond with our principal throughout the day. I can correspond with other colleagues so it's an all-day thing.

Speaker 1: Okay. How do the students use the technology?

Speaker 2: Well, they can use it if they finish their work early. Some kids go on and they can do educational games with other partners. They can go on and do research. They use it for book reports. We go in the lab once a month, we have a designated times for our grade. I think it's four times a week.

Speaker 1: Okay.

Speaker 2: It used to be three and they added another day which I was really happy about. So on those four days it's set just for us, I have the whole class on computers so that's usually when we do a project, we'll work with the computer teacher in there and do something going on with whatever we're learning.

Speaker 1: Okay.

Speaker 2: So that's when we're all doing it together. But individually, I mean we only have two what computers. I mean I have three, one is mine, that's the one I keep up all day and the other two… I mean I have like 20 kids. You do the math. (Laughter)

Speaker 1: Yeah. Okay. When you said book reports, what did they do for the book reports?

Speaker 2: They are optional. This is more geared for kids who are sort of like higher end thinkers. They get done their work quickly so when they're done they have an option they can either do like a research report or a book report, we will let them type that up on the computer. They can look up if they're doing a research, they have to give me a topic, I have to improve it.

Speaker 1: Okay.

Speaker 2: And they can go look it up like, you know, on Google or whatever. And they just have to kind of paraphrase in their own words what they found. Just something for them to do when they're done, it's not you know a game. (Laughter)

Speaker 1: All right, on more structure activities.

Speaker 2: Yes.

Speaker 1: Do you use online resources rather?

Speaker 2: For me?

Speaker 1: Yeah.

Speaker 2: Yeah well, I mean I use things during my lessons all the time, not just like with Pearson. We have like the computer programs that go with the Pearson reading and math but I'll use other things I find too.

Speaker 1: Okay.

Speaker 2: Other websites and stuff like that.

Speaker 1: Okay.

Speaker 2: I use them I even give them to the children to do it home if they want, just like fun math sites or things like that. Is that what you meant?

Speaker 1: Yeah. Or do you use them for instruction or for reinforcement?

Speaker 2: Yeah, like if I'm teaching about rocks I'll go online and look up like rock Power Point and find some fun things. I mean I've come up with my own too but with some of that I get I got to try to keep it fresh.

Speaker 1: Yeah, okay. So any software programs that you like to use or that you use frequently?

Speaker 2: Well, just the ones that go along with our curriculum already. There's a really good, Quiz Shell is really good that goes with the math.

Speaker 1: Okay.

Speaker 2: And I do that the day before the tests and it's really good review.

Speaker 1: And that comes with the Pearson that's online.

Speaker 2: That comes with the Pearson, yes. We had to like download the disk onto my desktop. I use that all the time. And then there's the science has a test generator software that I use sometimes. So yeah, I mean there's a lot. There's things I haven't even looked at, to be honest, I mean there's so much, I just who has the time, it's a shame.

Speaker 1: Okay. Let's see, if you had the ideal classroom, what role would technology play?

Speaker 2: Ideally I would love every child to have their own laptop, that would be ideal, would be great, or an I-Pad. I just think we would use it rather than having, I think instead of it being just so teaching directed, they would be more hands-on, it would keep them more focused, I would think, because they have to stay along. You know, it's not me up there touching the smart board, they have to kind of I just think it would be so, God, that would be like a dream. Could you imagine? It would be so great. I kind of feel like it is when I was on the chalk board and I would give them each their own little chalk boards, you know. And we would do like I'd copy a math problem and they would have to copy and they are just so involved when they have that right in front of them.

Speaker 1: Right.

Speaker 2: So I think that would be wonderful but realistically I don't really see that happening this year, really. (Laughter) Maybe in a few years I think that could happen, I think that would be great.

Speaker 1: If you had to pick one, a laptop or an I-Pad, what would you pick?

Speaker 2: Well, I guess an I-Pad would be better for space-wise, I mean laptops take up more room. But don't laptops have, you know you could do like put things in the disk drives and normally I-Pads don't have that. So I guess maybe a laptop.

Speaker 1: Okay.

Speaker 2: Also, you know, I like that a laptop kind of gives them that sense of privacy a little bit.

Speaker 1: Okay, I didn't think of that.

Speaker 2: Yeah, because it will be, where does the I-Pad kind of sit? I don't know.

Speaker 1: Right. So let's say you were told you were getting laptops for every kid.

Speaker 2: Okay.

Speaker 1: What would you need to make that a successful initiative?

Speaker 2: Well, fortunately children know a lot about computers but I would assume I would need to maybe have like a training session with them or have, you mean, how to prepare them to use, how I would start teaching?

Speaker 1: Yeah, how would you use it in the classroom?

Speaker 2: I guess I would have to download certain things on everyone like I would want them to have it on their desktop I want the Pearson site and then the reading, I love walkies web, maybe they'll have them right there so the children can just click on them rather than having them typing in the addresses. So maybe things I use a lot have them already accessible there for them.

Speaker 1: Would you be kind of helping them doing that?

Speaker 2: I think so, yes. I would hope that if I was lucky enough to get 20 laptops that I would be able to be trained on maybe how to work with my **[00:07:32 inaudible]** I would be trained on how to implement it in my classroom. Because again, I'm not a computer teacher so I mean I know what it's like to be with them in the lab when they all have access to a computer. But to be able to use it in my own classroom would entail a little bit more and I would be like to be trained on that before I actually do it.

Speaker 1: Okay. What training have you participated in with reference to technology?

Speaker 2: I'm on that teacher evaluation committee which involves that new daily **[00:08:06 inaudible]** technology based smart board training.

Speaker 1: Who did the smart board training? Was it at in-house or was it out of the house?

Speaker 2: It was in the house. There was also training on genesis when for grading, it was training on way back there was training on Power Point and all that kind of stuff. What else was there? Did we have Pearson training too, when we got the new math to show how to use those resources online? Yeah, I'm sure that's more I just can't think.

Speaker 1: Okay. But have you ever gone out of the district to have this training?

Speaker 2: I believe I have but it was not for technology. It was the reading thing.
Speaker 1: Okay, but not technology related.
Speaker 2: No.
Speaker 1: Okay. How about when you work on your PLCs with your peers? Is there any time where you collaborate in reference to technology? Have you used it?
Speaker 2: Yeah, when have grade level meetings we'll talk about because we all have, when I've said we have that time every month where every grade goes for four days, we have computers the same week. So we'll like say, "What do you guys want to do on computers this week?" "We are learning about Jamestown so we could make a brochure on that topic." And we'll talk with the computer teacher and say, "Can we do this or that?" Then we will kind of work together so we talk about it like that. If there's a cool website that I found, I'll share it with my grade level partners, they'll do the same. Yeah, pretty much stuff like that.
Speaker 1: Okay. So if you had a choice and we said, "You are getting these laptops."
Speaker 2: Right.
Speaker 1: And you can either have somebody come in and train you or you could go to a trainee or you could just work, you know, everybody on your grade level is going to get them so you guys can have time to work together. What do you think would be more useful?
Speaker 2: Working with my grade level.
Speaker 1: Okay.
Speaker 2: Only because we all know what our curriculum is, we all know what our kids are like and I just feel that that's more realistic. You could go to a training session and they have no idea what it's like to be in the classroom. You know? So I'd rather just talk with my grade level. I find that to be most productive.
Speaker 1: Okay, very good. So if there was an opportunity for training and we said you could be trained right now in anything, what would you want to be trained in, in reference to technology and use it in the classroom?
Speaker 2: Well, if it was a definite that I was getting laptops for all the kids I want to be trained on just some ideas on how to teach the curriculum, using them with the children having them open with me. I mean I have ideas of course on my own but to know that they're all going to have their own, like a little tips or things I should know when every child has one. You know, I have another idea that I thought I was going mention to you and now I'm drawing a blank. It was something smart board related. I remember saying throughout the year, "You know I'd like to learn more

about that." I mean there's so many things the smart board offers and I don't know what some of the things are.

Speaker 1: So if you didn't have the laptops and you were just going to keep status quo, you'd really like training with the smart board?

Speaker 2: Yeah. I mean I know the basics of it and it's really a lot of fun like I really enjoy that but there's so many other little things that come up on the side and I've played with them before but I wouldn't mind some more training on that.

Speaker 1: Okay.

Speaker 2: Just because we use it so much rather than just the basic things I already know. There's always so many more things.

Speaker 1: And so for that do you feel like you would need an outside person or just working with your peers?

Speaker 2: You know, working with my peers obviously somebody always has something to offer. Some teachers are like, "Oh did you know about this or that?" But I think maybe for that I wish there was like a smart board institute that knew everything there is to know, like smart board for dummies, you know? (Laughter) So maybe for that aspect, maybe do something outside, somebody like a professional on the smart boards. Because we were all trained on it but again everyone knows the basics. I bet there's just so much more that they could offer us, sort of teach us.

Speaker 1: Okay. When was the last time you received smart board training would you say?

Speaker 2: When did we get that? Like three years ago? I mean we got training when we first got them maybe more than once. So I'm going to say maybe two years ago.

Speaker 1: So basically when you first got them and then it was pretty much…

Speaker 2: Yeah, then there was something else I think. Smart tools maybe it was called but I don't think it was mandatory. That might have been an optional thing to do, like come in early in the morning or something like that.

Speaker 1: Right. What do you think of that optional training that they do in before school starts or after school?

Speaker 2: I don't have children so to me it's not a big deal but if it's people who do, I think that's hard for them to come in. I think if you ask them for after school that's hard too. People have things to do. If they were going to do more training, I would like it to be built into the schedule like have the half day for the kids and then something like that. Or on that November 4th day when we have training, something like that. I'd rather it be built in like during the school day.

Speaker 1: All right. What do you think the number one thing is that prevents you from using technology in your classroom?

Speaker 2: Number one thing would be if it doesn't work. (Laughter) Sometimes just you have things spinning up at the top and it's not kind of connecting and it's very frustrating. That has happened to me on days I was getting observed and I was very upset but thank God I have an understanding principle. That would be the biggest thing, when connection fails, the server's down.

Speaker 1: What do you do when you're in that position?

Speaker 2: Go back to good old chart paper. (Laughter) Or I have a little space of chalk board, I try to use if I need to. I mean there's, I've taught 14 years so I do remember what it's like before smart boards so I kind of try my best to go back to my old ways.

Speaker 1: Right. Do you think that you're really teaching or the kids are learning anything different because you have technology? Or if you looked back when you first started teaching, is it they're learning the same thing?

Speaker 2: Well, the concepts are certainly the same. If you're teaching four plus four the answer is going to be eight whether you put it on a smart board or not. So I think the concepts are the same, I just think that it's a lot more… It's a hard question. I think it's more fun for them to learn because there's so many I use a lot of interactive fun things especially for math that I think generates their thoughts, their thought process a little more. I don't know if that sounds correct like I just feel that they're more interested, I have them a little more on task when I'm calling them up and they're doing things.

Speaker 1: Do you think that they get a deeper understanding of the concepts because of the technology?

Speaker 2: I don't know. I really don't know because unless it's a technology based activity like where you're actually teaching them how to use something on the computer, you know, then I don't know. I'm really not sure because I look back in teaching when I didn't have these resources and I thought that they learned pretty well. I think this makes it a little more fun to learn it but I still think they can learn the concepts without it any of all that.

Speaker 1: That's okay, yes. Are there things that you think kids right now in this generation need to know that maybe when you started they didn't actually know?

Speaker 2: Yes, because obviously now everything is technology based and they need to know these skills. They need to know how to look up things and research and stuff so I think that it is very important that we incorporate

that in the classroom as opposed to when I first started, this wasn't really like computer lap, like were dinosaurs, they were giant computers. (Laughter) But yeah I think it's important that we incorporate it in the curriculum.

Speaker 1: Are there any other things besides knowing how to operate the compute and doing a research that you think they need to know that technology?

Speaker 2: Basic typing. (Laughter)

Speaker 1: Do you think that impacts your ability to use technology or their abilities?

Speaker 2: Well, sometimes yes. Okay just for something as basic as typing, you know, if I'm in the middle of when we're all in the lab and they all have access to a computer and I'm just typing in a simple web address, some of them are just, you know, they don't know where the letters are. Then you have to stop and go over and then who's on the wrong side and god forbid if they get on a site that's inappropriate, I mean that's happened before. Gosh, thank God for blocks but just the basic thing like typing I think they need to know. I think that could put it a little bit of a barrier for I'm in the middle of this great lesson and you have a child going, "I'm not there yet!" You know? No, just knowing where everything is, knowing how to type in a web address, knowing how to copy and paste like simple things which they, by the time they come to me, they have some knowledge of that.

Speaker 1: On what grade?

Speaker 2: On a third grade.

Speaker 1: Okay.

Speaker 2: So besides what they do at home, I know that I've seen kindergarteners are already in there and I know that when they work in the lab they get some basic knowledge of that. So by the time they get to me, they do know like how to like uppercase a letter.

Speaker 1: Okay.

Speaker 2: They actually know more than you'd be surprised but they do love it. They love going to the lab, it's their favorite thing. They don't have to listen to me for a couple of hours until they get a break.

Speaker 1: All right. Thinking on that same path, did you have time to look at the Daniels and frame mark?

Speaker 2: I was on that committee so and I forget the name of the other one that really was.

Speaker 1: McRel.

Speaker 2: McRel, yes. I did look at it and I feel ready for principles, I think it's a lot, wow. I like it. What I liked more about Daniels was that it gave a little

more room for explanation like it wasn't just a checkbox, you know. A lot of it is very black and white.

Speaker 1: Right. Yeah.

Speaker 2: But it's common.

Speaker 1: Did you look at or reflect on the levels of proficiency that teachers are going to grade it on?

Speaker 2: I remember there were four. I mean it looks pretty fair. Considering the last evaluation system, I think it was what three fit or was it four also? I forget.

Speaker 1: It is but I think that what I saw in the difference with this is that it's really hard to be a four.

Speaker 2: Yes.

Speaker 1: It's almost impossible to be a four in every area.

Speaker 2: And I wonder when like yes, that's actually something I discussed with some other teachers, I mean and everyone has room for improvement. I personally wouldn't expect a four right away. I mean I don't know if principles would be giving those near the end of their evaluation. It seems like they're going to be coming in a lot of times. So that's a concern for me too there, because if you're only popping in for five minutes what if you so the not so hot part of the lesson or the boring part and you missed the great activity that came after it? What if the principle is like, "Well it was okay." (Laughter) "You missed the best part. Come back!"

Speaker 1: We know that.

Speaker 2: I'm sure.

Speaker 1: Especially the people who had been here for a long time.

Speaker 2: Right.

Speaker 1: But when I looked at the differences between getting a three and a four, it seemed like the kids were the one that were really guiding the learning in the classroom. So the more owness was put on the kids rather than the teacher just being up there and guiding the learning. Do you think technology is going to help with that or no?

Speaker 2: I think if the child's on task and with usually they pretty much are when they're hands on with the computers I think that definitely is going to help with behavior too. Because if the teacher's just up there instructing and they're all just sitting there, you know, they have more freedom to kind of play in their desk and do but if they had their laptops I think that would keep them more on task. They want to stay with us, they want to keep up. I don't know. I'm not sure if I answered that, your question.

Speaker 1: Yeah, I think you did. So you don't think that the computers would be a cause for students to not be on task.

Speaker 2: I think it would help them doing the task, but if they had their own **[00:22:28 inaudible]** yes, I think that would help them to be on task.

Speaker 1: Is there anything that you would be afraid of?

Speaker 2: Yes, I would be afraid that they would go into inappropriate sites which of course are blocked, I know that, but not every I mean I'm sure there's always something they can get to. I would also be concerned that if they were not with me they were on a site that maybe they were playing on, that they were trying to do that. And if they do have that little open part that's blocking it will be hard. I just have to make sure I monitor and walk around because you can't see what they're on. So that would probably be my biggest concern, inappropriate sites that would be my biggest one.

Speaker 1: Okay. Do you think that you have enough time right now to plan activities that incorporate technology?

Speaker 2: Yes, I think I have enough time. I mean my regular planning time might be with my grade level on every Monday, we talk about it in advance. There's weeks that we have it in the lab. Yeah, I think we have time.

Speaker 1: Okay. How about do you think you have enough resources to integrate technology in your classroom?

Speaker 2: I don't think I have enough computers but resources yes, I do.

Speaker 1: If there was anything you would want more computers.

Speaker 2: Sure. Yeah.

Speaker 1: What do you think your parents feel about technology in the classroom?

Speaker 2: They of course love it. They always talk about, like lots of times when we're trying to pass through our budget, that's always something that we talk about. You know, we need more money for computers or whatever. Parents are always willing to support that because they know it's always changing. I mean put out a computer now and there will be a newer one or a new program in a week. So trying to keep up with that is expensive but I think that for the most part they know that that's what children need to know that and know their skills.

Speaker 1: Do you think that parents are fearful that the kids are going to go in inappropriate sites?

Speaker 2: Yes, I'm sure they do but in the beginning of every school year we send home this thing they have to approve of whether they want their child on the computer, pictures on the computer, things like that, so we get their permission in the beginning of the year. And I'm sure they deal with it at home too where they have to worry about what their child's on. So I would say for the most part they understand.

Speaker 1: Okay. How about if we said that the kids could bring their own technology to school? What do you think about that?

Speaker 2: If they brought like their own I-Pad? I guess that would be okay but to use when, like during free time, because when would they? Not during lessons you mean?

Speaker 1: Yes. Well, what if everybody could bring their own I-Pad to school?

Speaker 2: Okay, let's assume everybody has one, right. Then that would be fine. I would just be afraid of liabilities, like if they lose it or break it or "someone stole mine" or "that's mine" or it cracked or whatever. It might open up some issues.

Speaker 1: Okay.

Speaker 2: And again, you wonder if everybody would have one but let's just say in a perfect world everybody had one. I would like for them to all bring them in. I just worry about what if they have things on their desktop that I don't see because it wasn't… I don't know. That could open up a whole can of worms.

Speaker 1: So then going on inappropriate sites with their own technology.

Speaker 2: Right, because what if they know something, what if they have something downloaded and they're saved in their bookmarks or Favorites that I don't know because it's not school property. That can be a problem.

Speaker 1: Do you think that would be your responsibility or the parents'?

Speaker 2: I'm going to say both because their parents should be monitoring it at home, although parents can't watch every single thing their child does, but just like a teacher can't watch everything their students do. But as a teacher I should be walking around the room and monitoring and if I see something inappropriate … I want to say both.

Speaker 1: Okay. Do you feel that your administrator is supportive of technology?

Speaker 2: Very much so.

Speaker 1: Is there something that they do that makes you feel encouraged to use it?

Speaker 2: Well, just whenever I've been observed and my principal comes in to observe me, always comments on she likes to use something the way I use something. "Where did you find that site?" She just makes it very obvious that she was paying attention and thought it was nice or cool or fun idea. I guess also if she ever needs volunteers for things she might suggest, you know maybe you can work with your grade level partners and put together a Power Point or working, doing something on the computer. I know she's a big advocate for that.

Speaker 1: Okay. When you are having technical problems, do you feel like there is enough support to get that? No? (Laughter) Okay.

Speaker 2: No. I think that's by nobody's fault, it's just I think we only have the one guy who comes in. There's only the one guy for the district. And I think that's a lot. Sometimes our computer teacher would say to us, "You know, someone is going to be here this week. What do you know of any problems?" And I could be like, "Every time I try to use clipboard, everything freezes or my computer keeps shutting down." It's unfortunate he might only get here maybe once a week. He has all these other schools. So that's an issue, there's not enough help.

Speaker 1: All right. If there was one thing that you would need to increase technology in your classroom, what's that one thing?

Speaker 2: More computers. And perhaps maybe more, I really like the lab time that the once a week or the once a month, we have the four times in a week, I would really like to do something more.

Speaker 1: Okay. Is there a reason you'd rather have that time than have it in your classroom?

Speaker 2: Well because now they don't all have their own computers, when they go to the lab they all have access to one, so that's really nice. I kind of would like if we could do it, I mean I know time-wise it just doesn't work with all the other grades and sometimes teachers also sign at the lab. Whenever there's openings I try to do that. But I would like some more lab time like designated just for us because I know that it's guaranteed that I'm in there. I don't necessarily need the computer teacher in there. Sometimes I just want to maybe go on like the Pearson site all of us together doing something.

Speaker 1: So if you couldn't have the laptops you wouldn't want more time.

Speaker 2: Exactly.

Speaker 1: Okay. Computers, right. Anything that you want to add?

Speaker 2: I was terrified when I heard we were getting the smart boards. Now I don't know how I could live without it. I love it but I remember when they put it in my room I'm almost like, "What is this thing? I want my chalk board back." (Laughter) But now I'm very happy with it.

Speaker 1: Is there anything that would help administrators or people in charge who have been incorporating technology to know about that whole process? Is there anything that would have made you feel less terrified at the time?

Speaker 2: We were sort of, things were a little in service before we got them and there was one, you know, that kind of showed us basically the gist of it. I don't know. I just kind of wish they gave us more time to actually sort of

play with it. You know what I mean? I just kind of felt like they showed it to us, “Look this is what you are going to get. It’s really cool. You could do this, this.” I remember it being a short in service and I just remember being like, “Wow they want us to use it for everything?” But we were all just like deer in headlights.

Speaker 1: Right.

Speaker 2: But now we all kind of work together and helped each other and everyone shared cool websites and things to help us, but again I just feel there’s so much more. And again, we use it constantly. I mean nothing is on all day. So it’s a big part of my classroom, it’s a big part of my teaching. So yeah, I just would have liked to have had a little more time to really get, I was terrified, I was just like, “I don’t want it. Where’s my chart paper? Where’s my ease all? I don’t want this thing. ” But now I love it. That’s great.

Speaker 1: All right. Great! Thank you so much for participating.

Speaker 2: Sure!

[End of Audio]
Duration: 31 minutes 43 seconds

Teacher 4

Speaker 1: Okay, thank you for volunteering to participate in a research study of technology integration in the classroom.
The researcher invited you as a certified elementary education teacher to be in the study.
The purpose of the study is to determine the barriers that prevent successful integration of technology as prescribed by twenty-first century learning skills. The interview will take forty-five to sixty minutes and all information will remain confidential. I’ll be recording the interview and you’ll be asked to review the findings of the study for the purpose of member checking. So, after I analyze the results I’ll send it to you and if you have a question, or if like you really wanted to communicate something and I missed it, then we can always add it. Okay?
All right, so why don’t you tell me a little bit about your experiences with technology in the classroom.

Speaker 2: Well, I teach technology to everyone at the elementary school where I work, K to 5 (kindergarten through fifth graders). I, as the Technology Specialist I used to be an elementary classroom teacher, but I’m elementary certified but I do try to get as my goal is to teach all the

twenty-first century skills to the students at the school where I work throughout the entire school year. So, all of my lessons each time I see them on the rotating schedule I check off another skill, make sure that I'm covering that standard that I need to cover. So for example if I have to teach like spreadsheets I'll use Microsoft Excel, or if they have to make a presentation, some kind of presentation, I'll use Power Point and I try to use with the students at my school, I try to make sure what I'm doing in my classroom coincides with what they're doing with their regular teacher, like if it's usually Science or Social Studies related. Some other things that I do, I try to use, to meet one of the standards I try to use Pivot software for the animation. I try to have the kids tell a story with like a beginning, middle and an end. They definitely use one of the, one of the things that I use with my students is their websites. We use that all year long. They're blogging, they're putting some of their sample work, like stories, they're putting photo galleries and pictures and things like that. So that's the bulk of what I do all year long.

Speaker 1: Okay, so thinking about twenty-first century learning goals, is there a way that you encourage students to develop communication skills? Is there something that stands out in activities?

Speaker 2: What really stands out for me is their website and all of their blogging that they do. And this, this past year was the second full year that we had their website, so I feel like this year was better than even the year before. It was like an ongoing project that they did all year; sort of like an all about me, like a showcase. It was like, I kept telling them it was their digital portfolio, like if they had a really good work sample they would make a blank page on their website and kind of copy and paste; if it was a poem or story, just kind of to showcase them because I feel like they communicated via their website, like this digital portfolio, and I was really proud of their work.

I tried so hard this year to give them…I Googled journal topics, like fifth grade journal prompts. Instead just saying, "Go ahead and type in a blog question," because I was getting "What is your favorite pizza topping?" I wanted it to be more meaningful and I wanted their writing to be more meaningful,l answering their friend's blog questions in their classroom, their classmates. So for example, I'm trying to think of like some sample questions that I pulled up for them. And I wanted everyone in the class to have a different blog question every single time they came to the lab. So it wasn't the same thing, like "What's your favorite holiday?" Like, "If you were stuck on a deserted island and could bring three things, what would

it be and why?" So every single question was something different and then the kids would, I'd try to teach them to type it in complete sentences to communicate that way. So I kind of feel like for communication their website was the best way for them, as mainly third, fourth and fifth grade students did that.

Speaker 1: When you think about when you were a teacher in the beginning and then now when you look at what's happening in the classroom, do you feel like kids are learning differently and different things because of technology or would you say it's really still the same?

Speaker 2: It's definitely different. It's still the same information that the teacher's trying to teach the students, but I think back when I was, a say, third grade teacher and I used the overhead projector and then the students would copy what I had on the overhead projector taking notes. It's a completely different way that the teacher's teaching the material and I feel like the kids today, and I know I sound old saying that, saying, "Kids today," but they really appreciate having that visual experience using the projectors or the smart boards, or using that Internet, like that information quickly. I used to wheel in an encyclopedia cart in my room. I mean that just seems so antiquated now, but so I definitely think it's the same information we're trying to teach the kids but it's presented in such a different manner to try to get their attention and keep their attention.

Speaker 1: Okay. So, what other benefits do you think that technology has had for students?

Speaker 2: Well its instant information number one and I think that this generation of kids is used to that. Number two, I think it keeps their attention. It keeps them engaged. I don't think that they could handle a forty-five minute lecture. I mean, I don't know that I could anymore, but I don't think that they could and maybe for me now being a tech teacher I just think, normally I don't really have any discipline problems. It's hands on; they're happy to be there. They want to use that computer. They want to learn something new and they want to be engaged. So, I think it's a really good thing if it's used and used well.

Speaker 1: What are some online resources that you use?

Speaker 2: For like for teaching or just for research and things like that? Online I use the school wire's *Centricity* websites; I use that all year long starting with my first lesson, and then every single time they come they shuffle through a rotating schedule. Even if my goal is to teach Excel, say I'm teaching Excel, one day I still spend on my websites. So it's an online

project all year, so I use that software. Online it's a live website, the software's built online, and I also use for the little kids, kindergarten, first and second, I use some websites online, like starfall.com.

So mainly the internet those online resources for the little kids, it's mainly games, like if it's I try to do what they're doing in the classroom. If it's read across America, Dr. Seuss, I'll go to seussville.com for kindergarten, first and second I'll. Like I said I'll use starfall. For the older kids, if they're researching for a black history month project or something for say, say it's something in social studies we'll use Grolier, we'll use any of the online encyclopedias; world book online, we use. And they will use Google. Google's kind of tricky because I don't really let them go onto Google Images unless an adult's in there and they know it. They have to ask permission, but I do let them go to Google because what comes up, and I'll use black history month projects as an example, when they type in someone's name in a Google search, you'll usually get like a biography.com pop up or something, a good resource. Wikipedia I let them use because, if it's for a project they could the persons autograph, which is really a nice picture to put in the presentation. They get a nice little chart on their dates of birth and their awards. Wikipedia I don't let them use for the data because anybody can go in Wikipedia, but generally Wikipedia there's good pictures and it's safe in that way. So that's what I use.

Speaker 1: Okay, how about software programs?

Speaker 2: Well, for software we mainly use besides the *Centricity* school wires, which is an online software, we use Microsoft Office. I don't use Word that much except for the younger kids, first and second. Third, fourth and fifth I generally, they use Microsoft Work with their classroom teachers. I use Power Point, Publisher and Excel. There's other online software too that the kids use like Study Island for third, fourth and fifth to help them prepare for the state testing. I'm trying to think what other software. We use Print Shop. We'll make banners, we'll make cards. We use Kidspiration. I use that, mainly with first, second, third. Let me think what else. I think that's it off the top of my head right now. And Pivot we use that for animation.

Speaker 1: What is the goal for using Pivot? What are you trying to the get the students to achieve?

Speaker 2: Well first I do it in stages. In first grade I just teach the program. It's a little stick figure and you're teaching them to move the stick figure frame by frame. And so they move the little stick figure, say the move the arm

or they want to make it jump and every single grade I build the lesson. So for first grade they know how to tell a little story. Like two little stick figures walk out and shake hands and nod their heads at each other, and say that could be thirty frames. So, I'm trying to teach an animation program that goes frame by frame.

Second grade, I build it even more. Like I'll show them how to make a ball or to make a sword or to make a basketball net and the Pivot will frame by frame bounce that ball. Third, fourth and fifth I try to get them to tell a story with a beginning, middle and end. And I teach them in paint, we use paint. That's another software I should've mentioned. I'll teach them to make a background, say a park with a trampoline, and they save it as a jpeg, and then they can upload that background to their story.
I mean every year, I've been doing this now for a couple years, I cannot believe the fifth grade animation stories and they do love it. They absolutely love the program. They really do.

Speaker 1: We talked about blogging, the websites, some of the software that you have the kids use, is there anything else that you do that stands out?

Speaker 2: I'm trying to think. Well, you mean as far as teaching the kids or…

Speaker 1: Or activities that you do. They do a research project?

Speaker 2: They do a research project. All third, fourth and fifth grade do. Definitely I do it with all third, fourth and fifth for black history month projects. And then fifth grade students usually have another research project that they have to do. Sometimes fourth graders will do like New Jersey because that's one of the things they do in social studies. Fifth grade teachers it depends; sometimes it will be something for social studies or, it's really up to them. I try to work with the classroom teacher, whatever they want.

Speaker 1: Do you teach them about how to pick quality sites for research? Is that part of something you do?

Speaker 2: Definitely I do. I talk to them about the internet, and I show them when they're first. I let them use Google for a search, and when they log onto the computer they have the Encyclopedia's World Book online and Grolier Encyclopedia.
When the kids do Google search, on the side bar there's usually advertisements and I do talk to the kids about, like a lot of times they're trying to sell you something. They know about Google images because I talked to them about it over and over again. This is the example I give. Just like for a child if you give them a remote control to a television you

wouldn't say, "Well watch any channel you want. Go for it." Just the same thing as with Google when you're doing a search, I have to, I care about their safety, their safety's my number one concern so if they want to go to Google images, some teachers don't allow Google images; I want to teach them the right way. They're only allowed to go onto page one because sometimes there's garbage on Google images, but they're probably using it at home I'd rather teach them the right way to do a search. Usually for research it's like a reputable site that I know like biography.com, and many, many people and I'll use Black History month projects as an example, like Maya Angelou or Michael Jackson or Oprah Winfrey, they all have their own website. It's changed over the past couple of years, but almost every single person that is a famous person or someone who's reputable they're all going to have their own website. And on their website, they have a page for pictures so they're all safe, and they have a page with a biography with information. So I show them that.

Speaker 1: If you had to, like step out of the computer lab for a minute, but if you had to describe the ideal classroom, what would technology be like in that classroom?

Speaker 2: What it would be like is, I'll use say third fourth or fifth grade classroom, it would be definitely a classroom with a projector, with a smart board, and that projector would connect to a really good computer, a fast computer that's not slow that loads up fast, and it would definitely be every student one to one with some kind of device, be it a laptop and their textbooks and resources and websites, everything would be available right at their figure tips. The teachers' website could be used as a teaching tool for the kids to go and get their work or find out an assignment or just a great communication tool for students and parents. I also truly believe that the teacher's website can kind of be a show case if you're not in that building, in those four walls. If a parent or a community member or a grandparent wants to visit that room, they feel part of that room just by going online, just by visiting and seeing some of the photo galleries because not everyone can get in the building. So that's what the ideal classroom would for me.

Speaker 1: You say that the kids would have a laptop to themselves. What about an iPad? Do you think the laptop's better than the iPad?

Speaker 2: Well, right now I think we're in this transition period. I do love the iPads and I think the iPads if the app is relevant to what that lesson a teacher would want to teach, but for right now, for *Voorhees* schools where we

use Microsoft Office, and if the students need to do a writing sample, right now I'd go with a laptop over an iPad because we just got some iPads at ****** School and I've been trying to test if the kids can go on their websites and to go to the Centricity on the school wires.
And you can log on and the log on works, but when you go to a new page, something is missing and I'm not sure what. I was trying to figure out, like how would I use it? If I wheeled this into a classroom, how could a classroom teacher use it? So right now I'm leaning more towards a laptop then an iPad, but I do think the shift will happen where be it three, four, five years I do think that those older kids will all have some kind of device and if the iPad can sync with whatever software we're working then I'd prefer the iPad because I think the touch screen is easier for a lot of the kids.

Speaker 1: What kind of training have you had related to technology integration in the classroom?

Speaker 2: Really, it's kind of just, we get it and then I have to sort of teach it to myself. Probably the best thing that happened for me personally was getting my own iPhone just because then I was forced to learn that Apple software; now I'm comfortable with an iPad. So, as far as laptops and software, I really have to just teach myself. I mean every once in a while there'll be some kind of training, but unless I teach it myself and the best way I learn it is by using it with the students. And then I learn from them. Really, honestly that's the best way.

Speaker 1: So if, if you could pick what kind of training you received, would you rather somebody come into the building and train you on whatever your using or whatever new technology they bring in or would you rather just have the time to figure it out?

Speaker 2: I'm going to kind of pick both. If I could pick, I would want someone who's had experience. Not necessarily someone say from Apple who has never been in education, and I'm just using iPads as an example because they don't always really know. I would love to either see a classroom, how do they use it, like I would love to see what they're doing in a real example, and then I would like the time to learn it and teach it myself, teach it to the teachers at my school, to show it that way. That would be the ideal. I don't really know if that exists, if that's out there, but that's what I would want.

Speaker 1: What if you could work with the other tech specialists in the district and have the time to just work together to sort through things.

Speaker 2: Well a couple years ago, maybe two or three years ago, the tech

specialists in the district that was an initiative to bring something new to share. And that was wonderful. I did learn some new websites and some new things, but we stopped doing that and I don't know why. I think just other things came up and we got busy with something else, but if we could go back to that I think that's a great idea. I think learning from each other is the best way. Somebody might know something that I never knew. They never even heard of for example Pivot, and then I showed them Pivot. So now they're doing that at the other schools. And that's free software. It's free online so, yeah I think that's a good idea.

Speaker 1: So what would you rather have, the training from an outside person or working with your technology peers?

Speaker 2: I would rather have training from an outside person if it's something new because I feel like I'm in the same boat with the other peers that I work with. That's what I would have to say right now because I don't think that there's anyone right now as of this date that has that hands on experience that I'm looking for. That training that I'm personally looking for.

Speaker 1: So, what is the training that you're looking for?

Speaker 2: I'm looking for someone in education that knows apps that are beneficial at the elementary level for iPads. Like how can they be used in the class room? Besides some of these free apps out there, I need something real, some kind of story thing or something they can make with their websites. Like really, if I wheel that in a classroom, honestly what am I doing besides Angry Birds? I need, I need something and my own kids at home teach me things, but I need something that benefits the curriculum. That's what I'm really looking for. Not a fun game; no offense because I think it has it's time and place, but something really beneficial for the classroom and that's why earlier I said I would lean more towards the laptops because that's what I know. That's what I know, but I want to move forward.

Speaker 1: So do you think that the teachers really or are there any teachers that have a real understanding of how to incorporate technology in the classroom?

Speaker 2: Definitely, definitely at the school where I work. Definitely, I think more than even some others. There are many, many teachers that I think do a really good job incorporating it.

Speaker 1: And how do you think they learned how to do it?

Speaker 2: I think they taught themselves.

Speaker 1: Okay.

Speaker 2: I do.

Speaker 1: So, what do you think is the biggest barrier that prevents them from using the technology in their classroom?

Speaker 2: One biggest barrier, the biggest barrier in my opinion, unfortunately is age. I think that some people at the school where I work are scared and they still use the old way. And then there's other people who embrace the new way of trying to incorporate technology in the classroom. Just signing up that lab and using Microsoft Word is not using technology, but they think it is. So that's one barrier.

Another barrier is that not everything always works, so there's a frustration and I think some people just maybe quit because it's easier to just pull out paper and pencil because they can count on that. So there are actually a lot of barriers. One being that they're afraid to learn something new and I say age, but it's just the way it is. I think that the next generation of teachers grew up with technology and they're not afraid of it. It's just the way it is. And then the other barrier is just kind of a negative attitude towards it, towards technology because it doesn't always work. And you have to sort of be flexible, and if it doesn't work for someone like me, I usually know how to fix it. And no matter how many times, how many emails, how many letters, how many demonstrations, no matter how many times I say how to fix it, it just doesn't sink in. It just doesn't sink in for some teachers.

Speaker 1: Right. So if you think about the teachers who are using the technology and are using it well, what do you think are the barriers that inhibit them from really…

Speaker 2: Oh, the teachers that are using it, the barriers they run into are kind of these network, filter, security, top down, like we're Fort Knox. That's one. Another thing is, is you have teachers that have, be it a Kindle or their own iPad who want to use and they can't even use it at work. There're all kinds of security features that honestly I don't even know how they get around them; I can't. It's so lock down, top heavy like safety that it's really almost impossible to use.

Speaker 1: What do you thing about kids bringing their own technology to school?

Speaker 2: Well, I have three kids of my own and my youngest son is going into fourth grade and he has an iTouch. I would definitely send him to school with one. He is, and I use him as an example; I live with him all the time, so he's a real kid going to a real school. He found an app to make phone calls to me; he doesn't have a phone. He found an app to text message me; he does this all on his own. He uses it all the time. He would just like, if the teacher gave him an assignment in the classroom, he could use his iTouch to do that research. I think, I don't know. I don't know if there's

any schools out there doing it, but I think it would be beneficial. It would save the district money, not sure about all these security features, how the kids would even get onto the wireless network, but I know my own kids. Like you can go to Starbucks and get on their wireless. They know how to do it, they know how to use it, they're not afraid of it. And I think it would keep them engaged. I think some teachers would be afraid that they would get on games, but just like I monitor the kids in my lab; I have to look over their shoulder and make sure they don't go into Google images; I want to teach them the right way. There's a way that you can teach them the right way to do things. I don't think we shouldn't do it because we're scared. I think we should do it because it's the future.

Speaker 1: So, what do you think would be the biggest pitfall to allowing the kids to bring their own technology?

Speaker 2: Well, there's a lot of pitfalls. One being, maybe not everyone has it. Maybe there would be a feeling of the haves and have-nots. Then another pitfall would be; okay, what if they lost it, or dropped it, or broke it? Then the parents would be upset. That would almost have to be an agreement. I would agree. If my son could take something to school, I be like, "You need to be responsible." It's like taking your library book back and forth. The other pitfall maybe would be, is our wireless strong enough to hold all these signals. My own internet at home, my kids have Xboxes and iTouches, and I can't even get a signal sometimes; I need to get another router or something so if my own home is not strong enough for my three kids' devices, what's the elementary school signal like? I'm not really, I don't, I don't know. That would definitely be an obstacle.

Speaker 1: So, do you think you have enough time to plan activities that incorporate technology? Obviously you're always are planning for technology.

Speaker 2: I'm always trying to plan, yeah. You mean, you mean regular classroom teachers?

Speaker 1: Let's talk about them.

Speaker 2: I really think regular classroom teachers need more time to get together and brain storm, to share ideas. Even if like they demo once a month, they demo something that they're doing in the classroom to show something. And then maybe five people would pick up on it and try it. That's, they really do need the time. They truly, truly the classroom teachers have I feel like, and I can say this because I was a classroom teacher for a long time and a specialist for a long time, the specialist have a hard job in that they teach the whole school, but the classroom teachers just have, in my opinion, so much more on their plate, and they do need that time. They really do need that time.

Speaker 1: Do you think that they have enough resources?

Speaker 2: As in like, resources like training? Or resources like devices?

Speaker 1: Could be both.

Speaker 2: They don't have enough devices, they don't. They share the devices with their students. A lot of teachers will, if a laptop cart's in their room for their students, they'll use one of the laptops for themselves. And that's fine with me as long as they're using it for their classroom. As far as iPads, this is all new; we don't have enough of those. But this moving forward hopefully we'll get more, so we don't have enough of the iPad devices. As far as resources like training and time, I wish there was more. I do think that there should be some more. I don't know how. But, no, I don't think there's enough.

Speaker 1: What do you think parents feel about technology in the classroom?

Speaker 2: You know, I think, I think parents especially for elementary students, I think they're kids generally are growing up with some kind of device, be it a DS or even like those littler Leapster's. Kids have these hand held devices. I think parents are open to it. I think parents think, "Okay, there's a time and a place. I want my kids to learn," but as long as it's valuable and kids are learning I think they'll go with it. I do.

Speaker 1: Do you think they worry about the security issues?

Speaker 2: Not as much as I think. I don't because I trust my kids and I want them, my own children, but maybe I'm a little, maybe I'm, maybe I'm not the norm. Maybe there will be parents; I think you'll have a mix. I think you will have, you'll always have that come to think of it. It could be on the playground. Don't climb up that ladder, you're going to fall down; climb up the ladder, go ahead, have fun. So, you know what, you're going to have a mix of parents the more I'm thinking about it. You're going to have ones' that are worried, and then you to have reassure them that the teacher's in the room monitoring and then you'll have the ones who say, "Go for it." And then you'll have ones that maybe don't even know and don't care, but that's society right?

Speaker 1: Right. Yeah. Okay, so what do you think is the biggest benefit for students who have the opportunity to use technology in the classroom?

Speaker 2: Well, I think its hands on, engaging, it's preparing them for the future. We have these twenty-first century skills; we want the kids to, to get to that next level. So, I think to become citizens as adults and to grow up, to finish high school, go to college, get a job. They need to be able to function in society. I think, I think it will really prepare them for the future. I really do. Having the technology and having that background, it can only help them.

Speaker 1: So, what do you think the difference is between home and school as far as what kids learn about technology?

Speaker 2: I think at school, we really do; at least I know in my lab, and I'll use Google as an example, I don't know at home if they talk about security and safety as much as we would in school. I really don't know. I try to talk to my kids, like they have friends on Xbox live. All three of my kids play and I say don't talk, I do as a parent will say don't talk to a stranger, who is this person? It's just some random person from Kansas. Who is this person that you're playing with live? So as a parent, but I'm not sure that all parents even know, even know to the extent that some of these devices they can, they can Skype. They can see people live. Maybe at school we would go over the safety and security even more.

Speaker 1: Do you think it's our job to do that?

Speaker 2: Yeah, definitely. Definitely.

Speaker 1: How about just like basic word processing and using Excel? Do you think the kids know that? Do they have that experience?

Speaker 2: They don't know Excel. They know basic Word Processing. There has also been a shift in the past couple years as far as typing. It used to be we would teach typing, type to learn. We would teach them how to type and so you'll find an older generation like, "How come you don't teach typing anymore?" just like we don't teach cursive writing anymore. In the 1800s cursive was the most beautiful penmanship you've ever seen. It's out of, it's just, life changes, it moves on; so just like with typing I think word processing some of the teachers would like the kids to be able to type a little bit better. I think we're at this point where a lot of the screens are touch screens; there's none of, there's not so much of this typing on a key board as much anymore. So I'm curious how we'll move forward in the future but.

Speaker 1: So you don't see key boarding as a lack of the ability to keyboard as a barrier to using it in the classroom?

Speaker 2: I don't.

Speaker 1: How about your administrator, do you feel like your administrator is supportive of technology in the classroom?

Speaker 2: Supportive, I have a new administrator this year who I think is just afraid to spend money. I've just kind have been spoiled over the years, getting new devices. So, right now I'm in this transition; there's at the school where I work, we have twelve laptop carts and the two youngest carts, actually there's one cart that's about a year and a half old, a year old. Then there're two carts that are three and half years old and the rest of the carts are four and a half years old. It's really, it needs to be, we

need to update. With technology, it just, you need to constantly buy new and upgrade. So right not we're getting like a little bit of iPads, some iPads, so, I'm curious of how the next year goes. If we, if we can get some more technology with budgets and things like that, I'm not really sure.

Speaker 1: Do you feel like you've been provided enough support to integrate technology? And you can answer from you and then the perspective of the teacher.

Speaker 2: For me being provided enough support, no. Me, as a tech person I have not been provided enough support. I work at the biggest elementary school and I get the same technician twice a month to come and support, as far as the director, the head of technology maybe at my school, maybe twice a year.

So, I don't walk in those shoes, so I don't know what that job's like. I think being the director of technology is a really hard job, but I wish that there was more support. I wish that somebody would come in and say, "How's it going? Is your software working? Is every, what's going on? Do you need any help?" I sort of have to figure things out on my own and sometimes I'll call other tech specialists and I'll say what's going on; how do I fix this and try to figure things out. But no, for me for my job, definitely not enough support. For the teachers in my school, it's just been hard because we had a change this year. I definitely, me personally, didn't do as much training as I did the years prior. But it was a transition year changing to Windows 7, having Zen Works, then half the computers didn't, it took a month to get the school up and running. And we're just such a big school. It's really hard to fit everything in.

Speaker 1: So if you were to get training, do you feel like as a tech specialist you need training in how to maintain computers, update, fix them?

Speaker 2: Definitely, but I don't even have half the pass words for it, like it's all monitored outside of my building. It's like outside of my school monitored at central administration. Everything functions from there and I really feel uncomfortable making phone calls half the time, almost as if I'm a pain. And teachers at my school always they say, "I'm sorry to bother you." and I always say, "You're not bothering me." But I think they think they're bothering because I'm so busy; I feel the same way. Like, I feel like I'm bothering the people above me. I'm sorry to bother you; I say the same exact thing that they say to me, so everyone's at this frustration.

Speaker 1: Yeah, so you, so if you had the controls to do it, you would try to fix things on your own.

Speaker 2: If I could figure out Zen and figure things out on my own, I mean in a

perfect world I would get; I didn't even talk about Zen, but it's this whole background software that runs the network. I would take it off. I would take it off because at first I was blaming Windows 7. It's not Windows 7. It's Zen.

Speaker 1: What's the purpose of Zen?

Speaker 2: It's like kind of this, how can I describe it? It's this umbrella over every computer in the district, being a laptop, being a desk top, and it runs everything. And it's supposed to make things easier. Like you can push out Windows updates or push out through the whole district network, but it doesn't always work. And half the computers in my lab, when the kids click on the internet, come up to a blank page. It's really hard when you have a first grade class and it doesn't even come up to the website, your school website, and you've taught them how to browse you're school website and to get to that page with the links on it. But then they don't know how to type in the URL like www. That's just one example of Zen. Another example of Zen is every single user, for example in the Genesis software that the teachers have to use for grade books, everything is in PDF, all the reports, and in the Pearson SuccessNet software that teachers use for math and reading, everything is in PDF. Well when they log onto a computer in my lab, not their classroom computer that they usually use, PDF has to be activated, on every single machine, for every single user. And it's not at the administration building. They don't have that there. It's at like all these elementary schools and the middle school where you have to go to start programs, acrobat reader and pick this like middle choice to activate. It is like one more step. It is so confusing; that's just another example of the Zen works that it kind of tries to control all the software. But it's not very user friendly.

Speaker 1: Is the purpose, it's just really to make it easier to manage, but is a security thing an issue?

Speaker 2: I think it's like, honestly I don't even know because I don't have a log on for it. I'm guessing that it's some sort of software to monitor and control the network. It's the best way I can describe it. It controls your Acrobat Reader, it controls your internet, it kind of controls all that software so some times the clip art on the Microsoft Office will work and then other times it doesn't. Sometimes the PDF files work and sometimes it doesn't. It's just very, very frustrating. And if I can figure it out, but I'm frustrated, other people just probably want to quit. And I feel really bad and I say, like I tried to show it at a faculty meeting, I tried to send an email but they're overwhelmed with information. It's like information overload.

They just want it to work. And I feel bad for them because I don't have that magic wand and I don't even have the control to fix it.

Speaker 1: So if I said to you what's the one thing as a tech specialist to increase teachers' usage of technology in the classroom what would it be?

Speaker 2: That's a hard choice. I'm teetering between internet issues and network issues, but I think I'm going to go with network issues over internet issues because this is another example of Zen problem that I just remembered. Many, many teachers lose their H drive; it's their home directory to where all their files are. They'll call me constantly. Again, "I'm sorry to bother you." You have to right click on this red N in the bottom right corner near the clock on the computer to get your H drive back. They get kicked out of their H drive. Like they can't even get to their files, so the one thing that would make my life easier or the staff, the entire school, is if the network, just that Novel network, the Zen, again I don't have any keys to the kingdom, I can't fix it, but if that worked, I think there's just a frustration with a lot of people that they can't even find their files sometimes or get to the right program that they need. I don't know if I answered that correctly enough.

Speaker 1: Yeah, you did. And so if that was taken care of and all the computers worked what would be the next thing?

Speaker 2: The next thing would be internet issues. Again, I said before, we have twelve laptop carts and a lot of times with Windows 7, the Zen Works, when you turn on the computer a lot of times it comes up kind of like the old work station only it looks like this flower; it's like computer only setting. It's very hard sometimes; it's kind of quirky to connect to the Wi-Fi and each laptop's a little bit different. So I've tried to teach the teachers and they've sort of learned. A lot of them have learned how to connect, but that wireless internet connection issue, be it I just had the gym teachers at the end of the year come running up to me. They couldn't get the laptop to even work with the projector. And they had a whole grade level sitting there staring at them in the gym. So I ran in and I played, and I did a couple different function buttons and stuff like that. That kind of, that wireless connection, quirkiness is the only way I can describe it. It's kind of laptop to laptop and it sometimes works and sometimes doesn't.

Speaker 1: Is there anything that you want to add about technology integration.

Speaker 2: I do. Oh, integration or just technology?

Speaker 1: Well, it could be both, yeah.

Speaker 2: Another thing I wanted to add was we have Wi-Fi in our school and all

the devices for the school can technically, supposedly, connect to the Wi-Fi. Well then if you have someone come to your school, like a PTA person or someone like, we had some Voorhees gardener come for an assembly or we had career day. We had twelve classrooms with all these professionals outside and it was wonderful; the guidance counselor organized it, and all the kids had rotated room to room. They all brought their own devices. So of course I'm being paged left and right. One person had an iPad, luckily I had a cable in my desk and I connected it to the projector. I ran and I did that. They were happy. Well, then other people brought their own laptops, and I could connect it to the projector, but that didn't really help. The one person who worked for Farmers Insurance he had this presentation made for the kids and I didn't even know the password for the Wi-Fi for the guest. I was sort of embarrassed that for community members coming in it really shouldn't be that hard. Like I said, you can go to McDonald's and Starbucks and get Wi-Fi. For community members, it should really be we welcome their expertise. If it's a PTA person coming in to help and they came running up to me and it's like "Oh, I'm sorry. I don't even have that," I just felt unprofessional, and I felt like there's another example of how I can't help people. And it sort of feels defeating. For lack of a better word I felt like a loser. I felt so unprofessional that I couldn't even help them with their device when that should be my expertise. So that's really one other thing I wanted to add.

Speaker 1: Anything with the teachers that you want to add: good, bad, concerns?

Speaker 2: I think the teachers at my school work really, really hard and for most of them, they really do embrace it. They really, really do. I'm proud of so many of them. And for the ones that don't embrace it, I really don't think they'll be teaching. I know that sound horrible, but I don't think they'll be teaching much more than three to four years. It's just the choices they make in life that they don't want to move forward with that, and then I take those kids and I do my best with their class. Luckily those kids have me in the school. And they'll get it at home too, those kids. That's pretty much it.

Speaker 1: Okay, well thank you very much.

Speaker 2: You're welcome.

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Duration: 44:03

Teacher 5

Speaker 1: Okay. Thank you for volunteering to participate in the research study of technology integration in the classroom. I'm inviting you as a certified elementary education teacher to be in this study. The purpose of this study is to determine the barriers that prevent such successful integration of technology as prescribed by 21st century learning skills. The interview will take 45 to 60 minutes, and all information will remain confidential. I'll be recording the interview and you will be asked to review the findings of the study for the purpose of number checking. Okay? All right, so why don't you talk a little bit about how you use technology now in your classroom?

Speaker 2: Okay. We use technology, I'd say more than half of the day. We have it for our reading and math program that we pull up our morning activities. We have writing themes that come from it. We have a couple of sites that we use regularly that somebody in another state actually came up with for all the components for our reading series, so each morning we can do that. We break into the groups, so I have six groups that go onto the computer daily. For math, we use it for introducing the lesson, monitoring the lesson, teaching the lesson and evaluating the lesson For social studies and science, I use it daily for videos related to the topics, PowerPoints related to the topics, so I'd say on an average day, we'd probably use it more than half, a good two and a half, three hours minimum.

Speaker 1: Okay, and so would you say that you're using the technology to present information?

Speaker 2: A way to present it that we don't have available such as when we're talking about volcanoes, actually pull up the actual parts to do more re-evaluative tools, so a way to present, and evaluate and teach. I would say a good way of using it to present it.

Speaker 1: Okay, when you talked about videos, are you pulling up videos from the internet?

Speaker 2: No.

Speaker 1: From Safari Montage?

Speaker 2: For the videos, we pull up Safari Montage.

Speaker 1: Okay.

Speaker 2: If I've pre-searched one that from an appropriate site like Discovery or things along those lines, but we use Safari Montage probably four times a week, at least.

Speaker 1: Okay, and mainly for science and social studies?

Speaker 2: Yes, but we've also used it to pull it in related to a couple of things with math where pulled real life examples, so when we're doing certain things to show them the connective part, [inaudible] as a living.

Speaker 1: Okay, okay. How did the kids use the technology?

Speaker 2: Well, each day we, we don't have our laptop card so we used to have them daily use that last year, but this year they've, we've put them on the computer for centers, and I break them into groups. They get a 15 minute window each day, three groups. We don't have appropriate sites pulled up for them to use. They go, they log right on. They pull it up and then they also create a tool of what they've taught, so they'll pull up, they create their own PowerPoints in second grade of what they've learned and then they'll present it to the class. That takes about a month though.

Speaker 1: Okay, that's okay.

Speaker 2: They, and also its way of skill, get their skills a little stronger for math so we'll pull up certain sites for multiplication time, division that looks more fun for them but they'll actually learn.

Speaker 1: Okay, so like games that they're reinforcing?

Speaker 2: Yeah.

Speaker 1: Okay. Okay, so what software programs would you say you use in most in your class?

Speaker 2: I take PowerPoint, Publisher, and… PowerPoint and Publisher would be the two largest ones I'd say we use. Publisher because they create pamphlets and things along those lines, but the PowerPoint because anyone can do that to create a simple slide and pull the pictures and the things along those lines. This year, to tie in with our computer specialist, we've been using pivot and I know there's one other program I can't think off the top of my head. That was another one that we've been using with *********.

Speaker 1: Okay, so the kids kind of use that in the computer lab or they…

Speaker 2: In the classroom.

Speaker 1: …in the classroom too?

Speaker 2: In the classroom. We get computer once a month but we tied in, but we use all three computers all day long now. There's probably only about a 15 minute window that they're not being used, so they're used all day.

Speaker 1: Okay, so you only have three computers in…

Speaker 2: Three computers.
Speaker 1: Okay, and the SMART board.
Speaker 2: The SMART board.
Speaker 1: Okay. You kind of did answer this but are there any other learning activities that you plan that you use with the kids in the classroom that have to do with technology?
Speaker 2: I mean I know we will pull up, like I'll create a summary of the lesson we've learned and create a Jeopardy game on that. The brain pop for those but I'd say those are majority the ways we use it.
Speaker 1: Okay. If you could describe your ideal classroom, what role would technology have in your classroom?
Speaker 2: I'd say 50-50. I'd say to put into the forefront where it's used in excessed for entertainment but more for educational but we're still thinking you can monitor them one on one individually where they're still not losing the skills of using the textbook. I like the technology but with texting and things along these lines, I am not a big fan because I find it more often and not, they tend to abbreviate and lose their fluency. I'd like to see it used more for couple of the kids that have a real hard time writing and typing where they can get the dragonfly worry. We'll type exactly what they say would be my goal but I, all I can see is still mid 50-50 next where we use it but not to where it's just to keep them babysitting, not to where they can even put a video on it and just do something else.
Speaker 1: Okay. How would it be is the…?
Speaker 2: Well, we use it to the point where to reinforce what we're teaching, to monitor, to stop the talk, but the pull things that we can't present in the second grade classroom now you can present from real life examples.
Speaker 1: Okay, and so is there anything else that if you had the resources, you'd be able to do, do you think?
Speaker 2: I would like to see where I could give a few more computers in the room so I could actually have them, instead of putting three or two kids onto a computer having them doing more, what I'd like to use it personally more for writing. I find if I could get it to where a few of the kids, I'm probably going to buy this summer the components where they can speak and it'll type for them because there's a few that just have that wall up when it comes to typing but they have great ideas. Another one would be, we've been doing this year a lot of pure reading but they'll read, we'll tape it and then we'll have them go back and read it again so they can actually hear what they sound like and how they improve, so they can actually have reflection on themselves and that's worked out really well in our guided reading this year.

Speaker 1: Okay, so how do you record them?

Speaker 2: I have, my [inaudible] that I give them and then I say that they're not even email to them and then that where they actually get to hear themselves and then they play it home and then they can hear that they're strong reader or they hear that they're struggling, but it's more for reflection on them, not so they have to be embarrassed or anything. That's worked out really well. A couple parents have been brought on board more with that.

Speaker 1: Okay, good. Okay, so if you had your ideal classroom; what kind of technology would you have beside, you said a couple more computer?

Speaker 2: I would like to have personally textbooks online so that where they'd get access of them on home, if everyone could have their own computer which I think will come in the near future, I think they'll have that, but almost where you could just put them at a different centre to pull up things will work along these lines. The SMART board works great then actually it's worked out all the kinks so we use that, I would say for everything it was required plus another 20% or 30% of what we use it for. It's still limiting because you can really only put one person on the SMART board so they do have the SMART board desks and things along those lines by the, I would just say something where we can use it more that the technology would be there and fast and upgrading it so consistently which becomes a financial issue.

Speaker 1: Right. Going back to the students because you did mention that it would, it could take the place of them typing or keyboarding. Do you think that for your kids that the keyboarding kind of is a barrier or slows the kids down then that's okay.

Speaker 2: It's not taught in any grade and it's not taught in computer class and I'm not sure what grade it is taught it but it is because just knowing how to use shift, enter spacebar, not hitting it two spaces, some of them have great ideas but it takes, as in second grade, it takes an hour to maybe type a paragraph.

Speaker 1: Okay, so you don't feel like the technology that they're using at home translate them to using the computer?

Speaker 2: No, no, because most of them are still one-finger type which I am too but they, it's just something that their, I don’t think it's reinforced enough and it’s a shame because that's what they're going to be using for the rest of their life so I'd like to see, we do have some programs for typing but I think they're a little obsolete for what they use.

Speaker 1: Okay. What training have you participated in related to integrating technology in your classroom?

Speaker 2: Most of it has been in district. I've taken a couple of classes out just with different people I know but majority either a computer teacher offers in morning and afternoon, I'd say quarterly. It's not every day because she used other things all in those lines. Other colleagues that have, who are starting out newer and it's more influx to what they were taught in school and I'd say just a couple of things along those lines and then, of course, what you see going on in the news and stuff like that that something it catches your eye that that to learn that a little bit on that will better doubt yourself.

Speaker 1: Okay. Do you spend time learning about how to use a technology? Okay. Do you feel like time is an issue for you when it comes to learning about technology?

Speaker 2: I personally don't because I like…it's hard because you might see something that's really great but it might be too expensive or might not be the ideal thing for a lower classroom but personally I don't. I think you just make the time.

Speaker 1: Okay. Did you say you did go offsite to get training out? What was that a…?

Speaker 2: I went to a couple things at *Camden County College*, a colleague teaches there and they had some SMART board workshops and he also pulled in some, using tablets of things along those lines that all the programs that were designed right on there, so we went over and did that, it wasn't the class, it was just sitting, they're sitting in on a couple of classes but just getting more used to it and realizing that there's a lot of stuff that you don't have to create that's already there.

Speaker 1: Okay. Were you able to take what you learn there and bring it into your classroom?

Speaker 2: Yeah.

Speaker 1: Okay, good. You talked about learning maybe from the newer teachers still have, so have you, do you feel like collaborating with other staff members that's helped you?

Speaker 2: Yes. I would say definitely for the fact that the people who are new or had been doing it are also generous to offer it. They're not, they're just willing to show you what they're doing. They're not trying to put one over and you, things along these lines, they're willing to share and show you some things that maybe you might have overlooked, but absolutely.

Speaker 1: Okay, so if you had a choice and they said you can go to this workshop and or have this person come in and train you or you can work with your

peer group in a learning community, what would you think would replace…?

Speaker 2: I would, it would depend on what it was. I'd say ideally you probably just go work with a colleague that's really good at it but you'd have to be able to identify them. I'd say go into workshop will be great if it's something that's really new cutting edge or something that nobody has use for. However, I'd say the problem with that is time because like times will offer them but second is you might take a three hour workshop and only 40 minutes was worthwhile. Whereas if you get to a colleague, they know you one on one and you can do it within both of your times, so I personally find that more efficient for me. The district workshops when they'll bring somebody in, generally not because between squeezing in 20 people just, you can only take so much and at one time.

Speaker 1: Okay. If there's any training that you could get specifically in the future, what would you want to be changing?

Speaker 2: I would like to personally see something with, more with tablets for the fact that we have ours personally at our home but I would, you can, I mean the computer's what it is, that works fine but something you could utilize more where you could put it at each child's desk and, but how to monitor it and training them basically, how to get them trained. It's easy for me to show one person but if you have to show 15 what to do, so that's where I'd like to see more where you could get it where it's more on, and that you have to almost figure out how to train them, to train yourself.

Speaker 1: Okay. Do, so right now when you think about technology, what's the one thing that prevents you from using technology in your classroom?

Speaker 2: Well, that’s an easy one, it's just the resources not having, I mean as the lower grades, the upper grades are more demand of it so I'd say the lack of accessibility to it. The upper grades are required to do more of the weekly thing where in their lab doing the reading and the testing for the upper grades but I'd say the limited resources you had when you're dealing with the school as large as we have would be what it is. I mean, it would be great if each grade level had their own laptop, even then that's still difficult to get it when it is there.

Speaker 1: Okay, so if you had all the resources, then what, do you feel like you would need?

Speaker 2: I think that would be it.

Speaker 1: Okay, so if you were given an iPad for every kid, you would be able to figure out how to use it then?

Speaker 2: Yes.

Speaker 1: Okay. You'd be confident in doing that?

Speaker 2: Yeah.

Speaker 1: Okay. What do you think your parents, not your own parents; the kid's parents feel about technology?

Speaker 2: That's an easy one this year. Every year changes but this year, reluctant.

Speaker 1: Really?

Speaker 2: I mean that as the homework's on the web page every night, I have blogs every night, well, I'm sorry, blogs weekly and a lot of them don't check it. They are very busy on their own. I'd probably had four kids that didn't check their report cards all year because their parents didn't have the time so I printed them out. I think some of them use it as an obstacle just to say they can't when they really can, in my opinion. I think it's also second grade, it's a little harder because they are still little babies at that point but they're not in this day in age but I'd say reluctant for sure. This year particularly, I'm not sure if it's cultural thing, if it's a financial thing, but they all have email addresses, they also have access but yeah, I'd say it's been very reluctant this year.

Speaker 1: Okay, so do you think that they want their kids to use technology in the classroom?

Speaker 2: I would think they would they would if it's used appropriately, meaning we'd all just simply show movies for the sake of showing it. I think some of them are old school and the fact that the comment we usually get is that's not how we did it. That's not how we did it, but I don't think they have a problem with it if it's use to utilize what they have. I think their fear is then what do they do at home when they need extra help if they're not used to it. This year particularly, it's just been a strange year with, in regards to that.

Speaker 1: Okay. Do you think your parents are fearful about what the kids would be exposed to in the internet or them using the internet?

Speaker 2: I think there's a couple who, well I know a couple are, these couple are in law enforcement and lawyers. One's actually the district attorney in *Campton* so yeah, they, we have active discussions actually daily on once again you're supposed to be using out in the open but I do think there is that bit of a fear because none of, I think none of my kids have Facebook accounts and I think that's a good thing at this age but I do think they're worried what's out there in their own school, we have a really good filter but at home, it's only as good as what you pay for.

Speaker 1: I don't know if you know but do you think your kids are on the internet at home?

Speaker 2: I know many of them are because they'll blog back to me but that had to be after I had permission from their parents but no I know they are because then I'll give them a topic to research then they'll research it and that's all extra credit. I can't do it as mandatory unless I give them all a computer, in my opinion, but now I know they are. Not like some years, some years, I mean they, I mean I've had years where kids already had Facebook pages in second grade which I think it's too young, I mean I think it's supposed to be 14 or 16 but now, I, this year, they're on it but not as many as, not as much as most years.

Speaker 1: Okay. When you talk about the blogging, what do you think the benefit of the blogging?

Speaker 2: Well, at first it's the muse to using and then there is some feedback, I also make the topics fun. I think it gets them away to just take baby steps to the internet, take baby steps to getting a topic and seeing what other people think and we're always real careful making sure the topic's age appropriate and I monitor it as far as if I get somebody put something in it inappropriate. It has to go through me first.

Speaker 1: Okay. Do you think, are you worried about the kids doing inappropriate things?

Speaker 2: My class, no. I, we've had a couple issues with a couple different kids who this year got into somebody's account and put in the topic as far as a little bit more middle school, high school topic.

Speaker 1: Okay.

Speaker 2: Yeah, that's just unfortunately the nature of the beast as far as somebody just taps a little bit too much time, a little too much knowledge on how to get to it, but personally now, not with these kids, I don't.

Speaker 1: Okay. Do you think it's a barrier for people to use to not use the technology?

Speaker 2: I don't think so being as a parent, I just monitor. I don't, but I think it can be especially if you don't have somebody who's actually taken the time to check but I personally don't.

Speaker 1: Okay, okay. You feel confident using the technology in your classroom?

Speaker 2: Yes. The more, I mean it's, as we, we're an affluent district, as we get more resources that work well like I'm really fortunate that my technology has worked all year without a single glitch, so sometimes less is more as long as it works well.

I mean the issue is really when I have to bring something in the set up time and then you can't leave them there and then the batteries go dead, so it's hard when you're trying to integrate from other things when you have to [inaudible] but I shall comfortable especially they share just

everything's work. We haven't had any glitches. It's been a good year, a real good year.

Speaker 1: Good, so do you think students benefit from technology use in the classroom?

Speaker 2: Yes. Well absolutely because I mean it's one of the ones where, consider, I mean our book is limited on what it has at the grade level so we pull up different topics, first thing is that they're more on level or we want to pull a refreshing game. I can go on and get it, if we want to pull up, what's going on in history to actually get the actual footage of Dr. King or the actual footage of the space light or if we want to go on and share them all the queries, I mean they, rather than being told, they can see how it's helping them. They'll see how it's going to work in the future and there's probably nothing they do during their day that doesn't involve technology even at this age, between the doctor's office sending a script between now getting the speeding ticket with a camera film so I would say there's nothing that doesn't involve it.

Speaker 1: Yeah, so when you think of 21st century learning like creativity and collaboration and communicating, how are you able to bring that into the class with technology? Where do you think that the technology blends itself…?

Speaker 2: I would say definitely blends itself. I think just from being able to communicate the parents quickly even if it's 2:00 in the morning, I think being able to show them sites that they can go to. I just would like to see it improve as time goes on where we can get things more cutting edge and where, I would like to see it basically where you could almost be modified to each child which is the way the tests work now so if you take something and you don't do well, it will automatically regenerate something that'll work to that for child's level and I think it's any easier evaluative tool where you can just give them the passages to read and based on how they do it, they will just give them something a little higher or a little lower but it can self-choose at those that you happen to sit and they can do it a lot more at home if they need to.

Speaker 1: Yeah. Okay, so yeah, that would be a huge benefit. Do you think that we're capable of doing that now with what we have?

Speaker 2: Well, that's a budget issue. I think it's right here, maybe a year or two away but I just think the issue becomes of pain for.

Speaker 1: What about the idea of kids bringing their own technology to school?

Speaker 2: Now I personally don't have an issue with that but it's a grey area, I guess in the upper grades. In the lower grades I wouldn't have an issue with

that at all. I guess the only issue would be if something happens to it but if there's something, see, I don't have an issue with that personally. I don't think it wouldn't be a problem because I think if you're walking around, you can regulate and now maybe the upper grades but I think by then they have more responsibility, but I personally don't.

Speaker 1: You think the pitfall would be the security piece of…?

Speaker 2: Well, I guess the thing, I guess you'd always have the haves and have nots which is in the big yolk because she could supplement in the room. In our room, it's fine because I mean, pretty much we lock the door when we leave so I don't think it's an issue of something getting stolen. I don't think it's an issue, I just think, I don't have an issue. I think there could be an issue of somebody having something they shouldn't have on it which then again your, I would assume but that's where I'd be a little naïve that you were, security, trying to figure the word for it.

Speaker 1: The firewall?

Speaker 2: Firewall would work. I don't, that I wouldn't know. I assume it would but I don't have an issue with it.

Speaker 1: Okay. All right. Do you believe your administrator is supportive of the use of technology?

Speaker 2: Yeah. Well, of course she was being out there last year and *******, this year, I say we, they are because when we want something we can get it within reason and I don't think we've ever been told no or something along those lines and if, I mean, just having a computer lab that gets updated routinely and now I'd say both of them, both of you and ********, supportive.

Speaker 1: Okay. Do you think that there's enough support to enumerate technology in your classroom?

Speaker 2: Now is that coming from the specialist or?

Speaker 1: Yeah, well it could come from anybody.

Speaker 2: I think for people who know what they're doing, there is because they can just get a little extra, oh, we're having a problem, look at it. If you're right behind me, I'm really unsure, no I don't think. I think there's some people who need their hands held and won't take the initiative to just restart the computer. There, it need somebody to show them every single thing. I'd say yes and no. I'd say yes for a teacher whose comfortable with what they're doing and who can say, oh, it's not working today they can just think on their feet and go to something else but I think if you're a teacher is afraid if not turning on or there being a glitch, I'd say that's the one pitfall because you're just, only so many people who can help you with that exact minute if that's what you need, and with the few people who, if all of a sudden they just, there's a, it's slow that day. There's, it's pandemonium, they don't know what to do.

Speaker 1: Right. Is there a way to alleviate that?

Speaker 2: Well, yes and no. Yes, if you know which people can go to for help quickly but I think the other one who really is to be preparing ahead of time like coming in ahead time which few people do but outside of getting like another person because it just can only have so many people go so far. I mean, did you have as much as we have in the building, it's impossible to have that much. I mean it would be and I think the only way to do it is have an extra person who's that's their job but it just in the climb and I don't see that happening.

Speaker 1: Okay. Have you experienced a lot of technical problems?

Speaker 2: This year, no. This year has been a great year. Other years, we have and a lot of times it's just the computer itself, virus or it's slow or something along those lines. That's my one pitfall but I agree the district, I'd like to have more independents to get into, to fix it but that's limited with passwords and that I understand because there has to be a keeper of the key so, but this year not one bit.

Speaker 1: If you had an issue, you would try to resolve it yourself?

Speaker 2: Yeah but this year, I mean I have three strong working computers when we go to the lab or find them, I mean, the one glitches are computer teacher will be pulled out for different things but I have to run my classroom when we're in there whereas other teachers literally cancel their class if they're not their which defeats the purpose.

Speaker 1: Okay. When you think about the resources and having them in your classroom, do you feel like the training that you've had would be enough to get you to be able to use what news…?

Speaker 2: I do but that's for somebody who's willing to do it on his own time outside of school too and I always think there's that window in there, meaning I'd rather see before we got the program or before we purchase the thing to have it almost like a pile of system which can and can't work but that way you could work out the bugs or say it's not worthless purchasing this, but then it becomes a whole catch 22 like how long do you wait and is that obsolete but I personally have and, but I also know who I can go to if I need a little extra help. I think sometimes when we have our math program like corporation has an issue, that's a little bit of a headache when there's certain things that I don't think they thought about but I personally do. I think we had given up and that's just me.

Speaker 1: Okay. Okay. Let's see, so right now the one thing that you would need to increase your use of technology in the classroom.

Speaker 2: I'm just saying more devices. I just, I mean, I don't think we have to go buy 10 computers for every class but I think if each class could get a few more laptops or tablets or something that they could break into smaller groups, but I mean, I laughed knowing that I have three that work every day, I'm comfortable, but if I could get a few more, it would be great but I would say, knowing that I have three very strong working computers makes it a lot easier because I don't have to [inaudible] ups, we can only use one today.

Speaker 1: Okay and when you think that when you first start at teaching, do you think things have changed in the way you instruct because of technology?

Speaker 2: Yeah, yeah.

Speaker 1: How?

Speaker 2: When we first started it was right into right and that was mandatory and the problem with that is it's really limited but now it's, I think it's only helped because we use technology and I know for my daughter like she's having issues with her comprehensions so we go on to programs and we pull things up and she still has the basics, she still has the group, she still has the whole class, the small group but I think it helps because now we can assess her a lot faster, we can get her extra tool if she needs and I use those things into my room.

Speaker 1: Okay. [Side talking]

Speaker 2: I'd say it's like, I just think everything, I mean my one flaw I hate with the technology we have is that it's a little less personal and that just means communicating. It's great because you can send an email to movie theatre to let you know you'll do something but it's also less face to face, but the positive is it's availing you to get a hold of somebody when you normally wouldn't be able to…

Speaker 1: Right, okay, yeah, so as far as communicating with the students communicating, do you see that they're able to develop better communication skills because of technology or?

Speaker 2: I don't see quite as much in second because when they email, when they want to communicate with me rather, I mean, I think in my class, three kids have their own stones of texting. I think none of them have their own personal email but they go through their parents which I agree with personally. I find some of them, in my age; I don't see it as a factor just yet. They know how to go on and find something, they know how to get a hold of somebody but I don't think they use it as an everyday part of their life yet which I agree with.

Speaker 1: Okay. Do you think as a teacher, it's your job to teach kids, how do you use these technologies appropriately and…?

Speaker 2: I do. Yeah, we talk about it every day and unfortunately with [inaudible] of world things going on, we use that as our best offer to make sure you're talking to your parent, making sure you're using that. I think it's our job to show them what's available but also to guide them of what you should and shouldn't do and as a parent I agree with that.

Speaker 1: Okay, so do you think that what they're using at home translates into, then being able to use the technology as of learning tool in the classroom?

Speaker 2: A little bit, not as much in second. I mean in fifth grade when I taught it, you could tell who went and did extra stuff and reinforced it and second, I think because it might be a one computer household that there were, the parents were reluctant to let them use it knowing that that might be able to use for their job or what they only have so I do find it at this age, they don't have the freedom to go on their own just yet which I agree with but I think they should be allowed to do it a little bit more. Maybe just having somebody set there but

in this, in my class I'd say there's probably only a third of the class, we'll use it frequently at home and with guidance but I mean there's probably two that have their own, but I think it's more or less it's a one computer household.

Speaker 1: Okay, yeah. Okay. Is there anything else you wanted to add that would give me insight says two barriers that prevent teachers from using technology in their classroom?

Speaker 2: I think they're afraid to make mistakes and I think harder, and it's not an age issue because we have teachers that who are much older, much more veteran than me who've utilized it and we've had teachers are much younger than me who won't utilize it. I don't think it's an age, I just think some of them, they want to do it one way, they don't want to change the way they're doing it but work's works and then when they kind of go out of the comfort zone, they realize it's a good thing but I think some of them are just afraid of change, whether young or old, there's just, or they keep saying it's a cycle to go back to where it used to be which I don't see that happening. I mean, it might back to discipline theory or things like that but I don't see it going back but that's about it.

Speaker 1: Yeah. Okay, and one last thing, did you, do you know anything about the Danielson evaluation system that we're going to adapt?

Speaker 2: A little bit about it.

Speaker 1: Okay.

Speaker 2: I might actually have to sign on to that because the one person or schools went to another schools so they might need an extra person at our school but just a little bit on that.

Speaker 1: Okay, because one of the things I was looking at in with the evaluation system is that there is levels of proficiency and with that model, if you're a three, there's one, two, three, four, so if you ever ranked at three, that's really good, and there's going to be few people whoever get to be a four, but when I looked at, what is it that makes people a four, it was really looking at the kids in that classroom and how they're able to guide their own learning and help others with learning and kind of, the teacher is more of the facilitator of the kids and their instructions so do you think technology is going to play a role in that?

Speaker 2: I think that would definitely play a role at certain ages. I still think that the younger grade, I mean they're getting the introduction of it. I still think of a couple, look, I see that and be more of a factor in the four or five grade and then force up from there but in the lower grade, I don't know. I still think there's point where you're still teaching them the basic habits and the things along those lines. Yeah, I did follow this far as getting to the fourth. It's not that you're going to gear yourself to mediocrity but it's like to get to the four which they might be used to getting. This can be very, very hard but just going to be a transition for a lot of people because the whole idea, I've done it my whole life, now I haven't gotten it. I mean that's been a discussion we've had already with the one teacher who was on the committee. I don't know. I still see as a lower grade, it's, and I might be out of turn, I just think if a lower grade, it's not going to be, it's the same factors, it would be the upper grade. I mean at this age, yeah

there are a few kids that I will send on but they probably could have already been in third grade, but that, I mean, just, it's just a little different in every year, who knows, maybe next year it'll change but yeah, I don't see it as much as a facilitator just yet because I think you still need to tell them what they need to do and things along those lines would like to take with 3/4 of the class.

Speaker 1: Okay. Okay. Anything else you want to add?
Speaker 2: Nope, I'm good.
Speaker 1: Okay, thank you very much.
Speaker 2: Okay.
[End of Audio]

Duration: 34 minutes 2 seconds

Teacher 6

Speaker 1: Thank you for volunteering to participate in a research study of technology integration in the classroom. The researcher has invited you as a certified elementary education teacher to be in the study. The purpose of the study is to determine the barriers that prevent successful technology integration, as prescribed by 21st Century learning. The interview will take 45-60 minutes and all information will remain confidential. I will be recording the interview, and you will be asked to review the findings of the study for the purpose of member checking. Ok, so why don't you tell me a little bit about your experiences with technology in the classroom.

Speaker 2: Ok, well since I started I used the Smart Board every day when the kids first come in the morning, they copy their homework from the Smart Board, lesson introductions, lesson reviews, games, internet, videos, pretty much everything is on the Smart Board. We lucked out and had net book cart bought just for third grade, a year ago, so this was the first year that we used those in the classroom, and the kids loved it. Before that we had the laptops. I have let them use my cell phone, smart phone because, until this next upcoming year, we did not have any iTouches or iPads or anything.

Speaker 1: Ok, so when the kids had the laptops or the net books, what activities did they do?

Speaker 2: They would just do internet research, kind of like a web quest, based on whatever the topic was for either science, social studies or reading. They would review their spelling words on Spelling City, they made flashcards on Microsoft Word, I gave them a lay out and they had to go and fill

everything in with their vocabulary words and definitions, and then they got to print them, and make their own flashcards.

Speaker 1: Ok. Any other projects that you did that you can think of?

Speaker 2: They researched their heritage, just through the Google, they would type in things and the kid safe sites and everything, they had to pick one country from their background and research it. It was about a month and a half long project.

Speaker 1: Ok.

Speaker 2: Grade level wise.

Speaker 1: Then did they have to type it up?

Speaker 2: Then they had to type a one page report and then they presented it to the class and everything got put together in a book and then the books were placed around the cafeteria, and then we had a whole Heritage Day.

Speaker 1: That is really nice. Did you see that when they when they were typing their papers or doing their research, that keyboarding was a barrier for the kids? Did they have a hard time typing?

Speaker 2: In the beginning of the year they did, because there aren't really that many programs anymore for them for their keyboarding, but I also blogged with them every week, so they had to type it on Microsoft Word first and then copy and paste it to the internet, and through that each week, their typing was ten times better by the end of the year. The heritage project was at the end of the year so they were ok with it.

Speaker 1: Ok. When you say about blogging, did they just blog with you, did they respond to other kids' blogs?

Speaker 2: They did both. I would give them a question based off the weekly selection for reading for that week and then they would answer. Then the next week they had to go and respond to at least three before they posted the new one for the new topic.

Speaker 1: Ok. That's good. Did they do it at home or in school?

Speaker 2: A lot of them started to do it at home, it started just in the classroom or in the computer lab every Friday, and then a lot of them got very into it where they would do it from home, their parents started doing it, it would go onto the other classes' websites that they also knew that blogged and would respond to theirs too.

Speaker 1: Ok, very good.

Speaker 2: They had a lot of fun with it.

Speaker 1: Did everybody have internet access at home?

Speaker 2: Yes.

Speaker 1: Yeah, ok. How about some online resources that you used? Is there anything specific?

Speaker 2: Not any real specific websites, though we went on Google a lot and they would try to find stuff from there, or it was just other websites that I have had saved off our class website, but it was never anything really the same one.

Speaker 1: Ok. So they would go onto your website and then get information there.

Speaker 2: If they were going to do an internet project, I would add a link to our class website and that is what they would go to, and they would pick from those websites that were listed there.

Speaker 1: Ok. How about any specific software programs that you used?

Speaker 2: All the Microsoft Word, PowerPoint, Excel. They learned to make a video.

Speaker 1: Movie maker?

Speaker 2: Movie maker, yes, they used that. They also used, pretty much just all the basic software, we would try to make it a point for them to use it before the end of the year, whether it was with our technology teacher or with me.

Speaker 1: Ok, so with Movie maker, did they do that with you?

Speaker 2: They started it with the technology teacher and then they didn't finish it within the weeks' time, so then we ended up doing it the next week.

Speaker 1: Ok. Would you say that the other teachers did that as well.

Speaker 2: Yes.

Speaker 1: Thinking of your ideal classroom, if you could have anything in the classroom, what role would technology have?

Speaker 2: Probably a bigger part than actual, hard copies of books or anything else, everything would be on there. The kids seem to like it more, they are a little more interested when it has to do, I had the Kindle-app on my phone, and they would pick books off there and read it and they were really more into it if it was on my cell phone, than it was if it was right in front of them.

Speaker 1: Right. Let's say that you could have your ideal classroom and that played a bigger role. What would you need to make that happen?

Speaker 2: Ink for printers, printers was a big thing, and the Smart Board on there was great, I would want probably either a net book or an iPad, enough for each kid to be on something at the same time. We didn't have enough for each kid.

Speaker 1: Ok, even with the net books, you didn't have enough?

Speaker 2: No, because even, ideally, if they all worked the way that they were supposed to, because of how small my class was this year, I would have

had enough, but for normal class sizes each year, there is not enough from the cart.

Speaker 1: What would you rather have, an iPad, net book or laptop, if you had your pick?

Speaker 2: I guess the net book or laptop just because it would be better for typing for them, but the apps and stuff in the iPads, you could always end up pulling those up on the Smart Board somehow, but with the net books and laptop at least, they can save their own work to their thumb drives and everything.

Speaker 1: Right, ok. Let's say that that happened and you are going to start September, and you have a laptop or a net book for every kid, what would you need in order to successfully integrate the technology?

Speaker 2: That might be pretty much all that I would need. They wouldn't need their notebooks or anything. I could have them do all their notes and vocab words and everything just on there. Each kid already this year had their own little flash drive, so they would need that and then….

Speaker 1: But you as the instructor, would feel confident to starting September and know what to do with that? Ok

Speaker 2: Yes.

Speaker 1: Alright good. What training have you had related to technology in the classroom?

Speaker 2: All the different trainings that they have given throughout the past couple years, even before I was teaching it was just like an IA. There was like Kid Biz training, Smart Board training, I helped the one teacher at it, lead a Smart Board workshop, or other teachers, and that even helped, little things that I didn't know about, and just showing other people how to do it.

Speaker 1: The training that you received was mostly in-house.

Speaker 2: Yes.

Speaker 1: Have you gone outside the district for any training?

Speaker 2: No.

Speaker 1: How about when you talk about working with other teachers, when you had time to collaborate, did you focus on technology at all in any of those collaboration days?

Speaker 2: Most of the time we did towards the beginning of the year, but grade level wise, my grade level partners were all pretty much on the same level, so we would talk about what things we were going to change or keep the same technology related, but then most of the time we just talk about other things and what we would want to change like hard copies of

things, just because we were pretty much all on the same level, technology-wise, knowing how to use everything.

Speaker 1: They're all pretty proficient at it. If you had the laptops and we were going to give you training, would you rather have somebody from the outside come in and train you on how to integrate the technology or would you rather just have time to work with your peers and collaborate together?

Speaker 2: I think it would be nice to have somebody from out of district come in and train just so that it is not just hearing the same thing over and over, because everybody in district kind of uses the same thing, so if it was somebody from out of district..

Speaker 1: Ok.

Speaker 2: … that could give a perspective on it.

Speaker 1: Ok, is there anything you can think of topic-wise that you would want them to train you on?

Speaker 2: I guess just pretty much creating different notebook activities in the smart notebook program, because still there is so much to it that once you learn a couple things, you kind of stick with the same things, so to be able to explore it more and see exactly how other parts of it could be used.

Speaker 1: How about with regards to the laptop, anything there that you would need training on?

Speaker 2: Nothing I can really think of. Maybe just some websites that they could use all the time, that are ok because with the kid's safe, it changes constantly so one year our website could be ok and then the next year it is not anymore.

Speaker 1: Right.

Speaker 2: …and not running.

Speaker 1: Does that worry you, that if they had their own laptops they would go to inappropriate sites?

Speaker 2: Because of the codes and everything that are on there, I think it would be alright, and I have never really just told them, go here and not checked it first. If I knew, like with the Heritage project, ahead of time what country, I googled it first and checked the first couple sites to make it was okay, and then let them know, if this is your country, don't go to this one, only go to the first three, and I would check it ahead of time.

Speaker 1: Ok. Do you think that the parents would be worried if they had their own laptops, that they would access inappropriate sites?

Speaker 2: I think some parents would be, but even if we had talked about it even at back to school night or let them know, they don't have the codes to go on

to access certain web sites and we do check it frequently, if they would be a little more comfortable with it.

Speaker 1: Do you think that your kids have their own laptops at home?

Speaker 2: I would say about 90% of mine did, if they didn't have a laptop, they had an iPad.

Speaker 1: So how would you feel about them bringing that to school.

Speaker 2: I would want them to not bring their own, because you don't know what is already on there, and if they are actually doing what they are supposed to or playing Angry Birds, they downloaded or whatever they got that from home.

Speaker 1: Do you think that the computer could be a distraction for the kids as far as the classroom goes?

Speaker 2: It can be if it is used all the time.

Speaker 1: Do you think that you have enough time to plan activities that incorporate technology?

Speaker 2; If I am doing it from home, yes… outside of school hours, yes. It is very time consuming.

Speaker 1: Ok. What would you say then is the number one thing that prevents you from using technology in your classroom?

Speaker 2: When it doesn't work.

Speaker 1: Ok, so what do you do when it doesn't work?

Speaker 2: Usually I will have some sort of backup, either worksheets or a group activity that they could do, which then is also what makes it so time consuming is because you never know if it is going to work. If the server is down, or if the website changed. Doing it from home, I don't know if the kids can get onto those websites from school or not too, because it is not the same thing at home.

Speaker 1: Right.

Speaker 2: Sometimes I would find things that they could do and then when I go in the next day, they can't access it.

Speaker 1: Do you think the security is too much, or it has to be there.

Speaker 2: I think it has to be there, I don't think it is too much. I mean, they would be blocked, it could be for something that I didn't come across when I was on the website and kids clicking all over could have eventually found.

Speaker 1: Ok, so you are glad that there is security.

Speaker 2: Yes.

Speaker 1: Do you think your parents are supportive of using technology in your classroom. Has there ever been parents that didn't want their kids to use technology?

Speaker 2: For the most part they are supportive. There was one set this year that really didn't want the kid to use technology. They asked to sit down with me, and for me to show them how the blogging works and they wanted to actually see that the comments are sent to me before they are put on there, and there is no way that anybody out of district seeing what they wrote, could figure out who their kid is, that it would just say my name as class and they all made their own little fake blogger name and knew to never use any friends' real names, change their names and use funny ones or cartoon characters, and then once those parents saw that was really how it was, and I had done it the year before, and there was no problem, they were ok.

Speaker 1: Ok. When you talk about the kids doing the blogging and training the parents about it, do you think you do enough of that training with parents, or?

Speaker 2: That was really only the first time that anybody had ever asked me, and grade level wise, no parent had asked any of the other teachers I talked to.

Speaker 1: Ok.

Speaker 2: As long as the teacher is willing to do it individually or just even offer at say, at this time on a certain day, if you want to come and see and have them come, I think that would help a lot.

Speaker 1: Ok. Do you think it is the teacher's job to teach the kids about internet safety and some of the things you talked about, like don't ever use your real name, and those kinds of things.

Speaker 2: I think it goes along with the job, but it needs to be reinforced from home as well, it shouldn't just be on the weight of the teacher's shoulders for them to know that. With the way the technology is and all the kids that have everything at home, they pretty much come into third grade already knowing those rules.

Speaker 1: Ok. Do you think that your administrator has been supportive of technology?

Speaker 2: Yes.

Speaker 1: What has she done that shows you that she supports it?

Speaker 2: Making sure that all of us have access to anything that we would need technology wise, having sign-up sheets for different training and even for us to give ideas on what to be trained for technology.

Speaker 1: Ok, so she asks to obtain what you need.

Speaker 2: Yes

Speaker 1: Ok, and then who usually does the training?

Speaker 2; Usually it is the technology specialist would do it.

Speaker 1: When does she do it, is it a set time?
Speaker 2: Usually during the professional days, and then some people were told to go and take it. A lot of times it was just everybody did it at certain times.
Speaker 1: Ok. What were those topics, do you remember?
Speaker 2: The centricity for class websites was one of them, and just different school programs that we've paid for, how to get on them, how to use them, and how to let the kids access them so that they know they can get them from home.
Speaker 1: Ok. So do you use the students' websites in your classroom, or do they have their own website.
Speaker 2: They all have their own website, they got one this year.
Speaker 1: Ok.
Speaker 2: We didn't really go on it as a class, but through the computer class the one week a month, they would go on it and add stuff on there each time that we were in there.
Speaker 1: Ok, so when we talk about the computers not working, do you think there is enough support when things go bad, with technology?
Speaker 2: I think so. It is frustrating, but if it is like a district-wide server issue, it is usually, by the next morning, everything is fine. It might be down for that day or even just an hour. Usually everything is fixed pretty quick.
Speaker 1: Ok. How about the computers, if they are not working? Have you experienced your net books not working?
Speaker 2: We have and then either our tech specialist or the district's one would come and fix them right away. I have never had a problem where it was too long or couldn't get on to anything. Anytime I have requested anything, they have been there.
Speaker 1: Your tech person fixed computers too, she is good at that?
Speaker 2: Yeah.
Speaker 1: Alright, so what do you think is the biggest benefit when you think about for your students and technology use in the classroom, how do they benefit the most?
Speaker 2: It did keep their attention longer than just reading out of a textbook would because they were all looking in the same direction, and if we were standing up front with the Smart Board, we would know they were looking right at us. It is more geared to their generation, where some of our textbooks are outdated. It is not interesting to them anymore.
Speaker 1: Ok so do you bring in videos a lot to show?
Speaker 2: A lot of videos from my safari montage we'll use or even now we can access YouTube, so I will preview them beforehand and then show

certain videos on YouTube, there was a Macarena song for multiplication, that they could learn all the multiples of everything.

Speaker 1: Ok.

Speaker 2: We showed them that. Then there was different raps and stuff for it.

Speaker 1: Ok.

Speaker 2: So it really helped in any subject, the kids get really into it. It seems like singing and technology are the two big things that they really, the whole class was into. There wasn't even like one student who didn't want to participate when it was anything like that.

Speaker 1: Ok, so do you think that the kids had a better understanding of the content because of the technology, or if you didn't have it, would they still-?

Speaker 2: I think they developed a better understanding of it, because they pay attention. In fact their attention span is a little bit longer because they know that there is a chance that they could get to come up and touch the Smart Board or get in that book, and they need to know what they are doing if it is their turn, so that they do pay attention a little bit longer.

Speaker 1: Ok, since you said a lot of your kids have the technology at home, do you think that what they learn in school then helps them to use the technology at home? Do you think they use the technology differently between home and school?

Speaker 2: I think they might use it a little bit differently, but I know a lot of the students would go onto our class website and practice whatever we learned that day. I would have different links for whatever the whole math topic was for that whole chapter, different games, each lesson on there and would update it for every chapter, and I know a lot of the kids would go home and practice that and even with the reading, story by story, I would change all the websites for vocab words, spelling, whatever the reading comprehension skill was, and they would tell me, well this one wasn't working, this one was a lot of fun, so I knew they were using it from home and then I also gave them time during the day in the classroom for them to go on and use the same websites for the kids who didn't use them at home.

Speaker 1: Ok, so you saw this like a reinforcer, the games.

Speaker 2: That helped with a lot of kids whose parents didn't really assist with homework and everything, so if they forgot how to do a certain math problem, they would tell me, well we went on here and retaught themselves how to do it.

Speaker 1: Ok, good. So the kids just really went on your website at home to get information.

Speaker 2: They would also use the Pearson website for math and reading, and the textbooks being on there really helped, and I had links for science and social studies book too, but the pages to read were not in there, it was just like review games and other reinforcers for whatever they had already learned in class.

Speaker 1: How about enriching the kids that maybe were your brighter students?

Speaker 2: There was always, we call it Above and Beyond. They could go online, there was an extra spot to blog about Above and Beyond topics. There were math problems in the classroom that I would also put on line, that they could solve it, they would get Above and Beyond points and every certain number of points, they were given a reward.

Speaker 1: Oh, how cute. What do you think would be the negative impact of the kids not having technology in their classroom, or would there be any negative?

Speaker 2: I think there would be because in the long run, they are going to have to know how to use it for jobs, which I know at such a young age it is really far away, but the earlier that they learn it, the more that they will retain those skills. It just seems like even text books and regular books to read are kind of becoming less and less and everything is on E readers, so it is important-

Speaker 1: Do your kids have those, do you think?

Speaker 2: Yes, they do. I actually went and bought a Kindle Fire because a lot of the kids had them and they loved them so much that I went and got one for myself this year.

Speaker 1: Do they bring it into the class?

Speaker 2: Yeah, we had different rewards for them, when they filled their marble jar, they got to pick a party and the one that they picked was video game electronic day, so they all got to bring one in if they had one from home, and every kid brought something in.

Speaker 1: Did you find that was a concern that they might break it or lose it?

Speaker 2: We have them sign papers and the parents had to sign that whatever happened was, the school wasn't going to be liable for it, and that they had to bring it in a case. There was no sharing or anything. I went well, this is the second year I did it and everything was ok. Nobody broke anything, they weren't mad. A lot of them actually did just sit and read on their e readers and everything.

Speaker 1: Ok.

Speaker 2: …rather than play a game.

Speaker 1: Well that's good. How about iPads? Do you know how that works and have you used that at all. You said in the beginning that you don't have any at your school.

Speaker 2: We have one for one student, it was just his, but now we just got a whole iPad cart that we will be able to start to use in September.

Speaker 1: Do you feel confident using that in the classroom?

Speaker 2: Kind of, probably not as confident as I should be, so I am going to go in over the summer and just look at them and see exactly what is on there, because when we found out about it, our tech specialist still wasn't sure what apps and everything were going to be on there, so she said that we could go in over the summer when she has them and just look so that we can start to plan and know ahead of time what is on there.

Speaker 1: Ok, that's good. I think I hit everything. What would you say would be the biggest technical problem that you've run into when you are using the technology in your classroom?

Speaker 2: When the server is down.

Speaker 1: The server down, ok, so do you feel like you can negotiate through all the different passwords and sign-ins? You don't have any issues with that?

Speaker 2: No.

Speaker 1: When you start in September with the iPads, do you think you will feel comfortable and confident just picking it up and then trying it? You said you were going to go look at it, but you are not afraid of just digging in and trying it out and seeing what happens?

Speaker 2: No, I will be ok, as long as I get, like I said, the chance to go in and just look at it and see what it is, what is on there, over the summer I will be fine

Speaker 1: Ok. Anything else that I missed, anything else that you want to share about how you use technology or what prevents you from using it more in your classroom?

Speaker 2: Not that I can think of. Like I said, I use it every day. The only time is when the actual piece of equipment or the server is not working.

Speaker 1: How many times a week would you say you had the laptops in your class?

Speaker 2: Minimum of twice a week.

Speaker 1: Twice a week, so other than that…..

Speaker 2: So two to four times a week they are in there.

Speaker 1: Other than that, the kids are really just using the Smart Board. Do you have any other computers?

Speaker 2: I have four other computers in the classroom.

Speaker 1: Ok, do they use those when you don't have the laptops?

Speaker 2: They will be because they were just replaced with new ones, but only the one connected with the Smart Board really worked, the other ones took until the end of the day to finally be up and running, so they weren't really. The year before that they did use them, so when there wasn't enough laptops or net books, I would stick a couple kids on the computers, and then each third grade teacher has their own laptop through the school, and I would put one there and just make sure that all the passwords, mine were off, and that they would have to log in with their own.

Speaker 1: Ok well that is interesting, so every teacher has their own laptop?

Speaker 2: Just third grade, just the four.

Speaker 1: Why do you think that is?

Speaker 2: I am not sure how it started, it was before I was even there. I don't know if there weren't other computers in that classroom or if that was the one that was originally connected to the Smart Board, but then the tech specialist just kind of kept it that way, because she knows that grade level wise, we use technology the most out of each grade level in the school, so she says I don't really know. She wanted us to have that so that we can take that home, but she would see us there until 7 or 8 o'clock at night and then she finally said, take those home with you and just do stuff from there, and that actually did help a lot.

Speaker 1: Ok, so do you feel like the people who are good at technology and who are interested in using it, get the technology more than everybody else?

Speaker 2: Yes. Most of the teachers who don't know it as well are pretty willing to learn, and will ask about it and come down. A lot of teachers do come down to our hallway, and say this is what I am trying to do, and can you show me how to do it?

Speaker 1: Do you think there is an age difference between the people who are using the technology and the people who aren't?

Speaker 2: Yeah definitely. The newer teachers are the ones who are more comfortable and will use it more frequently than the teachers who have been there for a while.

Speaker 1: Ok. All of your teammates are new?

Speaker 2: Yes. We all started within about a year to year and a half of each other.

Speaker 1: Really? The whole team?

Speaker 2: Yes.

Speaker 1: Wow, that is interesting. Ok. So how long have you been teaching?

Speaker 2: This will be my third year in third grade and before that I have half a year in second.

Speaker 1: Ok.

Speaker 2: In January 2010 is when I started.
Speaker 1: Ok. Did you get training in college or do you feel like just from you using it, that is how you got to be good at it?

Speaker 2: Undergrad we had to take a couple classes about technology and then we were required at least one class a semester had to be an online class, so we could get more comfortable with it, and then when I did the teaching certificate program through Ryder, there was one technology course that we had to take.
Speaker 1: What was that course like?
Speaker 2: It was pretty much a review for me, because I had already been working in the school districts and saw how it was used, so there was the age gap too with that class, because it was night school and everything, so a lot of it was just, for me, reteaching and reviewing everything and kind of helping other people in the class understand how to do it.

Speaker 1: Did they talk about the Smart Board and how to use that?
Speaker 2: They actually didn't talk about the Smart Board.
Speaker 1: Ok.
Speaker 2: A lot of schools, I guess, in 2009 didn't really have them in every classroom, so it was more, if you had a class in the computer lab, what you could do with them, and how they can use Microsoft Word and different projects that way.
Speaker 1: Do you teach your kids how to use Word and Excel and all that, or do they learn it?
Speaker 2: They do learn it, and I teach it beforehand just so that they have a better, because they only get one week a month anyway, computer lab, so I try to introduce everything ahead of time before they go in so that they feel more comfortable and can complete a project and not feel disparaged that they are not getting it done within those couple days.
Speaker 1: Ok. Have you ever given them a project that was technology oriented that they had to do at home?
Speaker 2: Part of the Heritage Day project was at home. They had to research online if they could, part of their family history .
Speaker 1: But no book reports or anything like that?
Speaker 2: No.
Speaker 1: Ok. Anything else?
Speaker 2: Not that I can think of.
Speaker 1: Ok, thank you, that was perfect.

[End of Audio]

Duration: 30 minutes 24 seconds

Curriculum Vitae
Diane Killough Young

Education

Walden University
Doctorate of Education, Teacher Leadership, January 2012
Project: BYOT Implementation Guide
Advisors: Dr. Scott Kirst, Chair; Dr. Lorraine Miller-Nara, Methodologist

Rowan University
Master of Arts, Educational Leadership, May, 1996

Glassboro State College
Bachelor of Arts, Elementary Education, January 1991

Certification

New Jersey Principal Certification
New Jersey Supervisor Certification
New Jersey Elementary Education Certification

Work Experience

School Administrator

- Middle School Principal, 2011- Present
- Elementary School Principal, 2005-2011

Educator

- Elementary School Assistant, Principal, 1998-2005
- Fifth Grade Teacher, 1993-1998
- Instructional Associate, 1991-1993