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Technology Integration: A Community of Practice to Support Learning

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Walden University

COLLEGE OF EDUCATION

This is to certify that the doctoral study by

Claudette W. Stone

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2016

Abstract

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MEd, Gwynedd Mercy University, 2000

MS, Arcadia University, 1982

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

This qualitative case study examined teachers' perceptions that contributed to a lack of technology integration in their K-8 classrooms. The purpose of the study was to determine why teachers of a K-8 and K-5 school underused or failed to integrate technology to support learning. The theoretical framework for this study was provided by Dewey's constructivist theory, Lave and Wenger's situated learning theory and communities of practice, and Kolb's experiential learning theory principles of teaching and learning. The research questions addressed teachers' perceptions of technology integration as a curriculum strategy and teachers' perceptions of how technology affected professional practices to improve student performance in Grades 3 through 8. A purposeful sample of 8 certified teachers who used technology in their classrooms was selected to participate in the study. The participants represented a range of grades in 2 schools located in an economically disadvantaged sector of an urban school district. Qualitative data were collected through one-on-one interviews, classroom observations, and use of technology questionnaires. Data were transcribed, coded, and grouped into categories and themes focused on: (a) progressive technology usage, (b) competency in technology education, and (c) assertiveness towards computer techniques. Participants articulated the need for technical acuity, collaboration, and continuous professional growth activities to integrate technology as a curriculum element. Findings from this study were used to establish a 3 day professional development plan to provide training on technology integration to local K-8 teachers. Social change can be achieved by increasing the level of technology integration to enhance K-8 instruction.

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Dedication

This project is dedicated to the memory of Reverend Gerald Alan White Sr., a Deputy Sheriff of Philadelphia, Pennsylvania, who committed his spiritual life and work ethic to improve the lives of children and families residing in the School District of Philadelphia, Pennsylvania. This is my contribution toward co-authoring educational notes from the "Deputy Sheriff's viewpoint and a Teacher's point of view" an unfinished work, prior to his going home to be with the Lord. Thank you "White," I can do all things through Christ who strengthens me (Philippians 4:13).

Acknowledgments

Thank you so very much Dr. Jeanette Edlow, Chair; Dr. Sydney Parent, University Research Reviewer; and Dr. Ann Smith, Committee Member. I appreciate your constructive recommendations on this journey to obtain my doctorate degree. Thank you to my colleagues who graciously participated in this study because of your unwavering commitment to our practice. Thank you my spiritual sister for your support from the onset of our doctoral journey. Thank you, my BFF and sorority sister, Geri. There are not enough words to express my gratitude, as you walked with me from beginning to end. To my grandchildren, Jakai and Destiny, you helped Grand Mom Claudie write a paper that prayerfully will influence your 21st century learning and use of technology.

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Section 1: The Problem

School XYZ is a middle class public school located in northeast Pennsylvania. Although technology is available in most schools, Gu, Zhu, and Guo (2013) suggested there are circumstances considered to be barriers. Some educators find it difficult to incorporate technology in their instructional planning in order to provide differentiated opportunities that will address student needs (p. 393). According to Jones and Fox (2011), it is important for educators to be reflective and understand that it takes a combination of resources to empower students for academic success in this 21st century technological environment (p. 6).

Researchers have implied that teachers must be equipped with the acumen to incorporate technology in lesson planning and scholastic systems (Hsu, 2010, p. 310). Although educators may use technology for personal use, technology may not be used to support learning or prepare students for the current digital culture. Notwithstanding an awareness of the national technology plan, Porter, McMaken, Hwang, and Yang (2011) indicated in their educational research that state and local school progress reports show that gaps exist in content areas across districts in the United States. Therefore, to narrow the achievement gap, the National Common Core Standards represent change between specific grade levels. The standards discount grade to grade differences so that students may focus on college readiness skills and vocational education (p. 114). Loveland (2012) concluded that technology integration in academic programs has not progressed globally.

Consequently, past research disclosed that educators in schools have not been as productive using technology as an academic resource to diversify learning (p. 27).

In their case study, Maloney and Konza (2011) determined that teachers' knowledge, confidence, and preparation were challenged by their desire to participate in practitioner research in order to acquire information for academic preparation. Lacking confidence and preparatory skills, some teachers have not amply incorporated technology in their academic plan to enrich teaching and learning in School XYZ a middle class public school located in northeast Pennsylvania.

Ersti, Kurt and Dindar (2012) stated that some educators view technology as a subculture in the classroom due to limited availability of technicians to provide technology training in schools. However, if teachers were supported with consistent quality professional development, technology integration would not only balance instructional delivery but may also lead to meaningful learning as students master skills (p. 32). Therefore, teachers will require relevant professional training that can assist in the realignment of their pedagogical practices. In situated learning venues or independent coursework, the teacher's knowledge base of how to successfully integrate technology may be dependent upon extending content knowledge and technical skills (Abbitt, 2011, p. 134). Abdelmalak (2015) found that professional learning in a collaborative setting or community of practice is necessary to exchange ideas and share relevant knowledge in a collegial manner complemented by virtual and digital applications that make a distinction in educational preparation (p. 6).

Slagter van Tryon and Schwartz (2012) and Lewis (2010) stated that conversation between teachers and students is a time when an intellectual mission can be established using ordinary language in a collaborative setting. Classroom technology integration offers students and teachers opportunities to co-construct and cultivate existing knowledge while new knowledge is acquired. Dewey (1916) asserted, "when students are taught today as they were in the past, they will be deprived of the future" (as cited in Blackwell, 2013, p. 1). Dede (1995) noted when virtual cultures engaged one another in personal experiences, novel ideas and student interests climaxed. Students and teachers could challenge themselves with new insights (p. 6). According to the National Research Council (2000), integrating technology can enable students to engage in active learning with use of visuals when faced with an inability to comprehend abstract and challenging concepts (as cited in Stone, 2013).

In their study, Guzey and Roehrig (2012) found that secondary science teachers were motivated to complete problem-solving tasks with use of technology software and hardware instead of using traditional paper and pencil methods. As technology use increases, teachers may be able to distinguish the difference between its integration as a tool to facilitate learning and the principle focus of the core curriculum (Uslu & Buman, 2012, p. 115). Pickett (2009) contended that teachers who had difficulty integrating technology in a local school's technology instructional plan could not offer what students needed to know because of time limits, experience, and appropriate professional preparation (p. 3).

The central office of an urban school district where School XYZ and School GWJ are located provides technical support in technology integration for approximately 100 schools. Webinars and face-to-face training on information and educational technology services are available to teachers and the technology specialists of School XYZ and School GWJ. The local district's information technology office provides an index that describes how to: (a) uninstall anti-virus software, (b) retrieve a paystub, (c) change a computer password, (d) download a student transcript, and (e) access the district computer network for retrieval of student demographic and attendance data.

Much of the district's information technology and educational technology departments concentrate mainly on procedural and compliance regulations. Teachers can listen to webinars on student policy for use of the wireless network in a local school. Teachers may also learn how to properly use a stylus pen to access applications on a white board through a virtual demonstration. During a webinar, teachers can retrieve information about the district's policy for student use of personal laptops in their respective schools. Also listed in the district's professional directory is a publication category for practitioners who desire to become web publishers in their local schools. A request to become a web publisher requires the teacher to complete an authorization form approved by the school principal, at which time training is subsequently scheduled by the district's educational technology office.

District schools, specifically School XYZ, have been allocated an educational technology specialist through split funding of the learning organization's Title I operating

budget. The educational technology specialist, or technology teacher leader (TTL), primarily focuses on resolving technical problems within the school (e.g. wireless network, hardware issues, and software). Centralized budget reductions and roster constraints limit the TTL's participation in collaborative planning sessions with teachers and ancillary staff assigned to professional learning communities. With more involvement of the TTL, collaborative planning sessions intended to exchange pedagogical practices could focus on using technology for progressive instructional development and *response to instruction and intervention* (RTII).

RTII is a data information system that is maintained to address underachieving students with instructional, social, or behavioral challenges. Although School XYZ and School GWJ have access to the district's basic technology plan network, each practitioner is responsible for establishing an environment conducive for teaching and learning. Bounded resources and partial professional training may contribute to the difficulty some teachers experience with adequately integrating technology to address the individual and collective educational needs of the students in School XYZ and School GWJ.

Wright and Wilson (2011) noted that the "elimination of the school's technology specialist forced teachers to rely on their own ability to implement technology" (p. 49). Educators were compelled to teach students basic skills on how to use technology while trying to move forward with new knowledge in the core content subjects during the scheduled instructional time (p. 8). Pickett (2009) pointed out that teachers' use of technology integration might have been related to preparedness, the occasion to use

technology, and the observation of other colleagues' technology integration as a customary practice (p. 38).

Cubillos (2013) found that 71.1% of research schools used technology for administrative tasks and classroom management responsibilities, while only 23.8% of the schools used technology for teaching and learning (p. 7). Durbin (2013) noted in a study, that a district adopted a technology service approach aligned with the National Education Technology Plan (2010) subsequently expected teachers "to use mobile technology as a tool to advance student achievement with limited understanding or knowledge of the objectives for mobile technology usage" (p. 6). Findings indicated that engagement in technological aptitude was needed to improve teaching strategies for student success, performance, and achievement (Durbin, 2013).

The National Center for Educational Statistics (NCES) found that "less than 20% of teachers reported feeling well prepared" to use technology in classroom instruction (as cited in Lewis, 2010, p. 13). Furthermore, inadequate exposure to technology applications, lack of collaboration in learning communities, and implementation within the school structure impeded technology use in the classroom (Lewis, 2010, p. 13).

An investigation was warranted to determine why some teachers in School XYZ the primary research site and School GWJ, the secondary research site, underutilize technology. Such an inquiry could render insight regarding reasons that impact teacher perceptions of technology integration and possible barriers that may prevent creative, student-centered activities capable of extending student achievement beyond traditional

teaching. Wright and Wilson (2011) noted, while schools may have "technology rich programs and environments" innovative thinking should be emphasized in pre-service professional learning (p. 58). Through pre-service training, educators can be offered alternative methods to engage students' critical thinking abilities. Those techniques could be utilized when teachers are confronted with deterrents or insufficient technological resources.

Definition of the Problem

Penland (2011) asserted that technology integration is a 21st century tool that teachers and students can use to gain information through associations with one another, preparatory learning activities, social engagement, and problem solving. Davidson (2013) affirmed that most students are proficient users and consumers of technology. In fact, students routinely interact with society using technology (p. 3).

For students of School XYZ and School GWJ to become proficient technology users, teachers need to integrate technology as a partner component for instruction rather than merely utilizing it as an attachment to "teaching and learning" (Wright & Wilson, 2011, p. 1). While national statistics reveal improvement within schools that incorporate technology to complement academic plans, practicing teachers have identified barriers that deter effective integration of technology as a means of reforming pedagogy (Wachira & Keengwe, 2011). The NCES reported a decline in technology use for classroom instruction (as cited in Wachira & Keengwe, 2011). Findings of the NCES revealed that 42% of the teachers used computer applications; 44% of the teachers used technology for

classroom instruction; 44% of the teachers required students to conduct research using the Internet; 21% of the teachers assigned multimedia projects using technology and 12% of the teachers used technology for practice drills; and 20% of the teachers required students to engage in problem solving and data analysis using technology (as cited in Wachira & Keengwe, 2011, p. 17). These below average statistics suggest that teachers may need more training and the opportunity to collaborate with other practicing educators to incorporate technology in an instructional program.

A small percentage of teachers incorporate technology with classroom practices at School XYZ and School GWJ. Teachers have access to Smart Boards, Apple desktop and laptop computers, mobile laptop carts, and academic software programs; however, it has not been fully determined why some teachers opt not to use the technology. Technology tools are available in School XYZ and School GWJ; yet, there is uncertainty as to whether all teachers will implement these tools in the core curriculum (Buckenmeyer, 2010). Some teachers rely on traditional teaching due to unfamiliarity with and lack of basic computer skills, which causes them to "struggle to use technology with personal and professional tasks" (Courduff, 2011, p. 6). There is a possibility that, if both hardware and software were used, students would be afforded an opportunity to construct new knowledge conjoined with prior information to accomplish global demands for progression and productivity (National Education Technology Plan, 2010).

The school enrollment consists of 1, 200 students in kindergarten through eighth grade, separated into three sections with 33 and 34 students per class. School XYZ is

staffed with a full-time, technology teacher leader (TTL) who maintains a schedule divided into four periods of instruction and four periods of technical service to be provided to school staff. Technical support service is focused on resolving hardware and software issues. Technology integration, software use, and instructional technology applications for students are occasionally offered during pre-approved district scheduled professional development meetings.

A computer science teacher is staffed to assist students in the lower grades with achieving curriculum standards using instructional software. Additionally, the computer science teacher educates English Language Learners (ELLs), English Speakers of Other Languages (ESOLs), and students with Individualized Education Plans (IEPs) of primary grades in the computer lab. English, Spanish, Chinese, Albanian, Arabic, French, and Vietnamese are the languages spoken at School XYZ and School GWJ.

Six bilingual counselors translate, communicate, and offer services to the diverse student and parent community throughout the school day and in district-approved community after-care programs housed within School XYZ. The bilingual counseling assistants (BCA), therapeutic support staff (TSS), and members of the specialist teams (i.e., the speech therapist, nurse, nurse's assistant, occupational therapist, hearing support, school base teacher leader, counselor, organizational/roster and title I compliance chair) make use of school distributed Apple laptops.

School GWJ is a middle class public school located in northeast Pennsylvania that has approximately 585 students in a kindergarten through fifth grade, with 30 and 32

students per class. School GWJ does not have a full time TTL, however a computer science teacher is staffed to assist students in grades three through five with achieving performance standards using online instructional programs. There are three English Language Learner, (ELL) teachers that provide small group instruction to the ELLs. Two of the three ELL teachers are bilingual and assist other staff members with translation. Additionally, one regular education teacher and one special education teacher provide in-school translation support for students and parents that communicate in their native language. Each teacher and members of the specialist teams have access to and use school distributed Apple laptops in addition to desktop computers.

Teachers at School XYZ and School GWJ experience obstacles with technology integration when an attempt is made to reinforce mastery learning and differentiated experiences using RTII. Minimal knowledge of technology usage and apprehension limit implementation as a teaching resource for some teachers (Cubillos, 2013). Despite objectives described in the National Technology Plan (2010), teachers continue to have a difficult time creating a learning environment that uses a plethora of technology as an alternative instructional tool.

Rationale

Evidence of the Problem at the Local Level

The local district manages school XYZ while the Pennsylvania Department of Education directs other city schools. The school has progressed from 5 years in school improvement status to making adequate yearly progress for 2 years with a newly

appointed principal of 3 years. The 2014 School Performance Review ranked School XYZ in third position of K-8 Tier I schools in the district (SDP, 2014).

The school's progress reports for 2012-2014 are the most recent data retrieved from the district's public domain and the Pennsylvania Information Management System (PIMS) of the Pennsylvania Department of Education (2014). The achievement domains measure performance on standardized assessments that include the Pennsylvania State Student Assessment (PSSA) and ACCESS for ELLs. The progress domains measure growth on standardized assessments and progress towards graduation.

School XYZ's overall achievement was 63% in the city ranking for similar and peer group schools of the same grade configuration. Scoring 63% of the 50-74% performance tier schools identified School XYZ as needing reinforcement to achieve state standards. The reinforcement performance tier also showed that School XYZ ranked 8th of 98, an achievement gap of -25 when compared to the highest performing schools in the district during the 2013-2014 school year. A school is selected as city leader if the achievement and performance rank first among similar schools. Compared to the model school performance tier (75-100%), School XYZ placed 2nd of nine, an achievement gap of -11 in the peer school ranking category.

Most teachers in School XYZ possess a laptop belonging to the district's property management inventory control system. Face-to-face conversations are the primary mode of communication among all stakeholders at the school and in the community. Other means of communication for the principal are the use of a district assigned cellular phone

that is utilized to transmit messages. Information is also transmitted to teachers' personal cellular phones via email and through use of laptops assigned and distributed by the district's office of property management inventory. The laptops are purchased from the school's operating budget and Title I funding allocated to School XYZ.

Two outdated Apple desktop computers are operated occasionally to supplement learning activities. The portable building classrooms experience difficulty using the Internet due to an inadequate Ethernet connection that is interfaced with the wireless network within the main building. The principal and assistant principal use the MacBook Pro laptop and the Apple Desktop computer to complete administrative tasks and to facilitate the teaching and learning schedules for teachers and students. The school secretary uses an Apple desktop computer that is connected to the central office to retrieve student and staff data, district initiatives, and policy and procedural mandates (SDP, 2014). It should be noted the local school district contracted with and purchased Apple technology to be used in its district schools.

Technology in School XYZ is used mostly to maintain performance data, organize lesson plans, and to communicate. The underutilization of technology in classroom instruction may also be attributed to a lack of professional training opportunities and face-to-face collaboration a routine that teachers have expressed would complement their teaching methodologies. Lewis (2010) found that practical technology use was hindered by a lack "of in-service education and minimal interaction between teachers that could be transferred to authentic classroom techniques" (p. 16).

I attended learning community meetings as a volunteer educator. During the community meetings, I observed teachers consume time using technology as an administrative instrument rather than a teaching resource. Teachers used technology to analyze student performance and complete data mining tasks associated with the Pennsylvania Value Added Assessment System (PVAAS), which is an accountability tool utilized to link student performance with the Pennsylvania Teacher Effectiveness Performance System (Pennsylvania Department of Education, 2014). Additionally, I have seen the teachers submit their monthly student performance data to the local district Teacher Information Management System (TIMS) and the Pennsylvania Information Management (PIMS) database during learning community meetings. Technology has been designated to collect and track information in School XYZ, a situation that has not improved in more than a decade (Sheffield, 2011, p. 304).

Although there is access to laptop carts for classroom use, some teachers spend a significant amount of time reviewing and reteaching content without use of technology. Other teachers incorporate use of a Smart Board as a strategy to introduce content information and as a graphic or advanced organizer (a visual outline) for distribution of assignments. Davidson (2013) pointed out that "the teacher who acknowledges conditions to facilitate problem solving and promote critical thinking has to create opportunities to extend learning" (p.4). Integrating technology in classroom practices could be a strategic approach to increase achievement and performance.

The principal is required to observe and document teacher performance quarterly and to submit a yearly rating to TIMS, which is linked to the Pennsylvania Department of Education. This routine is followed in order to provide constructive feedback for improved teaching performance. Of the 60 staff members in School XYZ, 20 teachers (representing 33.3% of the practitioners who instruct students in the tested grades three through eight) were observed by the school principal incorporating technology in their daily lessons during the first quarter (PDE Teacher Effectiveness Observation Tool, 2014). Hosgorur & Gecer (2012) argued that technology cannot be detached from education in order to prepare today's students for future influences on economic, political, social, and demographic trends. As students become more astute with using technology, practitioners require consistent professional training that can support their pedagogy and skill set. The discussion in this section was focused on School XYZ, the primary research site and not specific to School GWJ, the secondary research site. School GWJ is included in the data collection and analysis for this inquiry.

Evidence of the Problem from the Professional Literature

Based on the mandated No Child Left Behind Act (NCLB) of 2001, educators are required to obtain, pace, and maintain knowledge of their specific subject matter to implement researched-based scholarship (Pickett, 2009, p. 27). McGhee (2012) contended, "the competence of an organization is strengthened by the leader's ability to re-examine and modify professional learning" (p. 1). The individual classroom is the place where re-evaluated instructional praxis could be adapted for school improvement.

Brown (2012) found that traditional lecturing methods in the 21st century disengaged interest and attentiveness in learning. Practitioners positioned at the head of a group for information delivery did not engage multiple learning styles and lacked direct interaction with students, which stifled their growth and productivity (p. 26). Grunwald Associates (2011) conducted a national Public Broadcasting Survey (PBS) in 2010 revealing that 78% of the teachers acquire academic content utilizing digital video recordings, 76% download or stream from the Internet, 38% use a CD-Rom, 25% view live broadcasts, 24% access material stored on local servers, and 7% teach using the Internet and satellite via videoconferencing. Grunwald Associates (2011) also found that 6% of the survey participants recorded content and viewed material at a later date with use of a digital video recorder (DVR). Teachers in School XYZ have not disclosed in their informal discussions about use of the DVR as a technological strategy for teaching.

Efficient use of classroom technology integration requires that teachers are prepared with professional development opportunities inclusive of interactive learning and collaborative participation in a situated context of their specific curriculum. Gumbo, Makgato, and Muller (2012) found that technology integration increased in classroom environments when teachers were able to develop competency, skills, and confidence using technology with consistent professional training. Researchers contend that technology integration does not occur immediately; however, in the process of teaching and learning, technology integration is viewed as a tool to aid instruction for student

centered experiences (Thompson, 2013; Tournaki, Lyublinskaya, & Carolan, 2011; Uslu & Bumen, 2012).

A review of the literature suggested that teachers would own and assume responsibility for integrating technology to impact achievement when specialized preparation is provided. Teachers who engage in tangible guidance desire to share their reflections about newly instituted routines in a collective setting (O'Hara, Pritchard, Huang, & Pella, 2013, p. 205). Classroom technology integration used as an added value could possibly boost teacher capabilities to expand mutual learning and student involvement with contemporary use of Internet tools. Research indicated that student learning improved when collaboration happened among professional learning teams and that positive teacher perceptions about classroom technologies were necessary to provide for multiple intelligences (Gu, Zhu, & Guo, 2013; Hirsh & Killion, 2009).

Pickett (2009) determined that "learners who were knowledgeable in the effective use of technology would be prepared for a new millennium career" (p. 167). Findings from a student focus group in Pickett's qualitative study were described as follows:

> The best type of classroom would be if students had their own laptop, we could take notes on a laptop, the teacher could send the (assignment) and you would complete the (assignment) and then send the (assignment) back to the teacher; it would be faster than writing notes and easier to take notes and make corrections; it would save lots of paper. (Pickett, 2009, p. 108)

Haight (2011) stated that a means to connect with people internationally is through learned technology application. One-way students could achieve in this technology rich environment is for teachers to examine their self-efficacy by integrating technology concurrently with academic routines (p. 24). With new technology emerging, a demand for supplemental levels of in-service training is required to minimize teacher inhibition when prompted to use a digital curriculum to advance learning (Lewis, 2010, p. 27). O'Hara et al. (2013) found that prearranged training models critically impacted behaviors and the knowledge base of secondary school teachers when it came to integrating technology in their teaching and learning. The models were customized to capture specific interests and teacher needs (p. 203).

Karl (2011) revealed that teachers were motivated by objectives that were outlined for classroom technology. Teachers developed self-confidence and improved skills in a well-defined professional learning environment. Teachers were able to critically reflect upon their praxis (p. 159). Kaumbulu (2011) noted when school systems aligned progressive actions in a shared vision of technology integration with the stakeholders, the traditional methodologies combined with technology balanced digital literacy that could be sustained over time (p. 139).

Specific obstacles had not been disclosed about the limited use of technology to advance the quality of learning at School XYZ and School GWJ. The purpose of this qualitative case study was to examine why teachers do not consistently integrate technology with everyday techniques to improve performance outcomes of students in

grades three through eight in School XYZ and School GWJ. The intent is to increase whole school incorporation of technology as a curriculum component. A plan to augment instructional strategies with integrated technology will be introduced in Section 3. This study contributes to the current body of knowledge about teacher perceptions and barriers that limit technology integration in the third through eighth grade classrooms. Karimi (2011) indicated that having knowledge of technology could build teaching efficacy in order to vary content delivery for remediation and multidimensional learning (p. 51).

Definitions

The following special terms are used in this project:

Community of Practice: Three elements that formulate a Community of Practice (CoP) are a domain of interest, a community of people who come together in a place that may not be intentional, and practice where learning outcomes originate in social processes (Lave & Wenger, 1998). In other words, a CoP is "social learning" for groups of people who collaborate about a query or passion to extend their knowledge (Harris, 2009).

Experiential Learning: This form of learning occurs when knowledge is developed through transformation of experience (Kolb, 1984, p. 58). Additionally, experiential learning happens when a direct encounter with a phenomenon occurs resulting from direct interaction.

Situated Learning: Situated Learning involves peer interaction in specified groups that engage in the "practice of." It is more beneficial and conducive for learning than dissemination of information as the focal point (Lave & Wenger 1991, p. 93).

Technology Integration: "Technology integration is the infusion of technology tools used to enhance learning in content or multidisciplinary environments. Students select, analyze, and synthesize information as it is presented professionally" (ISTE, 2014). ISTE asserted that technology integration lends students and teachers opportunity to advance learning in a broader and more global spectrum of varied subject matter.

Significance

Today, learning methods that include technology integration provide immediate feedback on student performance when technology is used as an instructional strategy and a tutorial agent (Karl, 2011, p. 21). When university based pre-service and in-service teachers were not capable of integrating technology in their planned lessons, teachers felt incompetent or ill equipped to support education in their schools (Yilmazel-Sahim & Oxford, 2010). However, the researchers found that teacher involvement organized into three models (workshops, mentorships, and university-school collaboration) resulted in cooperative professional learning, coaching, and practitioner partnerships amongst education faculty, which positively affected scholastic improvement in the school setting (p. 1).

The significance of this study is that it provides insight into factors that influenced the level of technology used by teachers of grades three through eight, to support

classroom instruction. The study findings outline best practices that may eliminate barriers previously found to inhibit progressive technology integration. The importance of this study, the findings, and conclusions offer practical solutions and are vital to understanding the pedagogical needs of teachers at School XYZ and School GWJ. Data gleaned from this study can guide decisions of local school and district administrators for consideration of a coordinated professional development plan with a focus on noteworthy resolutions to technology integration and technical training for implementation at School XYZ, School GWJ, and other learning organizations faced with similar difficulties.

Guiding/Research Question

I employed qualitative research to interpret teacher perceptions of technology integration and its incorporation as an instructional practice. I conducted a case study to gain insight of teacher perceptions about technology integration and to assist the administrators of School XYZ and School GWJ with development of a reform plan that may balance current teaching approaches. Responses to the subsequent research questions addressed the local problem and guided this project study.

1. What are teachers' perceptions of technology integration as a prospective curriculum strategy for students in grades three through eight?
2. What are teachers' perceptions regarding how technology may impact professional practices and its potential to improve third through eighth grade student performance?

Review of the Literature

In a review of the literature, I researched the following subtopics on using technology integration to accentuate learning: a) constructivist learning, (b) experiential learning, (c) situated learning, (d) community of practice, and (e) technology integration. Dissertations, scholarly books, and full-text, peer-reviewed education journal articles were referenced. Websites inclusive of the National Education Technology Plan (2010 and 2011), International Society for Technology in Education (ISTE), and the Teaching and Learning Network (TLN) were perused. I accessed dissertations using the ProQuest database from the library of Walden University. Peer reviewed articles were retrieved from EBSCOhost, the Education Resource Information Center (ERIC), and Thoreau multidisciplinary search engines. Google Scholar was used to obtain global dissertations, peer-reviewed journal articles, and secondary references.

Dissertations and seminal case studies were used as primary sources to address the local problem and purpose of my project study. Most of the literature used for this project was published between 2011 and 2015. Some literature published prior to 2011 was also included because the research contributed significantly to the study phenomenon: technology integration to support learning. The following key words and phrases were used to conduct an advanced search of the literature that included: *technology integration, educational technology, situated learning, community of practice, experiential learning, technology implementation,* and *constructivist learning.*

This section provides a review of the literature that describes effective approaches used to facilitate professional learning about technology integration and its impact on teaching strategies and student performance. Constructivist, experiential, and situated learning methods are discussed in the context of technology integration training. The training is coordinated with current instructional methods and learning styles. A review of the professional literature continues with a discussion acknowledging challenges teachers face related to rapidly changing technology, deterrents that limit integration, solutions that address the identified challenges, and the positive impact a community of practice can have on the quality of teaching and student proficiencies. Four learning theories are presented as grounding concepts of this project study. A discussion of the professional literature suggests that interrelationships among the identified learning theories for this study are also included and can be applied to advance teachers' knowledge and technical capabilities on integrating technology to improve students' performance and achievement.

Conceptual Framework

This project study is based on the principles of Dewey's (1938) constructivist theory, Lave and Wenger's (1998) situated learning theory in the context of communities of practice, and Kolb's (1984) experiential learning theory, all of which outline a platform that could reform instructional strategies and may be used in a specific educational environment (Clay, 2007, p. 18). Dewey (1938) established the initial constructivist approach to teaching and learning (i.e., "learning by doing") through

practical experience. Kolb (1984) claimed experiential learning to be knowledge-shaped through transformed experiences (p. 41).

Kolb established a foundation for experiential learning that centered around six principles. I have adopted three of the six principles for this study. First, *education perceived as a process* allows the teacher to demonstrate how effective learning is during an orientation to perform the task. Second, *emphasis placed on the orientation* can be understood by teachers through a continuum and variety of experiences that can be recreated (Dewey, 1987 as cited in Kolb, 1984). Third, *teachers subscribe to choices and make decisions based on professional accomplishments that could affect a particular future practice* (Kolb, 1984).

Rogers (1987) identified experiential learning as the freedom to study. Weiball (2011) suggested that merging outside information with personal interests and involving students in prearranged action plans could create opportunities for students to grasp knowledge and bring meaning to different assignments. This description further encompasses Dewey's (1938) advocacy of "learning by doing" as does the concept of a "community of practice" coined by anthropologists Lave and Wenger while studying apprenticeship as a learning model (as cited in Wenger-Trayner & Wenger-Trayner, 2015). Wenger-Trayner and Wenger-Trayner (2015) explained that a community of practice possesses three characteristics:

- domain (shared interests and commitment of its members);
- community (engaging in mutual activities and discussions by members); and

- practice (shared resources and repertoire as practitioners; 2015, p. 2).

They also described how "communities develop their practice through a variety of activities… problem solving, requests for information, seeking experience [of others], reusing assets, coordination and synergy, discussing developments, documenting projects, visits [to other members], mapping knowledge and identifying gaps" (Wenger-Trayner & Wenger-Trayner, 2015, p. 3).

The literature reviewed in this study suggested that practical methods could advance pedagogical approaches to blend technology in a professional learning environment. According to Bloodman (2014), current research underpins the need for change in teacher perceptions, enthusiasm, and readiness to incorporate technological resources in their instructional techniques. Allen (2014) stated that training should occur in contexts that promote adjustments in planning and skillful assimilation of technology into the educational routine (p.16).

My qualitative inquiry, which drew upon personal involvement and teachers' familiarity of technology implementation, contributes to the groundwork for creating an environment aimed to structure teachers' capacity to increase technology use through experience. Constructivist learning could advance schooling with scholarly principles in a situated setting. According to Cullen and Greene (2011), the greatest determiner for teachers to present concepts utilizing technology tools is their comfort and ability to complement the learning skillfully. Additionally, teacher judgment, insight of the benefits, and barriers of technology integration, could impact implementation as an

instructional initiative. The Office of Educational Access and Success (OEAS), University System of Georgia, reported that organizational support and individual participation is needed to establish a community that will reform and advance teaching trends (2012). More specifically, the community may function as a vehicle for professional networking that can expand scholarship (p. 2).

Constructivist Learning. Constructivist learning can be described as hands-on learning when the learner balances pre-existing knowledge with newly acquired knowledge. This practical experience or "experiential learning" provides students with opportunities to build new knowledge as a result of an actual or modeled activity. Credibility is given to pre-service teaching programs that promote constructivist learning environments to improve pedagogy (Tuncel & Bahtiyar, 2015). Learning theorist John Dewey stated that learners become skilled at doing things through a hands-on approach and that this individual knowledge should be organized for the learner to make inferences and conclusions to derive new knowledge (as cited in Waller, 2007, p. 16). Lave and Wenger (2002) described how shared ideas constructed from mutual, social, and physical situations, helped to foster trust and promote long term relationships. The long term relationships encouraged collaboration and discussion of best practices for improving academic achievement (as cited in Evans, 2012).

Teachers require more than traditional training to implement technology integration in the classroom; therefore, both knowledge and hands-on involvement are necessary to apply new information and skills (Carlow, 2013; Sugar & van Tyron, 2014).

Hilburn and Maguth (2012) used technology to connect teachers enrolled in pre-service social studies university education programs within various regions. The researchers found that intercollegiate collaboration provided access to diverse scholarship norms and fulfilled the NCATE and NCSS standards (p. 321).

Ngussa and Makewa (2014) asserted that active learners participate in teaching and learning to seek solutions to difficulties and to share what they have constructed with existing knowledge. Active participation is the core of the constructivist learning theory which implies teachers must go from the known to the unknown includes shaping new knowledge to perform tasks that can be implemented outside of the classroom (p. 2). Amarin and Ghishan (2013) held that students build knowledge during constructivist learning activities to accomplish performance goals and sustain personal interest (p. 53).

In a society that embraces swiftly changing technology, information and educational systems must keep up with adjustments. Self-renewal is necessary and educators are forced to revamp traditional learning that produces outcomes based upon older knowledge. Ayaz and Sekerci (2015) argued that discussions about education should adopt the constructivist learning approach. Student needs and interests should be considered when organizing scholarly learning, another focus of continued improvement of educational technologies (p. 143). Ragupathi and Hubball (2015) found that all academic staff valued educational practices gained through participation in learning plans, which validated their own personal and professional development (p. 4).

Experiential Learning. McGhee (2012) stated that the importance of a competent learning organization is proven by the ability of those professionals to revisit and revise group praxis in active learning that could be adapted for use in an individual classroom setting (as cited in McDowell, 2013). Building on Dewey's constructivist learning theory, reflective thought and action, applied knowledge, and self-initiated personal engagement, learning theorists Kolb (1984) and Rogers (1969, as cited in Waller, 2007) associated their interpretations of active learning to a situated environment with a presumption that individuals acquired knowledge through transformed experiences (p. 38). Knowledge is constructed through experience (abstract conceptualization), preparation (active experimentation), doing (concrete experience), and review, described as reflective observation (Kolb, Boyatizis, & Mainemelis, 2001, p. 228). Courduff (2011) asserted that technology significantly improved the performance of students with exceptionalities because the content was connected to meaningful tasks that promoted high motivation at tiered levels (p. 58).

According to O'Hara et al. (2013) differentiated learning styles can be accommodated with futuristic use of Internet tools. Students become engrossed while interacting with multimedia highpoints (p. 205). Rogers (1969) stated that teachers became better facilitators and less inhibited to new learning approaches as students became increasingly involved in learning and assumed responsibility for their personal interests (Waller, 2007, p. 15). Individual students needing supplemental help to reinforce specific math skills were able to interact with technology-based programs while the

teacher worked with small groups (Ertmer, Ottenbreit-Leftwich, Sadik, Senurur, & Sendurur, 2012).

Burke (2015) found that teachers appreciated on-site coaching that facilitated occaisions to transform learning into viable strategies using technology. Balmeo et al. (2014) argued many teachers lacked individual experiences with technology or chances to apply the theory for development of technology-constructed tasks. Burridge and Carpenter (2013) asserted that professional growth has been challenged by two factors; teachers' inability to transfer learning into classroom practices and the inability to replicate and implement acquired proficiencies over-time (p. 11).

Through collaboration with experiential mentors, teachers would be able to use technology tools and comprehend the language needed to participate in those activities. Zook (2012) indicated that as technology becomes of integral use as a tool in education, "the teachers who use it require the skill and knowledge to use it in their classrooms" (p. 9). Lorrae and Parr (2010) found that variations of experiential learning were beneficial in building teacher confidence and the frequency of technology used in their classrooms (as cited in Zook, 2012). Additionally, those teachers were able to re-organize scholarly curriculum that featured multimedia through experiential learning (p. 10).

Situated Learning. Lave (1990) argued that learning is situated, but learning is also unintentional when it occurs within a genuine cultural activity. Lave (1990) stated that knowledge should be obtained normally when it is embedded in authentic undertakings. Social action and collaboration are components of situated learning closely

associated to norms embodied in a community of practice. The redesign of professional development may be an efficient way to assist teachers with technology implementation. Pedagogy that encourages teachers to create project-based activities should be grounded in "what needs to be accomplished in the classroom" (Yilmazel-Sahim & Oxford, 2010, p. 703).

O'Hara et al. (2013) found that it was necessary to provide teachers with a design-based approach that fostered active engagement and collaborative participation. Teachers were able to acquire understanding of their needs while situated in a technology context (p. 205). Shaltry, Henriksen, Wu, and Dickson (2013) discussed how "teachers can learn to learn" collaboratively using tools such as self-paced short video lessons and e-portfolios for self- exploration of innovative technologies in a virtual community of practice (p. 24). Teachers could become change agents by exploration and use of multimodal learning comprised of online academic resources (Lemke & Coughlin, 2009; Shaltry, Henriksen, Wu, & Dickson, 2013). A teacher-developed online project aligned to the National Common Core Academic Standards could be a prospect that would generate in-depth, authentic, participatory learning, inclusive of technology to succeed in societal movements (p. 57).

Bell, Maeng, and Binns (2013) aligned their study to situated learning theory in an effort to reform science instruction for pre-service teachers enrolled in a science methods class. The professors used technology to present science information throughout the coursework. Study findings revealed that student teachers were acclimated to

technology use. Completed course assignments were recognized as transferrable practices recommended for implementation. Additionally, the assignments were considered innovative lessons that would influence the organization of science instruction for future pre-service professional development and for classroom adaptation by pre-service and tenured educators (p. 348).

The research implies that situated learning theory may be a method to structure preparation for any teacher to integrate technology across content subjects. Mahlangu and Pitsoe (2013) stated that situated learning promotes opportunity for reflection on actions extending beyond individuality while social interaction transpires between novices and experts. The researchers suggest that situated learning can be a venue for individuals or members of a community to refine their understanding of significant material that will lead to improved practice (p. 214). Dewey (1916) claimed that a social environment is a setting where individuals can jointly collaborate in an educational activity (p. 26).

Communities of Practice. A community of practice (CoP) enables practitioners to collectively manage knowledge that is needed and to acquire the proper training to become skilled deliverers of instruction. The community of practice may look like examples represented in organizations, governmental agencies, associations, social sectors, the Internet, and education (Wenger-Trayner & Wenger-Trayner, 2015). Lotter, Yow, and Peters (2014) claimed that a positive aspect associated with the community of practice is illustrated through engagement and commitment of dynamic learning in and outside of the group by contributing teachers. The educator that understands the required

competencies of teaching and learning and uses available resources will establish a repertoire of teaching tools to focus on the intended audience—the student. Teachers that prefer active learning participate in various training formats, adjust methods to accommodate varied learning styles, and address factors to acquire the skills needed to facilitate comprehensive technology integration for classroom application (Kablan & Kaya, 2014; Oliver & Townsend, 2013).

The community of practice perspective is grounded in constructivist, experiential, and situated learning theory that can positively impact teaching to promote educational success for students from a "bottom up infrastructure" (Clay, 2007, p. 19). Participation in a community of practice is a strategy to provide continuous preparation for teachers to grasp and transform their scholarship to improve a specific learning environment (Kolb, 1984; Clay, 2007, p. 18). Blocker, Armfield, Sujo-Montes, Tucker, and Willis (2011) reported although participants of their study possessed limited technology abilities, a 3-year growth plan inclusive of modeled phases of technology from technical training to content enabled practitioners to re-vamp their perspectives of pedagogy, which lead to increased technology integration for instructional purposes.

Oliver and Townsend (2013) reported there are many professional development plans available to prepare teachers for the complex process of technology integration, however, educators require a comprehensive and consistent approach to reform learning venues. Face-to face and computer-generated training can be a framework to form smaller communities of practice where educators can work together in coursework on

integration training (p. 54). Davis and Callihan (2012) affirmed, that professional development in the form of CoPs should result renewed skills and vet information for proficient application of those abilities in the classroom. Dawson (2013) concluded teacher input is vital for professional growth and should be viewed as a participatory tool and not educational research that is put upon the educator (p. 122).

Technology Integration. The NCES (2013) acknowledged that technology integration is a combination of technological resources and practices incorporated into school management, daily routines, and employment. The technological infrastructure comprises a network of communication systems, software and hardware.Keppell et al. (2015) reported while the availability of new technologies are accessible to educators, traditional teaching and technology integration are challenged with providing applications centered around research based approaches that authentically engage students in all aspects of curricula, subjects, activities, and assessment. Keppell et al. (2015) suggested that an extensive community of practice could dispel a perceived disconnect that teachers and students cannot expand knowledge through assimilation and re-creation of their learning.

This implication builds on theories developed by Dewey, Kolb, and Rogers. The possibility of forming a CoP centered on technology integration positions teachers and students to become accomplished technology users for the purpose of obtaining knowledge in a range of subjects through unified styles to master a learning criterion (Jones, Fox, & Levin, 2011). Brown (2012) contended, “when teachers are solid leaders

in technology use and possess the proper training, digital tools can be incorporated efficiently" (p. 4).

Collaboration exists when practitioners use technology integration as an instrument to access data and enhance knowledge. Fox-Turnbull and Snape (2011) found that collaboration between teachers and students can facilitate greater understanding of concepts. When teachers assume a corporate tactic to higher order thinking, cooperative activities can be connected to classroom learning through technology integration. In a study of Technology Integration and Technology Leadership in Schools as learning organizations, Cakir (2012) stressed the importance of support from the school administrator in order for a teacher to become an effective and progressive model for technology integration.

Administrators need to encourage teachers to keep up with innovative technologies through leadership and from a designated computer teacher for school wide use (p. 280). Machado and Chung (2015) found through principal interviews that without technology training provided to teachers, using technology would be a source of contention (p. 8). Several researchers (Blocher, Armfield, Sujo-Montes, Tucker, & Willis, 2011); Miners 2009; Kersaint 2007) concurred that school leaders and teachers should combine efforts and make provisions for training in novel approaches to include online tools, such as web quests, mobile learning, interactive White Boards, Promethean Boards, and Smart Boards to underscore learning with digital resources (Handle, Campbell, Cavanaugh, Petocz, & Kelly, 2013). Evolving dimensions of digital 21st

century learning could be sustained through active engagement in technology driven activities that are not only creative but students can have fun while critically thinking which undergirds constructivist learning (Hosgorur & Gecer, p. 1).

Review of the Broader Problem

Through professional growth and reflective practices teachers examine their own educational methods to determine how and what students are learning. Teachers engage in collegial collaboration to shape knowledge, improve self, and to apply trending interventions that may progressively increase student success. Rizk (2011) suggested training that occurs in the workplace is generally designed to meet the needs of the organization; however, hands-on experience cultivates a memorable setting for practitioners to construct knowledge and strengthen their ability to concentrate on "hearing, seeing, and doing" (p. 1).

Implications

If teachers strategically use technology to help advance learning there is a possibility that achievement and performance levels will improve in grades three through eight at School XYZ and three through five at School GWJ. Amarin and Ghishan (2013) found there is a huge advantage for utilizing technology in a constructivist- learning environment. Teachers could benefit from familiarity, reflection, and collegial dialogue to influence a social change in their teaching structures. Students could benefit from enriched content tasks to guide their forward progress (p. 56). Findings of the data collection and data analysis revealed a potential direction for professional development in

a venue that may address the underutilization of technology in School XYZ and School GWJ.

The results of this project study provide insight for consideration of local and district administrators to possibly plan and implement professional development that could potentially modify existing instructional techniques. A coordinated professional development plan may also create a balance of pedagogy with technology integration. Additionally, this project study produced findings that could be adapted for implementation in similar kindergarten through grade eight learning organizations to enact social change with diversified teaching.

Summary

Enhancing Education Through Technology (EETT) Act of 2001, a component of the No Child left Behind Act of 2001 has delineated specific goals to direct educators with technology implementation. The EETT program defined rigorous benchmarks for students to achieve academically by using technology. To ensure efficiency and academic success utilizing technology in K-12 schools, educators need to be trained, self- assured, proficient, and understand that the primary role of technology integration is to advance instructional methods and to progressively improve achievement of every student. Teacher practitioners must facilitate a process for students to become conversant citizens in the digital sphere. Integrating technology as an innovative teaching strategy should be an effective counterpart in systemic pedagogy to improve student performance outcomes (McDowell, 2013, p. 27).

Section 1 of this research study describes a local problem that focused on limited technology integration in a K-8 and K-5 school located in the Northeast corridor of the United States. I used a qualitative approach to determine factors that influenced teachers' perceptions of technology integration and the impact of technology integration on student learning in grades three through eight. The rationale for and significance of the study are discussed in Section 1. Implications of the study have been disclosed and address the local problem. In a review of the literature, constructivist learning, experiential learning, situated learning, technology integration, and community of practice are the foci of discussion in Section 1. In this section of the project study, I provide justification for a case study design and methodology to address two research questions discussed earlier.

In Section 2 of this research study, I describe the methodology used to examine the local problem. The topics of discussion are the research design and methodology, description of the participants, data collection, data collection instruments, data analysis, and data findings. In Section 3, I focus on the project developed from participants' responses that were collected and analyzed. Topics of the project include goals, rationale of the project, review of the literature, specific roles and responsibilities of the participants, project evaluation, and implications for social change. Section 4 includes the reflections and conclusions about the study.

Section 2: The Methodology

I conducted a project study at School XYZ, the primary research site and School GWJ, the secondary research site, to gain insight into: (a) teachers' perceptions of technology integration as a curriculum strategy and (b) teachers' perceptions of how technology may impact pedagogical practices to improve student performance in grades three through eight. Additionally, I examined teachers' perceptions regarding their boundaries and ability to blend technology with academic content. I conducted a qualitative inquiry by using an instrumental case study design to collect data from four teachers at School XYZ and four teachers from School GWJ.

To establish total credibility and dependability, I have detailed the research method for my study in this section. Creswell (2012) claimed that the participants' account of the setting or events must correspond with the researcher's portrayal of events in order for the research report to be credible. Additionally, the dependability of the research refers to how I have followed the "procedures and processes delineated for data collection, data analysis and interpretation of the data" (Creswell, 2012, p. 275).

In this section, I explain the research design and approach, participants, setting, ethical protection of the participants, data collection, data analysis, and data analysis results. Section 2 concludes with a presentation and description of findings and the processes used to sustain quality during the research.

Research Design and Approach

Interpretative Qualitative Research

To build upon discussion in recent studies (Allen, 2014; Blackwell, 2013; Courduff, 2011; Haight, 2011) on integrating technology to advance teaching and learning, I used a qualitative case study design to examine the bounded system of classroom technology integration. I used multiple means to shape emerging questions from specifics to wide ranging themes about technology integration. According to Creswell (2009), the interpretation of data can verify findings of your research (p. 4). Appropriately, I interpreted the data to construct meaning of the findings that may be beneficial to address circumstances of the local problem at School XYZ and School GWJ.

Qualitative data were collected through one-on-one interviews, classroom observations, and electronic questionnaires to understand teachers' perceptions of technology integration as a curriculum component to support learning. Qualitative data were collected to understand teachers 'perceptions of how technology integration impacts professional practices to improve student performance. I methodically reviewed data gleaned from individual interviews, classroom observations, and electronic questionnaires to identify themes and patterns. Qualitative data should be categorized by emerging themes (Merriam, 2009, p. 16). Subsequently, the data were coded by category and typed into comparison tables according to specific aspects of how technology was incorporated in classroom practices. Creswell (2012) noted that instrumental case studies

focus on issues associated with bounded systems (p. 465). For this instrumental case study, the focal point illuminated particular issues associated with technology integration in terms of time, place, or some physical boundaries.

Coding of Qualitative Findings

Coding is a word technique used to categorize descriptive data collected from the study participants. Through sorting and coding, repeated phrases and behavior patterns emerged as real world ideologies of the participants' perspectives in the context of the study phenomenon (Creswell, 2012; Merriam, 2009).

Constructivist Framework

Individuals make sense of interactions in their environment. Dewey stated that education should be ingrained in real world familiarity. Constructivist learning has been described as learning in assimilation, acquisition of new information, and maintaining that information in storage. The learner has a chance to respond to gradual observations for discussion and examination when technology becomes an added feature to classroom instruction (Dede, 1995; Evans, 2012). This case study emphasized constructivist learning. The worldview perspectives and shared experiences of each study participant involved with technology integration are authenticated in their local setting.

Case Study Methodology

Creswell (2009) described the case study designed to be a planned inquiry. Accordingly, I probed exhaustively teachers' perceptions, activities, and processes regarding technology integration activity at School XYZ the primary site and School

GWJ the secondary research site. This case study assumed a broad beginning with wide ranging exploration. Therefore, narrowing the scope of the study (Bogdan & Biken, 2007, p. 61) enabled me to manage my research.

Justification of the Research Design

By using qualitative research, themes, subjects, and specific matters voiced by the participants became the focal point of the research. I used an interpretive approach that illuminated specific aspects related to technology integration. Personal views and past studies were contrasted to construct larger meaning for this instrumental case study. Four research designs considered to conduct the inquiry were:

- Grounded theory, a methodical procedure employed to produce a philosophy detailing an expanded concept, progressive action, or interaction regarding a topic under discussion.
- Narrative design, an exploration conducted by a researcher that could occur in multiple forms in that the researcher could investigate an individual's experiences within their setting.
- Action research design for which educators could obtain information to approach a problem for immediate improvement in an educational setting.
- Case study design defined as a detailed analysis of a particular event, situation, organization, or social element.

I selected the case study design described by Creswell (2009, 2012) as a means to interpret the realistic awareness experienced by the teacher participants in their setting

where the data could be collected, analyzed, and validated. The grounded theory, narrative theory, and action research designs were rejected because my intent was to acquire understanding of the participants' experiences illustrated through a bounded system related specifically to the local problem. Bogdan and Biklen (2007) noted that a researcher makes a conscious decision to refine the span of a study that will lead to the final product (p. 161).

Participants

Setting of the Study

The project research was conducted at two sites: School XYZ and School GWJ. School XYZ, the primary site, is a kindergarten through grade eight public school populated with 1, 200 students and 60 teachers. School GWJ, the secondary site, is a kindergarten through grade five school populated with 585 students and 36 teachers. Both schools are located in the northeast sector of Pennsylvania.

School XYZ earned a score of 75% on the district's school performance report card performing second out of 126 schools ranked in the district in which School XYZ is located. The overall performance of School XYZ was second out of 15, according to the rubric for lead schools ranked with peer schools in 2013-2014. School GWJ's overall score was 54%, performing 15th out of 126 ranked in district wide schools needing reinforcement in contrast with performance targets required to obtain lead school status. School GWJ ranked 5th out of 15 peer schools according to the rubric for lead school status.

A school is designated a peer leader if overall achievement ranks first in its peer group (SPR, 2013-2014). Similarly, both learning organizations have not achieved lead school status; however, each school has demonstrated progression towards the Tier I target of the School Performance Rating (SPR, 2014). It should be noted that the Pennsylvania Department of Education has managed schools of this district in a state takeover since 2002.

Criteria and Selection of Participants

Eight teachers (six women and two men) from grades 2-8 who use technology in their classrooms were asked to voluntarily participate in this instrumental case study. All of the participants work in an economically disadvantaged urban school district located in the northeast section of Pennsylvania. Four teachers from School XYZ where 91.77% of the students receive free breakfast and free or reduced lunch and four teachers from School GWJ where 97.86% of the students receive free breakfast and free or reduced price lunch voluntarily consented to participate in my research. The eight teacher participants represented a non-probabilistic (purposeful sample) comprised of varied teaching levels, teaching experience, and technology acumen. Purposeful sampling at the beginning of this project ensured that data I collected were characteristic of routine procedures at School XYZ and School GWJ.

Although current researchers suggest using three to five participants for a single case study (Creswell, 2012), I assumed that a larger sample could potentially provide a myriad of reasons that could address the limited technology use in the academic

programs of Schools XYZ and GWJ. The perspectives of the larger eight teacher sample may increase transferability from the purposeful sample to similar populaces.

Access to Participants

To gain access to the study participants, I contacted the district Office of Accountability and Assessment and the study site administrators with a letter of intent that detailed a descriptive purpose and procedures for research, confidentiality, ethical protection of participants, and risks and benefits for conducting a qualitative research study. With Walden University Institutional Review Board (IRB) approval (IRB # 04-28-15-0343654) and district approval, I scheduled, met, and discussed with both principals the research process. Each principal signed a district form, Principals' Support to Conduct Research in Schools during individual meetings.

The participants were emailed a combined invitation and consent letter as a component of the informed consent process to participate in this study. The invitation and consent statement described the data collection process, which included a one-to-one interview, classroom observation, and completion of an electronic questionnaire that was emailed to each teacher requesting their electronic response to participate in the research. The eight participants individually forwarded the words "I CONSENT" to my Walden University email address. Although there were no individual requests for additional information meetings, I informed the participants that I was available to clarify any questions at their convenience.

Working Relationship

I volunteered as a retired educator at School XYZ and School GWJ for the past 3 years and a working relationship was established with the teacher participants. I maintained ethical standards as described by the National Institution of Health (NIH) relative to the research of human participants. To minimize issues or risks associated with the research procedures, I reiterated the right to confidentiality clause identified in the invitation to participate in the research letter as part of the informed consent process. Additionally, I observed and followed routines of each study site, exuding respect for the diverse and culturally sensitive needs of both school communities. Further, I was unbiased and refrained from the controversial matters pertaining to practices of both study sites. I disclosed that my assumptions about technology integration were related to prior experience; however, personal biases were alleviated through validation of the study findings and participant approval and disapproval.

Efforts to ensure quality research were explained in the professional learning and meeting activities observed at School XYZ and School GWJ. Moreover, I referenced how technology was utilized for learning by reviewing the content included in the teachers' lesson plans. Creswell (2012) noted the significance of the research conclusions both positive and negative should be disclosed in a final report. Therefore, a final report will be disseminated to the participants, school administrators, and the district's Office of Research and Evaluation.

Informed Consent

Federal guidelines have been established for educational researchers to adhere to that safeguard participants from "inhumane treatment" when conducting a study (Creswell, 2012, p. 27). Prior to conducting research at School XYZ and School GWJ, I met with school administrators. The teacher participants were electronically mailed a consent letter. A description and purpose of the study, procedures to conduct research, a statement describing voluntary participation in the study, risks, benefits, privacy of research information, and the participants' right to receive a final report with disclosure of the study results were outlined in the letter of informed consent provided to the participants.

Confidentiality

The relationship between the teacher participants and the researcher is paramount for quality exploration. I offered to prearrange a meeting with the project study participants, as a measure to ensure confidentiality described in the consent letter; however, each participant electronically sent their consent to my Walden University address to maintain their privacy. Therefore, prearranged meetings were not necessary, nor an inconvenience to the participants.

As a requirement of Walden University's IRB an individual invited to voluntarily participate in a study must consent; therefore, I was required to obtain the participant's electronic signature. I was the primary instrument for data collection. The study participants were interacting with me only, therefore a confidentiality agreement form

was not needed to bind actions of disclosure or discussion of confidential information regarding the study participants with other individuals. I ensured confidentiality by exercising the following steps that included declassification of personal information and the use of pseudonyms to sustain participant identity and study setting anonymity. Participants were apprised that personal data and study findings would be secured away from the study location and eliminated after 6 years.

Ethical Protection of Participants

Throughout the course and completion of the study, organizational procedures, participant interests, and the local setting properties remained intact. The consent letter specified dates, time, length, and duration of the study. Participants were informed of their right to stop participation in the study at any time without prejudice. Participants were made aware of the minimal risks and minor discomforts that would not cause disruption to their classrooms; however, included time beyond the instructional day to participate in an one-to-one interview, response to an electronic questionnaire, and an approved time to for me to observe the participant teaching content subject matter.

The benefits of this research were described to intentionally acquire professional insight on the use of technology integration that may improve student achievement as a curriculum strategy. Teachers of grades three through eight at School XYZ and teachers of grades three through five at School GWJ were invited to share their views of technology integration. Careful consideration was given to the manner in which the participants were interviewed (see pre-established interview protocol, Appendix C). I

avoided biased questions that could have influenced behaviors and caused adverse circumstances for the participants.

Data Collection

According to Creswell (2012), qualitative data collection is conducted to obtain information in an interrelated order through a general interview or an observation that does not restrict the participant's view to provide information (p. 205). Qualitative data collection involves gathering information from a lesser number of participants. In agreement with Creswell (2012), quantitative data collection was not suitable for this study because the data gathering process would have been close-ended with use of specific pre-established instruments (p. 205).

For the purposes of this qualitative case study, three instruments were used to collect data that addressed the two research questions. The instruments were:

1. A pre-established interview protocol consisting of seven open-ended questions adapted from Creswell (2012; Appendix C);
2. The Pennsylvania Department of Education (PDE) Teacher Effectiveness Observation Tool (Appendix D) available to the public domain through the website of the Pennsylvania Department of Education which includes framework rubrics for evaluating three domains of teacher effectiveness:
    a. Domain I, Planning and Preparation (Appendix D)
    b. Domain II, Classroom Environment (Appendix D), and
    c. Domain III, Instruction (Appendix D)

3. Attitudes Towards Computers, Stages of Adoption, and Technology In Education Pre-Service Competency (three subsections of the eight part *Instruments for Assessing Educator Progress in Technology Integration* questionnaire (Appendix E).

Knezek, Christensen, Miyashita, and Ropp (2000) developed the electronic questionnaire. This reliable, published instrument is available to the public through the website of the University of Texas-North Campus (Appendix F). Although permission was not required by the researchers to use the instrument, I sent a courtesy email dated September 29, 2013 (Appendix G) in response to the co-developers' invitation extended on the website that researchers share findings of studies conducted using the instrument. Additionally, I participated in a teleconference with Dr. Knezek, developer of the instrument and he requested a copy of my final report. I acknowledged his request with a follow-up email to Dr. Knezek dated, October 21, 2014 (Appendix H).

Disclosure of Terms for using the PDE Teacher Effectiveness Observation Tool (2013) is available on the website. In compliance with the disclosure of terms, I utilized each instrument for nonprofit educational research. The multiple steps employed for this qualitative research provided a reliable guide to accumulate information, and to collect, organize, and safeguard the participants and data for this project study.

Data Collection Process and Tracking

Upon authorization from the IRB and community partners, data were collected in three phases. I conducted eight one-on-one interviews beginning April 21, 2015 through

May 1, 2015, Phase I of the data collection process. The interviews were held at School XYZ during week one and School GWJ during week two, after the official workday for approximately thirty-five minutes. The interviews were conducted with an open-ended question protocol (see Appendix C). To create a comfortable opportunity for individuals to articulate thoughts without uncertainty (Creswell, 2012), I prompted the participants in a conversational manner to capture responses (Lodico et al., 2010, p. 121). I hand recorded descriptors and characteristic interpretations gleaned from the expressions of the participants' real-world experiences with technology integration (Merriam, 2009, p. 13). The responses were transcribed in English, the primary language of each teacher and electronically mailed for approval or revisions. The teachers were requested to return the interview protocol within 48-72 hours. Eight participants approved and returned the typewritten interpretations of their interview to my Walden University email address within forty-eight hours.

For Phase II, of the data collection process, I observed eight teacher participants at a scheduled time, within the official school day. Throughout week three, I observed four teachers of grades 2 through eight, one teacher per grade at School XYZ. During week four, I observed four teachers of grades 2 through eight, one per grade at School GWJ. In total, I conducted eight observations during the period of May 4, 2015 through May 15, 2015. Each classroom observation occurred during content instruction for 35 minutes. I used the Teacher Effectiveness Observation Tool (Appendix D) as the instrument to summarize scholarly strategies implemented to enhance learning and

student performance. The data recorded, focused specifically on practices listed in Domain I: Planning and Preparation (Appendix D), Domain II: Classroom Environment (Appendix D), and Domain III: Instruction (Appendix D).

For Phase III of the data collection, teacher participants completed electronically, a thirty-minute, adapted version of *Instruments for Assessing Educator Progress in Technology Integration* during weeks four and five, May 18 through June 1, 2015 subsequent to their classroom observation. I extracted and modified specific questions from Part I of the *Assessing Educator Progress in Technology Integration* (Appendix E) questionnaire to examine the two research questions for this study. The questionnaire was electronically mailed to the personal email account of each teacher participant from my Walden University email address. Teachers replied to ten open-ended questions from three categories, Attitudes Towards Computers, Stages of Adoption, and Technology in Education Pre-service Competency. Eight teacher participants completed and returned their responses to the ten items, open-ended electronic questionnaire *Assessing Educator Progress in Technology* to my Walden University email address by the end of week five.

Qualitative interview data, classroom observations data, and electronic questionnaire data were recorded in (a) field notes, (b) coded by school, (c) maintained in separate composition books labeled for School XYZ and School GWJ, and (d) data were transferred to comparison word tables and maintained on my laptop computer. Teacher participants were assigned a code and a sequential number according to their research site. XYZ was coded as the primary site and GWJ was coded as the secondary site.

Numbers were assigned to each participant to sustain confidentiality. I began triangulation of the data at the end of week six, June 5, 2015 and continued the process through June 19, 2015. The data collection and triangulation process involved a final review for credibility in preparation to write the final report.

Role of the Researcher and Potential Bias

My role as researcher was also a volunteer retired educator who assisted teachers and the professional learning community members with staff development to complement teaching styles. Since 2011, I have voluntarily coordinated and participated in staff development planning and other services to support School XYZ and School GWJ. I am familiar with the context of how technology is used and has been used in past practices of School XYZ and School GWJ. Deliberate actions were taken to reduce bias by focusing strictly on the purpose for the study. My work ethics and integrity exuded respect for the professionalism of each teacher participant, their teaching credentials, and the culture of each research site. I referenced myself as an example for the benefit of the study participants and revised data that were potentially exclusionary, which could have affected the research quality (Creswell, 2012, p. 277).

Continuous reflections about the problem statement encouraged this study. My resolve was to disclose significant findings that may have realistically impacted the practitioners' decision whether to incorporate technology in their learning organization and the wider community. The following section provides a descriptive process employed

to analyze the research findings that offer a contextual relationship to the research questions for this study.

Data Analysis

A researcher may simultaneously code raw data to construct categories that will emphasize significant characteristics evolving in a study. This process is defined as data analysis (Merriam, 2009, p. 205). According to Miles and Huberman (1984), researchers may also use multiple strategies to analyze data that include concurrent flows of activity, data reduction, data display, verification, and drawing conclusions (as cited in Thompson, 2013). I employed four processes: (a) concurrent flows of activity, (b) verification, (c) data display, and (d) drawing conclusions. After data collection, I compiled the interview transcripts, classroom observations and field notes, and electronic questionnaires. Open coding was the technique I used to notate the participants 'comments adjacent to the data sequences that were potentially relevant to the interview questions (Merriam, 2009, p. 178).

To begin the analysis process, I first categorized, listed, and recorded (in a composition book) the study sites by pseudonym to sustain confidentiality. To further assure confidentiality, site pseudonym and participant sequential number listed participants. Second, I categorized, coded by theme, and recorded the teacher interview responses into a composition book. Third, I combined my field notes with data obtained from three categories of the classroom observation tool and placed the data in subdivisions of a loose-leaf binder labeled by individual sections titled, planning and

preparation, classroom environment, and instruction which are the teaching domains applicable for this study and to interpret the data outcomes. Fourth, I downloaded and printed out the participants' individual electronic questionnaires, I organized the electronic questionnaire responses by the site pseudonym and participant number, and then placed the information in a loose-leaf binder. Then I assigned specific codes to each participant answer that corresponded with emerging themes from the ten open-ended questions of the electronic questionnaire that were also the subject of each research question. I typed the data into five comparison tables as a visual method to identify codes and categories that answered two research questions for this study.

The triangulation strategy allowed me to compare and examine participant perspectives that emerged through the qualitative data outcomes by each teacher (Bogdan & Biklen, 2007). Triangulation of the interview data, the classroom observation tool and field notes, the electronic questionnaire, and member checks solidified saturation of the recorded research. To make sense of the data it was necessary to label and categorize by description and broad themes (Creswell, 2012; Bogdan & Biklen, 2007; Lodico et al., 2010). The data binders will be maintained in a secure location off the study sites for six years and then reliably disposed.

Open and Analytical Coding

Coding is used for qualitative findings specific to themes embedded in the study, that address the research questions by way of the interview protocol, classroom observation tool, and electronic questionnaire, my data collection instruments. Specific

coding categories were assigned to the open-ended interview questions, electronic questionnaire responses, and teaching strategies I observed during the classroom observations. The data are presented in the following categories:

- Situation Code (SC),
- Context Code (CC),
- Subjective Perspective (SP) Code, and
- Ways of thinking (WOT) about people and objects code.

The remitted electronic questionnaire answers were coded as an Event (EC), categorized, and recorded in my field-notes in the following sequence: (a) Attitude Towards Computers, (b) Stages of Adoption, and (b) Technology in Education Pre-Service Competency.

Quality of Assurance

Quality assurance was enlisted in a systematic process I used to objectively report data (Creswell, 2009). I acknowledged and abstained from assumptions, biases, and personal views that could adversely impact the validity of the study. Verbatim quotes of each participant were utilized to illustrate dense descriptions (Thompson 2013, p. 71). To further sustain quality of the study, I focused on coding and triangulation during the data analysis that was confined to identification of themes and categories. I refrained from personalized interpretations of and reactions to the participants' descriptions and perspectives. Steps were taken to proceed with the following:

- I organized and prepared the data for analysis.

- I read through all the data.
- I used coding processes to organize data in segments prior to interpreting meaning.
- I coded categories and themes that study participants and readers will recognize.
- I coded, categorized, and triangulated the findings to conduct a comprehensive analysis of the data.

The significance of the study findings was underscored with the participants. Additionally, I emphasized the importance for mutual reporting of the positive and negative results which is to inform readers of the study purpose, and of teacher perspectives about technology, and its use for scholarship.

Credibility

To establish credibility, eight participants were selected from two study sites of separate configurations, kindergarten through grade five and kindergarten through grade eight to gain insight of concerns not referenced to the primary study site. Moreover, the collection of data using multiple sources, use of member checks, and triangulation were three techniques I used to support the findings of my instrumental case study.

Discrepant Cases

I acknowledged the potential for discrepant information in this study as a consideration for quality of assurance. When participants provided information that was not related to the interview questions, that information was recorded as extraneous material from the participant's response and included in my transcribed notes. Moreover,

I did not eliminate any information. Participants were provided an opportunity to impart additional comments during a review of the interview transcript concerning discrepant details. At no time did the participants modify my interpretative transcripts of this study. Therefore, the data were analyzed appropriately.

Data Analysis Results

A purposeful sample that included four teachers from a K-8 school and four teachers from a K-5 school were selected to participate in my qualitative study. Creswell (2007) indicated it is appropriate for a researcher to engage six to eight participants in a case study for an in-depth examination of a bounded system based on extensive data collection (as cited in Creswell, 2012, p. 617). I collected qualitative data for this case study to gain an understanding of teachers' perceptions about technology integration as a curriculum strategy and the impact of technology integration incorporated as a professional practice to improve student performance.

Coding used for the qualitative findings were specific to the study's research questions and data collection instruments that included (a) seven one-on-one interview questions, (b) individual classroom observations that focused on three domains of teacher effectiveness, and (c) a 10-item electronic questionnaire that participants answered with rich descriptions concerning their attitudes towards computer, stages of adoption, and pre-service competency.

I systematically reviewed the collected data to distinguish themes and categories that potentially answered two research questions for this instrumental case study. There

were four thematic categories: (a) situation, (b) context, (c) event, and (d) subject perspective. There were five themes: (a) perceptions of technology integration, (b) professional learning community, (PLC) perceptions of technology integration, (c) types of technology equipment and devices used for instruction, (d) technology integration in daily student assignments, and (e) transformation from traditional to digital classrooms. Data were analyzed and recorded from the seven open-ended interview questions to provide answers to the first of two inquiries for this study.

Interview Results for Research Question One

Research Question One examined the teachers' perceptions of technology integration as a prospective curriculum strategy for students in grades three through eight. During the open ended, one-on-one interviews, findings from the eight teacher participants revealed the following.

Perceptions of Technology Integration. All eight teachers indicated they possessed an understanding of technology integration and how it is incorporated in the classroom setting. Teachers explained that technology use was advantageous for ELL students because of their need for visuals to communicate. Teachers agreed that technology integration involved hands on interaction, problem solving, and futuristic knowledge that could be used to differentiate learning for all students. Additionally, teachers explained that technology integration is manipulative and that students are able to locate information without the assistance of books; however, there were contrasting perspectives of technology integration in that some teachers felt there was little impact on

teaching because of the current technology structure in their school. Teachers were described as "fighting the learning process;" they would rather be told how to do it or copy from a colleague to avoid accountability. Still other teachers felt the process of technology integration was more directive instruction and when teachers were introduced to new technologies and related programs, the expectation was to implement the new skill immediately.

Two impartial teacher perspectives focused on how essential it is to have constant teacher development in order to know how to use technology and computer based programs properly. Teacher participant XYZ-3 stated, "I would say if 'PD' were done substantially, it would impact what we do and how we do it." Teacher participant XYZ-4 affirmed, "the main purpose for a lot of professional development is to look good on paper instead of teaching teachers actual information to enhance the "art of teaching" (see Appendix I).

PLC perceptions of technology integration: Situation context. The PLC perceptions of technology integration varied between the study sites. Teacher participants from School GWJ, the secondary site offered four, the greatest number of perspectives that suggested teachers felt good about technology integration and that its impact on content instruction was advantageous. GWJ participants explained that all teachers understand the importance of technology incorporation and that some teachers possess significant knowledge and are better users than their colleagues. Some GWJ teachers described themselves as overachievers and that each individual is responsible for

including technology in content base lessons. Although teachers at School XYZ and School GWJ conveyed their passion for technology by using the Smart Board and Promethean Board, there were teachers at School XYZ the primary study site that presented contrasting perspectives. One educator expressed that there are varying degrees of technology use, some teachers avoid, some teachers copy; further, there are two sides of the coin, some like technology, some do not.

Teacher XYZ-2 stated, "It depends on who has experience…people on my team that have experience, embrace it." Teacher XYZ-2 further stated, my partners to the right and left of my classroom and I think it is important… the uses are to our advantage…I do not know about the others… I'll just talk about the whole school." According to educators at both study sites, exposure to universal engagement with technology can revitalize the way instruction is delivered because students will be able to expand learning through connected virtual communities. Several teachers of this study do participate in structured learning of technology-based networks, however the willingness to integrate technology in daily instructional planning has been influenced by limited professional development and collegial collaboration, themes that emerged in an analysis of the data.

Types of equipment, devices, and accessibility: Context. Seven of the eight teachers interviewed possess or have access to an array of technological equipment inclusive of a Smart Board, individual and personal laptop and desktop computers. Three teachers possess Promethean boards, two teachers have projectors in their classrooms.

One teacher has a White Board that is used as Smart Board without the stylus pen. Seven teachers have laptop carts in their classrooms. One teacher at School GWJ, has a Smart Table, another teacher at GWJ has an Activotes device (a clicker) that is used as a companion to the Smart Board. Two teachers at GWJ have document cameras in their classrooms. One GWJ teacher has seven tablets and ten outdated laptops. One teacher at XYZ has a ten-year old Emac desktop computer. One XYZ teacher possesses MacAir laptops, while a grade group partner has IPads in the classroom.

When teachers were asked to describe their accessibility to technology routinely, varied responses were access to new MacAir laptops that were to be used for the AIMS assessment and with ELL students for content areas, direct instruction, Science projects, split page note-taking and math manipulatives (see Appendix J). One teacher from GWJ stated: "Teachers go to donorschoose.org to get equipment through charities and corporations…I borrow android tablets from other classrooms to supplement what I have for use of individual online reading and math applications." The focus of this theme addressed types of equipment and accessibility. As revealed throughout the data sources, there are patterns of inequitable distribution and access to technological resources in both schools that the participants indicated were essential to technology infusion in the learning plan.

Technology integration in daily student assignments: Event context. Another common theme revealed during the interviews was teachers' perspectives on technology integration partnered with daily assignments (see Appendix L). Six teachers disclosed

that students were involved with RTII, Imagine It reading series, and MySciLearning daily. Teachers indicated that hands-on experience works for students. Similar responses from teachers at both study sites affirmed that there are interactive math games (First In Math) that make learning and teaching an enjoyable environment for students. A teacher at School XYZ stated, "Dependent upon what we are doing, First In Math is part of our daily routine... and learners reading below grade level receive at least 10-15 minutes direct instruction on FastForWord, an online program that provides reading skills intervention."

Other teachers at School GWJ expressed that Social Studies online learning gives students' practice with percentage off" for real experience. Students refer to local newspaper advertisements for sneakers and games to create personal ads to be used for online marketing. Students use technology daily as interactive notebooks to chart Science Ego Systems and to write and publish copies of their manuscripts by the end of the school term. GWJ-3 teacher spoke of the usefulness of the IPAD for fact finding with use of National Geographic. Students locate non-fiction and chapter book stories on animal habitats. The IPAD is also used to strengthen letter and sight word recognition to assist students in reaching their academic level.

Two XYZ teachers provided contrasting views, asserting that middle school students are challenged to synthesize and be able to critically analyze problems and solutions, and that level 1 Common Core Standards for mathematics are not taught with technology. One teacher expressed that advanced math groups integrate technology

weekly with available resources such as Pinterest and Brainfuse. The majority of teachers in Schools XYZ and GWJ subscribed to the concept that integrating technology with fidelity could be achieved for day-to-day preparation with the assurance that continuous training is coordinated to develop skill levels of novice technology users and enhance skill levels of veteran technology users.

Transform traditional to digital classrooms: Subject Perspective. Six of the eight participants substantiated my impression that teachers would consider transforming the traditional classroom to digital, theme five (see Appendix M). One teacher imparted dissimilar views. The consensus was that every student could have a laptop, chrome book, tablet or IPAD while teachers work from a Smart Board. Most of the teacher participants signified that technology is transformative and is needed to design experiences that bridge a gap in learning for students with exceptionalities and expand learning of the gifted student.

Teacher GWJ-1 expressed that a paperless classroom would be the "best thing out there." However, teacher XYZ-1 contended that technology should not take over because human interaction and traits of comprehensive interaction should be available to facilitate and guide the learning. One teacher expressed an initial uncertainty about facilitating learning in a digital classroom then became open minded to the idea after completing a technology education course. Although some teachers expressed that digital classrooms were a wonderful idea, they also reasoned, that technology could not replace "good teaching" especially for middle school students that are not excelling in higher order

mathematics because of deficient computation and operational skills. Continuing, data were analyzed and recorded from seven open-ended interview questions to provide answers to the second inquiry of this study.

Interview Results for Research Question Two

Research Question Two examined teachers' perceptions regarding how technology may impact professional practices and its potential to improve third through eighth grade student performance. Five themes were examined (a) technology impact on professional practices, (b) classroom technology integration issues, (c) technology use for classroom instruction, (d) technology integration in overall activities, and (e) perspectives of technology to advance learning. Additionally, the four thematic categories were applicable to this investigation (a) situation, (b) context, (c) event, and (d) subject perspective. During the open ended, one-on-one interviews, findings from the eight teacher participants revealed the following.

Technology impact on professional practice. Six of eight teacher participants agreed that technology impacted their practice. I understood from the majority of the teachers that it is extremely crucial to learn how to use technology through training and repetition (see Appendix M). One teacher commented that technology was a better foundation for consistency and organization in that teachers are able to share digital presentations and educational experiences rather than using paper flip charts. Most teachers conveyed that technology is used as a toolbox and not a file cabinet. Another teacher indicated that distributing technology without training causes teachers to become

apprehensive and afraid to use the technology because they do not know how to use the hardware or software programs.

My interpretation of this finding suggests that teachers require hands-on training and coaching to become familiar with new technology and its incorporation into the academic learning plan. Other interpretations were that teachers want and need frequent technology integration professional development to be coordinated for use during small group and peer coaching.Teacher XYZ-4 stated: “There is very little development in the current structure…technology PD groups should be created to show what can be learned to strengthen our instructional implementation.” Another teacher commented the impact of technology on professional practices within School XYZ is limited because some teachers challenge process because they want to be told how to do something instead of learning the technology skill.

Additional interpretations are that some would rather copy from others because they do not want to participate in collaborative training. With varied perspectives, the majority of the participants in the study told me the greatest impact of technology on their professional practice would involve differentiating instruction to achieve positive learning outcomes for all students, which was a common theme in a review of the literature. My analysis of teachers’ perceptions of the impact of technology integration on their professional practice corresponded with Theme 1: Ways of Thinking (WOT) about technology integration and supported RQ2.

Classroom technology issues. The second theme, classroom technology issues, was discussed across data sources. Technology issues in classrooms differed between schools. The technology differences between schools were related to administrative decisions based on observed classroom use, technology aptitude, and grade level. Teachers in both schools that taught in trailers adjacent to their main buildings mentioned a strong concern about the disadvantage for students and teachers that did not use technology often due to alternative teaching periods and alternative schedules of students with individualized learning plans (see Appendix L). Some participants mentioned there was a lack of technology due to capped operating budget spending and allocation of capital funds in the district.

Other thoughts shared during the interview were that middle year students benefited from technology integration because they were in the main building, the trailers were thought to be isolated, and that equipment was scarce. One participant expressed that trailer teachers were "lucky" to have one or two computers for 25 to 28 students. Maintenance was an issue at School GWJ. Teacher GWJ-2 stated, "When something goes wrong who can fix it…the wing temperature is not equipped to handle it…I am the 'fixer' of the board…there is no plan B." XYZ-4 stated, "The issues are availability and technology integration is top heavy in the upper grades…cooperative learning and collaboration are not built." Teacher XYZ-3 felt students were receiving technology education belatedly, and that integrated lessons should begin at the primary levels so that aptitude can be expanded in the middle years. These issues were not surprising and were

discussed in my review of the literature. In my analysis, three issues emerged that corresponded with Theme 2: Perceptions of technology integration issues in the classroom and substantiated RQ2.

Accessibility and technology use for classroom instruction. Participants indicated there were varying degrees of technology use for classroom instruction, the third theme of this study. Some teachers utilize technology tremendously and others incorporate technology based upon experience. One teacher mentioned that not all PLC members were on board because their technology aptitude for integration was under developed; however, participants discussed how technology was unified with teaching and learning (see Appendix J).

A teacher at School GWJ uses the Smart Table for guided reading because the document scanner creates visuals to be used as examples in mini lessons that link up with virtual classrooms. Teachers at both study sites use the MacAir laptop to administer the Developmental Reading Assessment (DRA) to primary students. One teacher indicated the outdated laptop cart is used for tiered instruction and reading remediation that is a component of the Lexia reading program. Another teacher at GWJ uses the Smart Board and the students use the Activotes (clicker device) which protects a student's identity during whole class interaction but discloses to the teacher which students need help and in what instructional area.

Teachers also integrate technology with learning by using projectors to stream online videos. Document cameras are used as manipulatives for hands-on-interaction in

math problems. The document projector is also used in conjunction with the Promethean Board as a math manipulative. In School XYZ, students bring their personal IPADs, tablets, and cell phones to connect with the Promethean Board and overhead projectors. White Boards are used as a screen to teach writing in the 1st grade class of School GWJ. Teacher GWJ-4 mentioned that the White Board is used without the stylus if technical problems arise with the Smart Board. GWJ-4 stated, "You can just wipe the information off without having to use technical applications to change information." Overall, participants utilize technology in some manner that seemingly extended their instructional technique, which corresponds with Theme 3: Types of technology equipment accessible for use in classroom instruction and answers RQ2.

Technology integration in overall activities. Teaching actions supported the fourth theme of this study (see Appendix M). Interestingly, teachers at XYZ and GWJ endorsed technology integration throughout interdisciplinary planning. One teacher has created an online community page, Edmodo.com where students and parents can access reading and math content for home use. Students use Smart Boards in most activities.

Student and teacher collaboration reinforces knowledge and skill building through online instruction such as "Moby Max Math" and online shopping. TI-80 Series calculators are used by advanced algebra students for plotting and graphing numbers in color-coded pictographic forms. Students also use Achieve 3000, Lexia reading, and First In Math, online programs bi-weekly in both schools the entire school term. Teacher

GWJ-4 stated, “Discovery and PBS Kids are online programs…I use an ‘app’ on the Smart Board as a protractor for geometric problems.”

Interestingly, teachers communicate with parents and send school reminders through an Internet resource, htttp://www.code.org. My interpretation of the findings for theme four, showed that technology is incorporated overall to set a standard for strengthening academic performance by some teachers in School XYZ and School GWJ. Additionally, the findings were supported in a review of the literature that corresponded with Theme 4: Technology use in daily assignments and answers RQ2.

Technology to advance learning. There were differing perspectives about technology integration as a means to advance learning, theme five (see Appendix M). One participant commented that books are outdated and that funds needed to be located to purchase hardware and technology based programs to instruct students. Teacher GWJ-3 stated, “Schools that have no books in the classroom are further along because they use digital instead of pencil…the schools that have books, nobody is reading the books, they are just sitting there.” Teacher GWJ-4 stated, “I just love Discovery and PBS Kids that are online programs…I use an ‘app’ on the Smart Board as a protractor for geometric problem-solving…when we use the technology available to us there are so many ways to get students involved and keep them interested.”

I discerned agreement among the teachers that expressed students absorb information quicker because of grade level or low level, high interest material and graphics that seem to help students produce better quality work. Teacher GWJ-4 also

mentioned, "students obtain pieces of information through use of the Internet as opposed to piles of books around not always being used." I interpreted from most of the teacher participants that consideration would be given to modifying how technology is used in the classroom, which corresponds with Theme 5: Transform traditional classroom to digital classroom and answers RQ2.

Classroom Observation Results

I observed instructional delivery in the three domains of the Teacher Effectiveness Observation Tool (Appendix D). Data were typewritten in field notes using a rubric to examine planning and preparation (Domain I), the classroom environment (Domain II), and instruction (Domain III). I observed and recorded each participant's technique in Domain I for the following subcategories: (a) 1a: Demonstrating knowledge of content and pedagogy, (b)1b: Demonstrating knowledge of students, (c) 1e: Designing coherent instruction, and (d) 1f: Designing student assessment. For Domain II, I observed the subcategories of (a) 2a: Creating an environment of respect and rapport, (b) 2b: Establishing a culture for learning, and (c) 2e: Organizing physical space. For Domain III, I observed (a) 3c: Engaging students in learning, and (b) 3d: Using assessment in instruction. Findings from my observations follow.

Domain I: Planning and preparation. The eight participants demonstrated their style of instructional delivery with components of designed coherent instruction, knowledge of the content, and pedagogical efficacy. Teacher participants actively sought knowledge of students' skills, their culture, language proficiency, and special needs to

achieve lesson objectives. Instructional methods included whole class, student teams, and multiple activities that facilitated student engagement and input. Six of the participants used Smart Boards while students used software programs on their Chrome Books to complete literacy, social studies, and science lessons. Students accessed instructional software using their personal passwords within the allotted time for instruction in English Language Arts/Reading content. Two teachers used the Promethean Board while students used the TI-80 graphing calculator to solve algebraic problems. Each teacher participant built upon prerequisites and used various descriptive terms to clarify any misunderstanding.

During mathematics content delivery, I observed that both teachers coordinated instruction with, First In Math, and Pinterest online resources. Differentiated learning was evidenced when students used desktop, laptops, and Chrome books in organized student teams and independent deskwork. In addition, I noticed teachers and students using Chrome books to complete required assessments, which positioned students to receive immediate feedback on assignments and tasks. During a science lesson, I noticed that the Smart Board had frozen; the teacher participant immediately apologized to the students and re-booted the Smart Board; while waiting, the teacher participant suggested to the self-directed students to continue the lesson using the student team laptop, one assigned per group as a backup to complete the activity. The Smart Board troubleshooting began.

Domain II: Classroom environment. Collaborative interaction between student and teacher amid student peers appeared respectful. Sensitivity toward student cultural

development levels, district and state standards for teaching and learning were evident. Student interaction revealed courtesy toward developmental differences in learning among peers. I observed significant passion revered by each teacher participant when students worked collaboratively which exhibited a proficient culture for learning. Both students and the teacher participant professed accountability to increase productivity and improve student attainment results. Little instructional time was lost transitioning throughout classroom routines, procedures, and organizing technology within the educational plan.

The physical environment of each teacher participant's classroom was safe. It was apparent that students contributed to the variation of student groups, physical arrangement of literacy and math centers, and way in which technology centers were utilized specifically for math and literacy in some classrooms. Additionally, technology centers were used as interventions to support low achievers in other settings. Seating and skillfully integrated hardware were situated throughout five of eight teacher participant observed classrooms. That arrangement appeared to be a component of blended instruction for advancement of learning in the literacy and mathematics lessons I observed. Although one classroom possessed a laptop cart, students were using TI-80 graphing calculators as the teacher participant modeled techniques using the classroom Promethean Board to solve eighth grade algebraic problems.

Domain III: Instruction. I observed coordination and intermittent technology

use in literacy and mathematics instructional delivery of teacher participants at School GWJ. At school XYZ two of the four teacher participants consistently used laptops, desktops, and the Smart Board to facilitate instruction. Two teacher participants used the Promethean Board and alternating use of laptops to expedite teaching and facilitate interactive team problem-solving. I observed coherent instruction in both schools. Most students were involved in moderate critical-thinking and problem-solving tasks that were enhanced by technology based intervention programs. Some technology based activities were adapted to accommodate individual content needs. I observed other students engaged in work of moderate rigor according to student grouping and pacing that permitted students to reflect and teachers to determine if objectives were mastered. Students created T-charts on miniature white boards at their desks while the student team leader demonstrated how to create a T-chart using the software and stylus on the Promethean Board.

I observed teaching strategies inclusive of blended instruction coordinated with contemporary technology based programs implemented in two of four teacher participant classrooms at School XYZ and four of four teacher participant classrooms at School GWJ. After introducing the prerequisite assignment most teacher participants modeled specific lesson objectives of what students would be able to do (SWBAT) during whole group learning. In a fourth grade class, students were seated at the Smart Table and engaged in writing and editing stories to be included in their annual book publication. The lesson objective was written on six of the eight teacher participants' Smart Board

or Promethean Board. I observed that students were self-directed when using the desktop computers, laptops, and Chrome books, after whole group instruction ended. In every class I visited, teacher participants collaborated with individual and student teams to assess students' performance and interaction with technology that was linked to the tasks within learning centers situated throughout classrooms.

Electronic Questionnaire Results

Eight teacher participants completed a ten item electronic questionnaire after the official workday. Participants responded to inquiries labeled by the following themes:

- Attitudes Towards Computers,
- Stages of Adoption,
- Technology in Education Pre-service Competency.

Questionnaires were completed within the proposed 30-minute time period and returned to my Walden University email address. Questions adapted from the *Assessing Educator Progress in Technology Integration* (Appendix E) were designed to merit each participant's detailed experience or view of technology in order to establish their confidential profile.

Survey question one. The first question asked participants how they felt about working with technology to deliver instruction on a daily basis. Overall, six of eight teachers were fairly comfortable working with technology because technology is a necessity and no longer an option (see Appendix I). One participant commented that technology was designed to supplement critical math analysis and not replace it. The

majority of teacher participants indicated that technology integration is futuristic and easily accessible for teachers and students to attain unlimited sources of information, immediate feedback, and that teaching could be highly effective with online or customized programs and eBooks to help students improve achievement.

Survey question two. The next survey question asked participants to identify individuals who offer the best ideas for improving teaching strategies and most likely know a great deal about computers. School XYZ teacher participants acknowledged that their two computer teachers were exceptionally knowledgeable and allotted time to answer questions, address technology glitches, and provide updated technology news when they were not teaching students (see Appendix L). Teacher XYZ-1 stated, "It amazes me how they manage their day time to support us." The teacher participants of School GWJ, acknowledged that combined, collegial collaboration among grade group partners meet weekly to discuss new skills to be taught using technology or to facilitate a lesson using a technology based program to colleagues. Teacher GWJ-1 commented, "It really works because it is collective collaboration."

Survey question three. The third survey question asked*, "Are computers an easy, frustrating, or worthwhile tool needed to design creative activities?"* The general response of each participant indicated that computers and use of multiple technologies would be worthwhile and easy to coordinate, however time must be provided for teachers to experiment and discover the soundest methods to develop learning activities (see Appendix K). Conversely, one teacher mentioned, "It becomes frustrating when the

system is down or the computer freezes; it can completely interfere with my objectives for the lesson…teachers have to be flexible and always have a back up plan!"

Survey question four. Question four of the survey asked teachers whether they felt the use of computers in education "almost always" reduces the personal treatment of students. Each participant disagreed with that premise, indicating they did not feel using computers reduced personal treatment of students (see Appendix I). In fact, one participant mentioned the importance of balancing classroom instruction instead of depending solely on computers to facilitate learning. The majority indicated that the computer was just a component of the instructional process and personal treatment should exist throughout a lesson. One participant said that technology and computer use should be built into the curriculum for each content area because it becomes a great tool that students are fond of and use often.

Survey question five. Participants were asked to describe an action plan for how technology could be a useful instructional aid in all subject areas to improve education. Three participants from School GWJ described action plans that included specific online software students can access to follow prompts and work independently (see Appendix K). The web addresses were: KidBlog.com and www.makebelievecomix.com and both were programs that reinforce or remediate skills for sequencing, locating the main idea, and making predictions. Science and social studies assignments can be created by teachers and completed by students.

Two teacher participants of School XYZ told me that because technology is our global society, their action plans would include offering interdisciplinary computer activities and projects across the school-wide curriculum. Teacher GWJ-2 wrote:

> Reading/Guided Reading, modeled writing, math…interactive flipcharts, interactive word walls, books on tape (great for struggling readers) research, tablets, Smart Table for reinforcement and practice…modeled writing, online pen-pals, exemplar writing samples, scanned student work to develop mini-lessons…virtual manipulatives, demonstration videos, tablets, and online math text books…science fair instructional videos, virtual field trips for social studies (primary source, the constitution) and secondary source (diaries, interactive maps, and local government).

Survey question six. Participants were asked whether they are able to apply what they know about technology and integrate it into the curriculum and to provide specific examples. Four of the eight participants indicated that they apply knowledge from prior training on the Promethean and Smart Board to engage students with fun strategies (see Appendix K). One dissenting view, XYZ-4, wrote, "I am not impressed with all technology based software because students occasionally lose focus on the learning objective in a math lesson that appears to be "loosely organized…in Coolmath.com software students have a tendency to divert to play the games prior to task completion." GWJ-3 wrote that using the Smart Board was a continuous process because students enjoy it and that the Smart Board was a valuable tool that could be used for whatever

topic or skill with flipcharts or power-points to enhance practical delivery with engaging visuals.

The findings showed that teachers are able to use comparable technology strategies to educate students with sound icons or clip art visuals for literacy and floating rulers, protractors, and shapes that allow students to use their fingers as a measurement tool for math on the Smart Board. Other teacher participants disclosed that they use professional or self-directed skills and basic knowledge of hardware and software to integrate technology for effective preparation and planning.

Survey question seven. Participants were asked to describe how professional development would help them understand the process of using technology for specific tasks that may be useful to students. The consensus of each teacher participant strongly indicated that professional development would improve the pedagogical practices of all teachers because there are a plethora of functions that could complement an academic program that teachers are either unaware of or simply do not possess the skill to apply (see Appendix K).

Some participants answered that professional development would be useful if the participants' involvement were clearly detailed and relevant to integrating technology. One participant expressed it would be appealing to follow the presenter while using the technology. Teacher XYZ-1 wrote:

> A lot of times the steps and procedures to recreate observed in the PD are a lot harder when you are alone…that's why I think it's good to jot notes down about

> trouble areas or questions for someone who can help as your problem/question arises throughout the instruction.

Likewise, GWJ-1 wrote:

> Providing professional development with classroom presentations would definitely allow for a greater understanding amongst the teachers when using technology… the ease of use would lessen the anxiety amongst teachers who may not want to use technology…example, showing teachers how to work and use the Smart Board Clickers during a power point presentation…this would absolutely help students when answering multiple choice questions.

Survey question eight. Question eight asked participants whether they felt competent working with students with special needs who may benefit significantly by use of adaptive technology or various information technology environments (such as stand-alone and networked computers, labs, laptop carts). Each teacher participant expressed confidence and competence in supporting students with special needs using stand-alone and networked computers, labs, and various technological devices (see Appendix L). Participant GWJ-3 described the experience of using adaptive technology and what it feels like to wear a microphone to differentiate learning for a hearing impaired student. "When students are put first, teachers will strive to accomplish student needs technology included." Teacher GWJ-4 wrote:

> Lexia.com a reading program has proven to increase students' motivation to read, a component of personalized lessons that accommodate children with strategies

> and tools to absorb…many times students with special needs are all over the learning spectrum and technology can help differentiate for kids to learn at their own level and pace.

Survey question nine. Participants were asked whether technology has impacted their students' achievement. The majority of teacher participants concurred that the use of technology and its integration has impacted student achievement and performance (see Appendix M). One participant indicated that it was difficult to quantify the technological impact on achievement because the use of technology was relative to the professionals' style of teaching. Teacher XYZ-4 wrote:

> I think the biggest impact is in providing and environment that supports thinking over answers…process over product, and supports knowledge and use of all available resources to solve problems…technology helps me provide support for differentiated instruction and in some cases provides anonymous learning experiences that remove peer judgment for students that are below level.

Overall, the participants paralleled similar responses in that use of online learning and varied websites encompassing interactive games, and technology-based software contributed to improved student achievement, per district benchmark assessments at School XYZ and School GWJ. Some participants wrote that integrating technology enhanced classroom differentiation and allowed students to become more accountable for their progress.

GWJ-2 wrote, that technology visuals provide a critical boost in student achievement because students are able to link their understanding to examples. XYZ-3 wrote, the impact of technology gives students a venue to center on analytical aspects of problem solving and not solely on computation, which "tremendously" influences a student's ability to process and synthesize further challenging problems.

Survey question ten. The final survey question asked participants to identify barriers that prevented them from integrating technology. Multiple barriers emerged in the teacher responses (see Appendix L). System outages, outdated hardware, and the limited number of computers available for daily use in the classroom impacted technology integration at both study sites. One participant wrote that the cost of maintaining current materials and supplies, such as bulbs for projectors, impacted technology integration consistently. Three participants wrote there were no barriers preventing the integration of technology in their classroom; however, they were familiar with comments of intimidation and fear from peers not participating in this study.

Teacher XYZ-1 wrote, "I hear most often from my peers…they are afraid that students will damage expensive equipment or that students will know more than they do and the students will judge them." Teacher XYZ-3 wrote:

> Sometimes it is difficult with rotating students on computers…students sometimes need a little more time which can interfere with rotation…also monitoring can be a challenge…it can be time consuming to read, analyze, and monitor student work on the computer… our school district is so impoverished

> and we have very few resources…any resources that we have were provided by the teacher or purchased through a grant…

Outcomes of Data Analysis

I addressed four themes from an open-ended interview: situation, context, subject perspective, and ways of thinking about people and objects. Three themes from the electronic questionnaire instrument were addressed: attitudes towards computers, stages of adoption, and technology in education pre-service competency. I examined descriptors, characterizing the perceptions and experiences of each teacher participant to gain understanding of distinctive themes generated from the data analysis. The results of the electronic questionnaires, classroom observations, and one –on–one interviews shaped the context for how teachers used technology in their academic structure.

In the findings, I presented emerging patterns and themes to determine why technology is underused to support learning, the local problem, and to seek answers to the research questions that guided this instrumental case study (Merriam, 2009). The study results facilitated a comprehensive understanding of the salient data that supplied meaning to the participants' experiences. Concepts were constructed from the combined data collection instruments. Verbatim responses and rich descriptions acquired from each teacher participant typified and set apart their perspectives and collective thinking of school based the educators.

I discovered through interviews, classroom observations, and electronic questionnaires that technology integration significantly impacted pedagogical practices. I noticed during some classroom observations that students were self-directed and engaged in the assessment of their learning. This produced positive outcomes when the technology was threaded throughout an assigned intervention and when students transitioned from one content area to another to content in classroom media and learning centers. The interpretive findings associated with teacher views of technology integration, were compiled with my field notes to construct a road map for applicable training and experiential learning.

A focus to increase levels of technology integration would be a viable professional development plan for implementation throughout learning communities. The benefit of a focused professional development plan may advance students' achievement at School XYZ and School GWJ, and lead to social change for the district's K-12 technology curriculum. Jarc (2011) suggested that a teacher might connect better with students and other practitioners in positive learning experiences if technologies were used to establish a digital classroom. If teacher insight were taken into account regarding technology integration, that influence may cause a social change in systems needed to upgrade how students achieve using 21st century processor skills.

Based upon the set of themes that emerged around Research Question 1 and Research Question 2, the data outcomes are corroborated by the literature review. The study findings confirmed that staff development sessions centered on technology

integration practices, and technical skill building are significantly valued by teachers and if offered, the teachers would participate in training that could systematically impact their pedagogical practices to maximize learning opportunities, and stimulate student interests, in efforts to reform existing instructional methods.

Summary

In this section, I presented the results of the study. The findings confirmed that teacher participants' perspectives are grounded in constructivism, hands on, experiential learning, (building teacher taxonomy), situated learning (knowledge obtained normally), and the opportunity and cause to collectively interact in a CoP. The situated learning experience and practical application of technology through an integrated structure was the conceptual framework for this study. Dewey (1916) asserted, "if we teach children of today as we taught yesterday, we deprive them of tomorrow" (p. 99).

Definitive conclusions were drawn from my analysis of the study findings, that emphasized professional development executed with fidelity in a community of practice, may augment efficacy to raise the standard of learning and may positively improve student achievement and performance. The findings also signify that it is essential for teachers to receive technical support staff development to maintain the upkeep of technological hardware and software at the research sites because the teacher participants use a variety of technology tools. Five of the eight participants are working with high levels of technology integration specifically; Smart Boards, Promethean Boards, Chrome Books, laptops, technology based programs, and virtual games. The CoP could be a

customary network where knowledge gained exclusively by individual practitioners could be embedded in a reliable setting that promotes collegiality and support of one another during, staff development and training sessions.

The teacher participants clearly indicated that their influences and performance roles using technology would assist in a transformation of teaching strategies that would elevate student achievement. I interpreted from teachers' perspectives of technology integration that a focus on complex technology applications could be manageable for novice and veteran teachers. A potential technology integration CoP, the deliverable of this study may result improved student attainment and teaching proficiency, provided, (a) the professional development and technical training for technology integration is held in a collaborative setting, (b) that technology integration is interrelated with new technologies, and (c) that training tasks are easy to study and use (Simmons, 2011, p. 146).

Section 3: The Project

Section 3 describes a professional development platform offered as a viable project confirmed by research findings discussed in Section 2. According to Peter (2014), an environment for resilient learning can be established for the purpose of growth and maturity of teachers through instructional opportunities (p. 24). The National Institute for School Leadership (NISL) found that motivation and determination influenced learning philosophies of educators and how curriculums were taught to promote high achievement. What should be learned can be modeled in an effective teaching system rooted with numerous instructional strategies that "respect an individual's strength and dissimilarities" (NISL, 2012, para.1).

A community of practice may serve as a situated environment where teachers of grades three through eight can collegially interact, engage, and experience how to support instruction with integrated technology. The professional development community of practice should function continuously, unlike customary professional learning offered at the beginning of the school term on a designated day. Technology integration for teaching and scholarship, historically, has not been a priority for inclusion of the school district's professional development agenda. Technology professional development sessions occur inconsistently. Researchers (Bell, Maeng, & Binns, 2013; Bloodman, 2014; Peter, 2014; Wilson-Cortez, 2013) offered similar findings from their separate studies. Overall, the researchers found that teachers needed opportunities to share experiences, model practices, and exchange ideas on technology integration in a

professional learning platform. Wilson-Cortez (2013) stated that teachers felt professional development was “one size fits all and top down lip service” (p. 36).

The community of practice (CoP) platform can emphasize learning and direct interaction utilizing technology to modify instructional practices. Teachers can transition to interactive, self-paced, educational approaches accompanied with digital activities to cultivate their training (Schulze, 2014, p. 191). The purpose of a CoP professional development approach is to effectively impact teacher pedagogy and reinforce the delivery of instruction that utilizes the Smart Board, Smart Table, Promethean Board and other Web 2.0 tools. Specifically, technology based programs, online learning, virtual world environments, Google Docs, and digital tools make possible storytelling in a multimedia capacity.

The Web 2.0 tools are modalities that may be used as approaches to blend face-to-face teaching with virtual curriculum. This technology integration professional development project could be incorporated into the mandatory 3 day training for teachers prior to the official school opening. In fact, a CoP would be an effective foundation to train teaching staff and paraprofessionals on how technology can be included in the whole school education system that, “facilitates learning in ways other than traditional approaches”(Allen, 2014, p. 56). Additionally, a streamline focus on technology integration training could be incorporated into one 45 minute monthly session for teachers of grades three through eight to function as a CoP.

Based upon my research findings, I have developed a plan that is supported with a scholarly rationale and speaks to the research problem and questions raised to achieve the project objective (see Appendix A). Current resources, existing supports, consideration for potential barriers, and a timeline are included to accomplish this project. My role as the researcher and that of the teacher with the faculty participants are outlined in this section. This section concludes with a discussion of how the CoP project will endorse social change for the current learning organizations and far reaching schools.

Description and Goals

Prensky (2010) asserted that students have to be independently proficient and prepared to work in this global technology based society. According to Lui (2013), teachers should engage students regulary with technology related assignments to improve learning (p.136). Teachers can collaborate to improve teaching effectiveness with technology immersion in a CoP that will achieve educational objectives for all students. Top-down approach training, the lack of technology aptitude, and scheduling availability are a fraction of the perceived hindrances encountered by teachers at School XYZ and School GWJ.

Therefore, a CoP that gives emphasis specifically to skill building and combined technological application incorporated into the instructional plan of School XYZ and School GWJ is offered as a viable solution to resolve obstacles related to the research problem. Blair (2012) stated that with the world literally at the fingertips of students, teachers and administrators must revisit the use of technology in the classroom (p. 8).

Infrastructure, educator effectiveness, innovative models, and college and career preparation are four areas that significantly impact professional development for technology integration (Hanover Research, 2014, p. 6).

Based upon an in-depth analysis of my research findings, the following are offered as obtainable goals aligned to the International Society for Technology in Education (ISTE) teaching standards for the selected project:

- Collaboratively model and create innovative activities face-to-face in virtual environments to facilitate advanced learning.
- Design authentic learning experiences and assessments to get the most out of interdisciplinary content utilizing existing resources and technology tools.
- Develop customized activities to support diverse learning styles using online learning programs and digital tools for enriched learning.
- Develop technical acuity with hands-on experiential learning to operate digital tools and use technology devices fluently.

Goals set for the technology integration professional development will benefit the eight teacher participants in several instances. Case in point, Teacher GWJ4 stated, "the only way teachers learn is through practice; get in and do it."

Rationale for the Project

Underutilizing technology to support student learning in grades three through eight at School XYZ and School GWJ is the focus of this case study. Eight teacher

faculty participants described that not only inadequate professional development, and comfort levels, but also inequitable technology distribution, and funding contributed to the limited technology integration. Technology integration may not necessarily be an intuitive skill; however, establishing a community of practice would be a situated and experiential environment for teachers to support one another's learning by refining approaches for curriculum implementation (Loveland, 2012).

Brown, Collins, and Duguid (1989) claimed, "when authentic learning occurs outside the classroom and is not applied immediately, that knowledge becomes more abstract and less meaningful" (as cited in Glazer, Hannafin, & Song, 2014, p. 57). Subsequently, teachers too often return to their classrooms lacking hands-on opportunities to integrate technology for instructional purposes; they take on other responsibilities such as gathering data to complete school improvement reports (Glazer et al., 2014). A comprehensive analysis of the data confirmed that a connection existed between teacher perception and professional training barriers that impacted the degree to which technology was blended in teachers' instructional methodologies. Peter (2014) determined that faculty effectiveness at the college level increased through technology based learning communities.

A final report of teachers' perceptions of technology integration to support learning and their professional practice will be presented to the study participants at School XYZ and School GWJ, the primary and secondary study sites respectively. The report will be forwarded to the District Office of Research and Evaluation. The final

report is the most expedient method to disseminate the research findings discussed in Section 2.

Review of Literature for Project Study

A review of the literature was conducted on technology integration professional development as a viable approach to address the research problem. Combined search terms used included: *technology integration professional development, technology integration community of practice, educational technology, instructional technology,* and *on-line learning.* Databases used to guide the literature review were, Education Research Complete (EBSCO), Pro Quest Central, ERIC, SAGE Journals, and Thoreau Multidisciplinary Database.

The findings of this case study revealed that teachers' perceptions of technology integration impact their professional practices to support student learning. More specifically, the findings explicitly showed that teachers require ongoing preparation that is collaborative and hands on to effectively incorporate technology in their educational planning process. Potter and Rockinson-Szapkiw (2012) found that professional development linked with technology integration significantly impacted instructional improvement. Embedded technology can engage students with virtual activities facilitated by teachers who are knowledgeable in a variety of ways that technology can be utilized (DeSantis, 2012; Sabzian, Gilakjani, & Sodouri, 2013).

For example, Teacher XYZ-4 stated, "bridge the gap; there is a common language with technology that most students understand; there's diversity in the classroom;

technology is transformative, it either helps the underserved, 'exceptional students' or the over-represented." Therefore by increasing the level of integrated technology, students will be able to maximize learning through online learning and customized instruction (Yemothy, 2015, p. 138). Teachers attending continuous professional training would be able to connect a relevant framework of the instructional program with hands on aptitude. In order to connect globally, teachers need to be able to instruct using a variety of techniques and digital tools that will enable students to correspond and interact in the contemporary learning environment (Taranto, 2011; Prestridge, 2012).

Maloney and Knoza (2011) asserted that opportunities for school based or non-school based collaboration between teachers have been infrequent and unsystematic. To interact with one another or to participate in "practitioner research," scheduled opportunities could improve their practice in the workplace (p. 76). Moore-Hayes (2011) found that teachers' were reluctant to fully integrate technology because of personal efficacy beliefs such as exposure to reliable observations of technology used as a teaching method. Moore-Hayes asserted that a best practice model would enable teachers to demonstrate preparedness by reproducing what is learned.

Overbay, Mollette, and Vasu (2011) pointed out that school administrators should coordinate technology integration plans that match the school structure. Scaffolding professional development would become turnover resistant by expanding the knowledge base of teachers in order for them to become experts in shared leadership of the technology initiative. Tsai and Chai (2011) argued that the absence of design thinking, a

potential barrier, can be removed from the mindset of teachers given an appointed time and collaborative opportunity to re-structure classroom settings. With technological resources instructional strategies can be differentiated to achieve the educational needs of flexible student groups (p. 2)

Findings of a quasi-experimental study conducted by Ndongfack (2015) indicated that "primary school teachers regularly complain of the short duration of professional development on the use of ICT for instructional purposes" (p. 33). To establish a reliable community of practice, teachers (and occasionally students) could engage not only in collaboration, but on site, unending professional development to extend learning as opposed to adding on according to Porter, McMaken, Hwang, & Yang, (2011). The mastery level of each teacher would be supported in a situated learning environment.

According to their action research study, Thang, Hall, Murugaiah, and Azman (2011) found that a "Smart School" reform initiative could be a successful practice that encompasses an on-line CoP to prepare school-wide members with knowledge, skill, and materials complemented by pioneering technology use (p. 88). According to Prensky (2010), a great number of young people are deeply rooted in technology and communicate with their peers unlike any previous generation. Therefore, teachers have to be committed to finding ways to unify futuristic learning of their students using technology inclusive of Web 2.0 tools (Ertmer et al., 2012, p. 423).

Liu (2013) asserted that teachers who focus on learner centered instruction have adjusted professional practices that influenced a shift from text-book delivery to

technology use. Additionally, teachers shifted their focus to using technology could enhance achievement of special education students. Eristi, Kurt, and Dindar (2012) determined when teachers are provided technological opportunities for instructional purpose they assume responsibility for implementation; however, teachers lose interest when other technology or noninstructional tasks are assigned to the academic program (p. 35).

Technology Integration Professional Development

To maximize teacher effectiveness and transform teaching pedagogy, professional development is needed to support innovative learning methods with use of digital material in the classroom. The United States Department of Education's 2010 National Technology Plan recommended that teaching with technology should be an ongoing practice combined with technology performance proficiencies to be achieved during training in lieu of irregular workshops (Hanover Research, 2014, p. 6). McPherson, Wizer, and Pierrel (2006) noted that the Maryland Technology Academy Leadership Program (MTA) model attributed overall school improvement to their successful technology network of K-12 teachers. The constructivist approach used not only facilitated teaching and learning experience but also provided teachers with the opportunity to collaborate. Teachers attributed their prior knowledge to mentoring and coaching through collegial collaboration. Additionally, teachers reflected on successful use of the available resources to establish their individual technology academies (p.26).

The MTA model developed a best practice community that promoted technology and technical skill use amongst district schools. The model was found to illustrate sound curriculum planning, reliable assessments, appropriate technology use to differentiate learning for students with exceptional needs, and the model addressed Maryland's educational and technology standards (p. 27). Fox-Turnball and Snape (2011) noted that technology used through a constructivist approach sanctioned opportunities for scaffolding new knowledge. According to Killion (2013) a criteria for technology-enhanced learning includes the collective responsibility of educators to commit to continuous improvement.

Technology application should be thorough and aligned with teacher performance standards and student curriculum. Similarly, professional development used as a venue to improve skills for interaction with well-organized technology systems could be an experiential process in the form of action research. The community of teachers could apply newly acquired strategies to improve classroom practices and resolve professional needs (Chou, 2011, p. 423). In a case study, Hutchison (2012) concluded that factors contributing to teachers' perceptions of successful technology integration professional development focused on time to explore, time to practice, knowledgeable presenters, relevant prior knowledge, continuous support, and follow-up for team sessions.

Technology Integration Community of Practice

Operational technology integration requires teachers to be able to transfer their professional learning experiences to their teaching context continuously in the

classrooms. Glazer, Hannafin, and Song (2006) indicated that reciprocal interaction was a method to promote technology integration by creating an environment that teachers could mentor one another and benefit from collegial interaction across disciplines with community members (p. 1). Additionally, findings of their study revealed that collaborative apprenticeships positioned novice teachers the opportunity to scaffold techniques for problem solving and to observe how challenging tasks were resolved by modeling and coaching (Glazer et al., 2006, p. 2). Kopcha (2010) reported, "that teachers may not integrate technology to adapt student centered activities because they lack the knowledge, basic skills set, and experience that a systematic community of practice could offer using technology to adopt student centered tasks" (p. 176). Further, the OEAS (2012) asserted that CoPs were ideal for systems obligated to curtail spending, to endorse faculty ownership, and that CoPs devised a platform to advance online pedagogy using web-based strategies (p. 1).

Educational Technology

The face of teaching has been altered by technology use as a component of education in the classroom. Technology has fueled changes in the way instruction is delivered and how student performance is assessed. Educational technology is described as computer assisted instruction, computer enhanced learning, or a combination of tools for the purpose of addressing instructional needs and problems (Worts, 2014, p. 54).

Lee, Cerreto, and Lee (2010) determined that specific programming designed to target teacher behaviors, beliefs, and their perceived self confidence about consistent

technology use will shape attitudes to become positive to result creativity in planning and implementation of well organized lessons (p. 152). However, case study findings of Brewer, Mitchell, Sanders, and Wallace (2015) showed virtual teams that collaborated across distances and disciplines needed to balance respect for their colleagues and students. Additionally, virtual teams needed to demonstrate fairness of team assignments and organize realistic virtual projects that will demonstrate virtual work as an asset to learning (p. 208).

Instructional Technology

Instructional technology has been explained as design development and the management and evaluation of learning resources. Researchers found that instructional technology positively impacts student achievement and motivates student interests while clarifying content (Ozguc & Cavkaytar, 2014). Yusop and Sumari (2015) investigated pre-service teachers' preferences for using technology based instruction. The researchers determined that a teacher's awareness of a student's learning style is significant. A student's performance can improve when the teacher has aligned a preferred teaching style to individualize assignments in an academic program (p.117). Accordingly, Hargis (2014) asserted, that a particular aspect of the "Elements of the Creative Classroom Research" model was used to establish an open forum for the 'eager adopters' (a practitioner) to upload a vast number of digital strategies for students to manipulate independently. Technology integration best practices from Elements of the Creative

Classroom Research, were submitted for examination to be included in a copyrighted platform for foundational, collaborative learning theories (p. 15).

Online Learning

Online learning connects educators through networks that offer evidenced-based outcomes to transform professional learning and student performance. Ernest, Heiser, and Murphy (2013) concluded that online learning fosters peer interaction. Online learning is commonly acknowledged in a social constructivist view as an environment that teachers could engage in collaborative learning to develop autonomy in various roles.

Prensky (2013) suggested that practitioners rethink current curriculums to include the global populace, with ways to "move from trivial to powerful" using online learning. Emerging online communities engage many with diverse activities that have illustrated success for K-12 learners. Reich, Levinson, and Johnston (2011) determined that using online social networks to foster membership in a networked community of practice supported purposeful planning and preparation. Technology, social interaction, and the ability to convey knowledge are critical components in the formation of an online learning community in a manner that teachers coach teachers (Matts-Abdelmalak, 2015; Ghamrawi, 2013). Studies have connected online learning with greater knowledge inclusive of social, technological, and instructional elements for projects and assignments; this massive volume of material is available for members to connect concepts, content, and experience for comprehensive knowledge (Richardson & Swan, 2003; Moisey, Neu, & Cleveland-Innes, 2008).

Conclusion of Project Review of Literature

Promoting technology integration as a core instructional element necessitates modification of teaching approaches. My research findings signified the importance for teachers to partake in continuous professional training to facilitate instruction that unifies traditional and technological advancement. The results of my study showed that underutilization of technology for instructional purposes were associated with the following: limited time, collaboration, hands-on training, technology and technical aptitude, distribution of technology tools, devices, and funding. An endorsed community of practice (CoP) that is centered on intercollegiate collaboration (Hilburn & Maguth, 2012) and focuses specifically on training staff about technology integration would refine abilities, extend knowledge, and model ways for teachers to assimilate technology that would underscore student learning.

Project Description

Needed Resources and Existing Supports

Active learning for teachers include participation in technology integration, professional growth planning, and training to design interdisciplinary lessons utilizing games, interactive applications. Additionally, simulated lessons could be coordinated with online instructional programs such as Lexia.com, First In Math, Pinterest, and Edmodo, online CoPs. The existing school based technology infrastructure of School XYZ and School GWJ have settings that will support collegial interaction to share best practices.

Each grade group teacher will need access to the Internet for online learning. Teacher engagement includes hands-on learning that teachers will be able to utilize any of the following hardware: laptop computers, desktop computers, Chrome Books, IPads, Tablets, Smart Boards, Promethean Boards, and Activotes that must be connected to the Internet. Use of the Smart Board and Activotes hand-held companion were recently added to the technology repertoire of both study sites. Training will be provided on how to use the devices and participants will be able to interact with the devices to develop proficient technical skill for effective troubleshooting.

Internet access is available and accessible at both study sites; training can occur in the library and selected classrooms at each school. Initially, teachers will view a power-point presentation with URL addresses for setting up personal accounts to gain access and develop familiarity of online instructional programs and technology CoPs. Teachers will refer to data retrieved from the Pennsylvania State Student Assessment (PSSA), Keystone State Assessment, and Response to Intervention (RTII), that identified students performing basic and below to create learning plans. Each plan will be aligned with Pennsylvania State Learning Standards and Anchors. More specifically, objectives of what students should know and be able to do in content areas will be outlined and formatted in hands-on training segments for each grade group member in grades three through eight.

Potential Barriers

Potential barriers to this project include, personnel changes and teaching assignments, interrupted wireless network access, release time for technology teacher leaders or technicians to provide grade group members technical support, and failure to incorporate technology integration professional development into one (1) of the existing school based monthly grade group meetings. Appropriately, to create opportunities for collaboration related to emerging trends in the field, "it is necessary that teachers acquire tools that actively support teaching and learning tasks in the classroom and beyond" (Ragupathi, 2015, p. 3). Successful implementation of the professional development CoP should be approved by the study site administrator.

Project Implementation and Time Frame

Based on the results of the research, the teacher participants indicated interest in participation of technology integration training sessions that could be collegially organized by the researcher and teachers of grades 3-8. The agreed upon professional learning sessions would be held in adjoining classrooms or the study site library. The study participants and team members of each grade, three through eight are invited to attend and participate. Additionally, grade two teachers are invited to participate in the professional development sessions. Individual classrooms will accommodate thirty-five persons; the school library will accommodate seventy-five persons.

The technology integration professional development sessions will occur over a three-day period, in morning and afternoon sessions prior to the official fall school

opening for students (see Appendix A). Sessions are divided into hourly, combined tasks such as experiential practice, open-ended discussions, technology based presentations and lesson planning, and interactive posting in an online CoP. One fifteen-minute break is scheduled for teachers per morning and afternoon; one hour will be allotted for lunch each day. The study site administrator has some flexibility to organize and schedule school-base initiatives.

Roles and Responsibilities

District wide professional learning dates are determined by the Superintendent of Schools and the School Reform Commission, which will occur four days prior to students' arrival of the new school term. The time frame for the project implementation is to be coordinated by the study site administrators and myself. Attendance and participation in technology integration staff development sessions are the professional responsibility of each teacher participant and is extended to the entire staff as scheduled training to accomplish district initiatives. Additional time will be allotted for teachers unable to join the professional learning on the designated dates. A professional development record of attendance will be provided at the beginning of each session. Teacher participants will be asked to complete a paper evaluation at the conclusion of each session. Each participant will receive a certificate of recognition for achievement of the project outcomes.

Project Evaluation

In an examination of teacher beliefs and attitudes towards technology integration, Potter and Rockinson-Szapkiw (2012) suggested, the lack of technology integration is attributed to "ineffectively developed professional development opportunities for teachers; technology purchased for the classroom goes unused because considerations of the teacher's role are not addressed" (p. 22).

Four goals were outlined for this project that specified that teachers, (a) collaboratively modeled innovative activities in a face-to-face environment using technology, (b) designed authentic learning experiences and assessments for interdisciplinary content utilizing technology hardware and software, (c) customized activities to support diverse learning styles that used online programs and digital tools, and (d) developed technical aptitude through experiential learning to operate digital tools and technology devices fluently. The outcomes of this project were: (a) upon conclusion of the 3-day professional development workshops, the expectation was for each participant to apply skills and knowledge acquired from the professional development CoP and (b) illustrate knowledge of how to integrate technology with exisitng instructional methods to advance learning. Additionally, participants were requested to provide reflections through the online CoP with posted examples on how applications may be utilized from the virtual instruction programs. Participants were also asked to post what was learned about integrating technology, explain the usefulness of the professional development, and teachers were expected to provide feedback detailing their needs and

successes for coordination of successive trainings. Lastly, for classroom observation purposes, varied instructional strategies were to be noticeably integrated with technology hardware and software.

To determine if the desired goals were achieved, the following were organized to evaluate learning outcomes: (a) examination of individual and small group presentations that used technology hardware and software (b) diversified methods that demonstrated how students can achieve using technology, (c) participation in whole group and small group discussions that demonstrated acquired skills as evidence of new learning on expanded technology use, and (d) shared technology integrated lessons face-to-face and through the online CoP. The deliverable, a technology integration CoP and accomplishment of the four goals were to be assessed through a summative PD exit questionnaire completed at the end of professional development sessions 1, 2, and 3. Moreover, the expectation was that teachers continued to collaborate in the online CoP venue after the professional development sessions concluded.

Reporting Outcomes to Stakeholders

Teachers of grades three through eight in a K-8 and K-5 school were the stakeholders in this project study. Teachers that used technology in their classrooms were targeted for participation in the professional development of this completed study. The PD was not limited to only third through eight grade teachers. Teachers of kindergarten through grade two were considered stakeholders in addition to the building principals. Students and teachers will benefit school wide as a result of the four outlined PD objectives used

in reciprocal teaching. To effect change it essential to inform stakeholders of the project outcomes. Accordingly, the professional development evaluation plan is to be used to assess the effectiveness of the PD and ongoing staff requests for support. A prepared, comprehensive report disclosing the project data, an overview of the project goals, methods, and strategies used will be presented in a PowerPoint presentation to the local staff and building principals for upcoming staff development. Additionally, this report will be made available to the district's Office of Accountability and Assessment.

Implications

A review of the literature revealed that use of technology did not always complement personal teaching styles. Teachers largely relied upon traditional methods partly because professional development was optimal in supporting their knowledge and ability to perform teaching tasks using technology. Prior studies indicated that other external barriers such as access to hardware and software in addition to funding restraints prevented teachers from integrating technology as a method to extend learning (Ruggiero & Mong, 2015; Schleede, 2012; Hsu, 2010). Survey findings of a K-12 teacher community indicated that powerpoint was a tool used in the classroom, however technology integration was pervasive in that "training about technology was more effective when used in the context of teachers' individual classrooms" (Ruggiero & Mong, p. 161). Given the fact that teachers are able to access software via the Internet and they possess a massive opportunity to obtain digital content, the implications for social change reside within teachers' comfort levels and familiarity to apply what is

learned from the technology professional development project. Teachers can facilitate social change through incremental steps to adjust instructional practices they have learned by designing and distributing learning plans across content areas. The Shenendehowa School District endorsed a technology plan that achieved success. The educators ascribed to their definition of "academic retooling," which exemplifies a strong infrastructure with multiple hardware devices, the use of digital content, and curriculum resources for round the clock learning. On demand professional development is embedded in Shenendehowa School District technology plan (p. 4).

The participants of my study strongly indicated a need for practical, hands-on experience accompanied by educational insight to improve their technical skill and to apply that knowledge to integrate technology daily. Teacher Participant GWJ-1 indicated that provision for professional development "would definitely allow for a greater understanding amongst teachers when using technology; the ease of use would lessen the anxiety amongst people who may not want to use technology."

Social Change

Local Community

This project addressed what is needed to change teachers' perceptions of technology integration for use as an educational practice. Additionally the project addressed how it may impact their professional dispositions to support learning of students in grades three through eight. The underutilization of technology was a problem at both research sites. The results of the study were authenticated in an analysis of

emerging themes and categories presented in Section 2. Through a professional development CoP, I anticipate increased technology integration to support learning, beginning with second grade and to ultimately become prevalent throughout School XYZ and School GWJ. Successful application of new learning in a technology integration CoP, could typify scholarship to include all grades at similar schools.

The principle goal of the project was to enable teachers not only to integrate technology fluently but to build their confidence and flexibility using technology to support learning. Another goal was to focus on training to be able to manage technological hardware and software programs. Continuing, a goal was to encourage teachers to adopt practices that will motivate students' interest to achieve.

Teachers

Teachers have to harness power with enthusiasm and innovation (Shaltry et al., 2013). As the frontrunner for integrating technologies aimed to broaden learning for futuristic classrooms, teachers must establish new norms for students to acquire knowledge. To create social change in the classroom, the learning organization, home and school partnerships, instructional technology, online learning, digital content, and Smart Board use are considered versatile formats that both teachers and students are able to collectively utilize as trending approaches to acquire information.

Students and Parents

To close an identified achievement gap, the students at School XYZ and School GWJ are obligated to master state content standards yearly to be de-classified as needing

school improvement and academic re-organization among district schools. Using technology tools such as laptops, Smart Tables, and Smart Board to interface with online educational programs are strategies that diversify instruction and would be a benefactor of advanced learning. Moreover, technology literacy is a major requirement that must be attained by middle school students to compete in the 21st global society according to the National Technology Plan (2010) and Hughes (2013). Equipping parents with Internet access and login information would be a communication platform to view and participate in their child's work and learning process, another benefit of a technology integration CoP.

Administrators

The school administrator is responsible for leading social change in the learning organization. As one of the change agents and a member of the CoP, the administrator is held accountable for coordinating and facilitating an instructional system that encompasses, student centered programs and staff development for teachers (McDowell, 2013).

Far – Reaching

Similar schools situated in the district of School XYZ and School GWJ are in need of innovative practices to improve teaching and learning. Under the Pennsylvania State, school improvement and management plan, instructional leaders and their staff have been directed to modify the way students are taught to succeed in the local milieu and globally. This technology integration CoP could serve as a model of social change

for teachers in similar district schools to observe technology implementation through a professional development CoP. District and surrounding networks could establish communities through cross articulation, collaborative planning, and turn-around training to build pedagogical expertise. Additionally, a CoP can offer time for practitioners to produce lesson plans, activities, and replicate artifacts to accommodate students with learning exceptionalities in diverse instructional settings (Evans, 2012).

Face-to-face articulation, demonstrative online learning, and concerted use of technology tools portrayed in an academic design could be continuous, cost effective, and an expedient use of time. Teachers would always be able to access content information and strategies with colleagues utilizing technology. Danielson (2006) explained, "teacher-leaders unite with colleagues and are able to inspire others to join the journey without a specific destination" (p. 13). I presented findings, research, and, examples earlier on the purpose of a CoP.

Conclusion

Technology has emerged as a primary motivator of student application. It is extremely influential in societal communication and information gathering. Research suggests, there is no single plan to integrate technology to support learning. Instead, a plethora of strategies and modalities are available for use by teachers in the classroom and school wide. If I were afforded an opportunity to facilitate professional development for technology integration district wide, I would create an atmosphere for every teacher to

personalize and pace their learning dispositions to maintain interest in the newest trends. Of importance would be to add to their scholarly practices to maximize students' academic progress. I am especially committed to professional learning teams and practicing communities that can ensure academic improvement. In Section 4, I discuss reflections as a scholar, practitioner, and project developer. I discuss strengths and limitations for addressing the local problem. Finally, I disclose recommendations for application and future research.

Section 4: Reflections and Conclusions

The use of technology changes rapidly in today's society. Therefore, educators have to re-envision teaching practices to sustain the interest and motivation of learning in K-12 schools. To access new knowledge, students are constantly using the Internet for more than games, videos, and communication. Students require immediate access to the Internet to develop new relationships through critical thinking and collaboration (Blair, 2012, para. 1).

Project Strengths

This project has multiple strengths. First, teacher responses to the one-on-one interviews, observed teaching practices, and responses to an adapted version of the *Instruments for Assessing Educator Progress in Technology Integration* electronic questionnaire provided structure for the development of a professional learning plan. The project offers professional learning opportunities designed to expand knowledge about technology integration. Second, the professional learning plan can advance technical ability that may increase technology use to support teaching and learning. Third, I organized the professional development plan to encompass several components of the conceptual framework. Constructivist learning, experiential learning, and situated learning were the underpinning philosophies I used to shape my professional learning plan. Training in a collaborative setting such as a community of practice could make learning comfortable for participants, which were an idea discussed in a review of the literature. The data findings indicated a request for technical training. Therefore, I

developed strategies to be implemented in an organized professional growth learning plan concentrated on a technology integration.

Project Limitations

A limitation of this project is that professional development sessions are scheduled for hourly tasks that may require additional collaboration and interaction time to support novice and veteran teachers. There is no guarantee that the local administrators can allot time to begin staff development for the technology integration plan because the timetable could be interrupted by district prioritized initiatives. Overbay et al. (2011) concluded from other studies that change requires time. My study concluded at the end of the school term, therefore more time is needed for teachers to build upon newly acquired knowledge and apply technology based strategies consistently in the classroom.

Recommendations for Alternative Approaches

There are teachers at School XYZ and School GWJ that utilize technology consistently in the delivery of instruction. Some participants indicated through the one-on-one interviews and the IAEPT questionnaires that their participation in technology staff development is part of their personal routine. Therefore, an alternative solution to the local problem of limited technology integration to support learning could be facilitating workshops that focus solely on technology use and technical application one day per week in the morning, before the official school day, or afterschool in volunteer extra curricular classes. Interested personnel could also attend technology integration and technology users' skill building classes on weekends at one of the research sites.

The before school, afterschool, and weekend sessions could be managed with the assistance of volunteer staff from each research site. The extra curricular staff development could function as a CoP to develop competent technology users. Other alternatives include interactive technology training monthly during grade group meetings, colleague mentoring, and classroom observation during teacher preparation periods. Further, grade groups and team leaders at both study sites could engage in peer mentoring during preparation periods, before and after school, and request observation days to collaborate with colleagues from surrounding district schools. The purpose of collegial observation days would be to observe how technology is utilized in the learning plan of surrounding school districts to facilitate local turnaround training.

Analysis of the Project

I pursued a staff development plan to expand on the concept of a community of practice that will focus on technology integration. I learned through observation that it was essential for teachers to receive continuous training and preparation to facilitate learning in ways other than students completing duplicated worksheets or activities that did expedite student engagement to receive immediate feedback. My learning enabled me to coordinate activities that would allow teachers to organize resources to support students in self-discovery and constructivist learning when using technology.

Technology does not replace the teacher; however, my in-depth inquiry and research substantiated practitioner perspectives on how to modify techniques so that children and adults can acquire new information in the digital 21st century environment. I

learned through conducting research for this study that collecting and analyzing data is a systematic process that involves the protection of participant's rights, confidentiality, and that participants must validate the data collected through a qualitative inquiry. Locating, categorizing, and reading qualitative and quantitative case studies were interesting and tedious. Although I conducted qualitative research in which I explored, examined, and interpreted meaning of information (Creswell, 2012).

I also learned that quantitative research could have been useful for identifying trends and explaining relationships among variables (Creswell, 2012). I learned during the data analysis that triangulation of the findings involved constant crosscheck and comparison until the data reached capacity. What began as a funnel inquiry became a narrow focus that answered my research questions. I learned that seminal studies were essential to understanding perspectives of early researchers. Past studies contributed to literature in peer-reviewed journal articles, research trends, and my understanding of dissimilar views reported by researchers that offered both support and contrasting information regarding the wide-ranging use of technology in the classroom.

Analysis of Self as a Scholar

The initial completion of course work, assignments, and major assessments were overwhelming until I made use of the doctoral resources tool bar and Walden's research center and library. Pacing, perseverance, and setting realistic goals required persistent professionalism, which were behaviors I needed to hone. Reading my writing out loud for clarification, scheduling appointments with the writing center, and learning to write with

simplicity was initially tedious; however, I began to see the connection as I transitioned from course work to the intensive dissertation study.

I learned about peer-reviewed articles, how to conduct research using multiple databases, how to determine primary and secondary resources to support the content of my study, and how to collect, analyze, and present findings in a scholarly context. I reflected upon and valued the insight of the discussion board postings. More importantly, I internalized the critical analysis and recommendations for writing and editing my proposal and final study document offered by my dissertation chair, second committee member, and university research reviewer.

I abided by the project rubric and EdD quality checklist, which framed new learning for me during the revision stages of this project. The writing process consumed many 5 to 8 hour days and nights drafting, revising, and editing to produce an authentic, scholarly work. As an adult learner, the writing was very different from what I was used to and it was sometimes an overwhelming process. However, I have enhanced my pedagogical disposition to make significant contributions as an active practitioner in education by conducting this research study.

Analysis of Self as a Practitioner

Throughout this study, the knowledge I gained extended my understanding and respect for scholarly writing and interpretation of research. I discovered that teachers and students learn best through designed systems and communities. I am an active learner and I can be presented with information to construct my own learning in project based and

problem solving activities. Upon acquisition of that knowledge, I began to communicate as a mentor, coach, and colleague to encourage upgrades in teaching practices.

To model the academic knowledge I gained for the benefit of forming a community of practice, I refined my abilities to read seminal studies and secondary resources. The contributing perspectives from the literature were corroborated by my fieldwork with the educators. I value the process associated with research and how it contributes to growth, reflective practices, and ultimately transformation through an extended scholarly lens to effect social change in the way teachers deliver instruction in School XYZ and School GWJ.

Analysis of Project Development

As the project developer, I learned that planning purposeful professional development and training sessions for technology integration required extensive review and reference to the data results of this study. Organizing and creating a PowerPoint presentation to model interactive activities using technology consumed much of my time. Completing the topical research using the internet required that I completed the tasks first and then develop a step by step outline to demonstrate to the teacher participants how to use and incorporate technology with various educational programs to modify their teaching methods and lesson planning. I learned how to create an online community in order to introduce the sequential process that I practiced multiple times to limit potential challenges for hands on training involving the teachers. The intent of this project is to

assemble teachers in a situated community to introduce models and information regarding classroom technology integration.

As the facilitator of the staff development, I will provide sessions for the participants to construct new knowledge with the opportunity to interface prior knowledge in a setting where technology can be manipulated for technical skill building to expand learning. The interactive materials, PowerPoint presentation, and daily agendas are designed to inform and lead learning for grade teachers three through eight at School XYZ and grades three through five at School GWJ. Exploration of websites, software, and instructional programs are currently available to the entire staff at both sites on a continuous basis.

Developing this project caused me to reference prior experience and techniques I used to facilitate professional learning as a former teacher. I have learned to examine concepts in diverse contexts, and collect and analyze data in order to make recommendations that may be applicable in a broader spectrum. For my research to be published, other scholars need to review, add to, or cause further inquiry and investigation that will solidify this work.

Leadership and Change

Educators and practitioners are charged with recognition of and the ability to respond to trends impacting an educational system. Technology usage has become an integral determiner of change and what happens in our classrooms and schools. Marx (2006) explained that future focused leadership is expected to apply technological

aptitude to prioritized student learning. Given another opportunity to conduct research, I would select action research consistent explained in Creswell, (2012). An action research design is a systematic process that teachers or individuals can use to gather qualitative, quantitative, or combined methods, for teachers to collect and use the results to improve how they teach and how students will learn in a particular setting (p. 617).

Teachers would have the opportunity to enact change by applying practical systems based on the findings from the final report of the qualitative case study I conducted. Consistent with ideologies of Creswell (2012), the action research findings will enable teachers to reflect on existing practices within latitude of the current routines in order to resolve the education problem immediately. With a concentrated effort on transforming instructional strategies combined with technology integration, local and district administrators can provide customized learning based on teacher needs within the learning organization. The success of this project will create change within the infrastructure of School XYZ and School GWJ. According to Mouza (2011) and Yuki and Mahsud (2010) not only the participants and local school leadership but also an endorsement from district leadership for the recommended school improvement initiative is essential to accomplish the communal goals.

Reflection on Importance of the Work

In reflection on this important work, I increased my knowledge base not only through the research process, and data collection, but also by conducting an analysis of the data to determine what actions can be taken to include teacher input on the most

efficient way to integrate technology. The staff development for technology integration was purposefully designed to afford teachers more experience with utilizing technology instruments, software, and educational programs collaboratively in a CoP. The conceptual framework that provided the guiding ideologies for adjusted learning and teaching actions of each participant in this supportive group setting, encompassed Dewey's (1938) constructivist learning theory, Rogers' (1969) and Kolb's (1984) experiential learning theory, and Lave and Wenger's (1998) communities of practice and situated learning theory.

A sequential plan is needed to facilitate participant ease, understanding, and to ensure their capability to accomplish the desired objectives of the technology integration staff development. I referenced particular recommendations noted in a hybrid online education model designed by Doering and Velestsianos (2008) and a Professional Development for Technology Integration Report published by Hanover Research (2014). I aligned noteworthy principles from the Hanover Research (2014) report to establish a foundation for teachers to conceptualize and transfer new knowledge on differentiating pedagogy. Distinguishing the training may stimulate critical thinking on approaches to improve the existing state of technology use.

Through this study, I sought to understand how teachers' perspectives impacted their attitudes, knowledge, and incorporation of technology as curriculum tool. I further learned that to incur positive change for school wide improvement, it is essential that teachers be included in the conversation of their role as coordinators of learning. In

addition, I learned that a sound infrastructure within a learning institution is paramount to teachers and their capacity to embrace a different way to complete the work.

Implications for Social Change

The implications for social change may be embraced by teachers when the usefulness of technology integration is authenticated by the way information is organized, introduced, and applied in a platform that can assist in the improvement of teachers' dispositions, competencies, and reflective practices. To increase the level of technology users across grades and interdisciplinary content, this project purposely emphasizes a process to achieve positive social change in a collaborative, hands-on setting that teachers can discuss, explore, and exchange ideas to acquire more insight on technology based content to rework their instructional delivery.

This project may also achieve positive social change by modifying the structure of site-based staff development to include a specific focus on technology integration within individual grade group meetings as a component of the school improvement plan for School XYZ and School GWJ. The CoP can sustain an effective preparatory environment to meet diverse needs collectively and for self-direction of novice and in-service teachers. Creating a community for teachers to apply their knowledge and skill to create lessons using technology has the potential to cause social change in the way technology and pedagogy impacts the K-12 learning organization globally.

Cifuentes, Maxwell, and Bulu (2011) explained that effective technology integration is dependent upon how well the teacher acquires the necessary technical skills

to operate the technological hardware, to gain access to and benefit from the digital and educational software of the online learning environment. Although the technology integration CoP is significant and unique to the practitioners of this project, district officials could experience social change through participation in a successive technology integration CoP. An expansion of the existing mediums for technology integration training to include all learning organizations within the school district of the research sites may offer social change for schools encountering similar technical needs.

Directions for Future Research

The success of technology immersion at the research schools is dependent upon voices from the field that are germane to shaping pedagogy and to build a solid infrastructure using technology to support scholarship and teaching. CoPs are appropriate forums that can guide practitioners with discovering keys to becoming principled learners and implementers of technology, and troubleshooters as mentors and coaches in a communal arrangement (Cakir, 2012). Directions for future research include (a) continuing this study with action oriented research to examine the additional experiences of the teacher and (b) to enact immediate changes in each educational setting of this research with emerging trends identified in the CoP (Lodico et al., 2010).

Successive training sessions co-designed by the content teachers, the computer teacher, technology teacher leader, and grade group members could be provided as extra curricular training that would fulfill mandatory state professional learning standards. Extending the research through on-site professional learning sessions at both research

schools provides a venue for teachers to solve technical problems, become familiar with virtual learning and lesson planning, technology based instructional programs, and online technology integrated communities. An action- oriented approach would not exceed the scope of research for School XYZ and School GWJ. The action research approach may result data to direct an immediate change that can accommodate individualized teaching methods, strengthen teachers' technology competencies, and increase an educator's technical knowledge to effectively incorporate technology as an instructional strategy that may lead to improved teaching and learning.

Conclusion

Technology use for the 21st century learner is a universal component of information gathering. CoPs are important because individuals agree to work closely together in teams to design new methods for connecting ideas and practices for enriched student learning. A technology CoP can join people together that may not have the opportunity to share personal experiences in collaborative discourse in their individual classrooms.

Overall, the findings of this study were consistent with literature that disclosed (a) positive teachers' perceptions indicated forward movement to increase the level of academic support with technology integration as an underlying structure, (b) that continuous professional development and technical training for the purpose of integrating technology would enhance teachers' pedagogical practices, and (c) that technology integration infused in the schools' curriculum may increase students' motivation and

interests, and improve students' achievement and performance. Because the teachers shared their standpoints on the degree of when, why, and how they integrated technology for lesson planning, teaching and learning, I was able to design a staff development project as an alternative solution to address the local problem that is readily accessible to increase technology use school-wide and in similar learning organizations.

A professional development CoP that centers upon conveying knew knowledge and new ideas to facilitate new deliverables about technology integration (Courduff, 2011), if embraced by the teachers and school administrators can be a venue to transform teaching with an array of technological applications (Cooper, 2014). Through my reflections as a researcher, scholar practitioner, project developer, and assuming a role in leadership and change has enabled me to understand and reflect on the deterrents that impacted technology integration at both research schools.

It is incumbent upon the educator to make a concerted effort to strengthen academic performance that will impact all aspects of a student's success. Professional answerability of the teacher will more than likely require a greater capacity to incorporate technology integrated assignments, projects, and use of the Internet for online learning. The improvement of educational technology integration in classroom instruction is dependent upon teacher confidence, competency, opportunities for ongoing professional learning, and cultural change in the way students are prepared for the technology permeated world.

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Appendix A: Project – Technology Integration to Support Learning

A Professional Development Community of Practice

Purpose: The purpose of the professional development community of practice is to provide a platform for teachers to collegially interact, engage, and experience how to support instruction with integrated technology.

Goals: This project has 4 goals: (a) teachers will collaboratively model and create innovative activities face-to-face from virtual environments to facilitate advanced learning; (b) teachers will design authentic learning experiences and assessments to get the most out of interdisciplinary content utilizing existing resources and technology tools; (c) teachers will develop customized activities to support diverse learning styles using online learning programs and digital tools for enriched learning; (d) teachers will develop technical acuity with hands-on experiential learning to operate digital tools and use technology devices fluently.

Learning Outcomes: At the conclusion of the 3-day professional development sessions, teachers in grades three through eight will be able to incorporate technology in their instructional plans for teaching and learning to increase technology use school wide. The expectation is that reciprocal teaching, turnaround training, reflective practices of successes and limitations will be shared through the online CoP continuously.

Project Deliverable: Professional Development Technology Integration CoP

Target Audience: 3-8 grade teachers and K-8 educators

Overview: The professional development CoP has four components that include: (a) a powerpoint presentation about technology integration to support learning, (b) whole group and small group discussions to facilitate collaboration, engagement, and technology use to create innovative lesson plans and strategies, (c) experiential learning and practice using the Smart Board, Promethean Board, and laptops for efficiency, (d) the presenter will demonstrate how to identify, locate, and set up accounts for access to online curriculum resources and instructional programs.

Fall Professional Development Schedule

Day 1

Morning Session

7:30-8:30AM

- Includes a power-point presentation defining technology integration and ways to incorporate into teaching methods and curriculum.

8:30-10:30AM

- Teacher participants will observe a step-by-step demonstration by the presenter on how to use the Smart Board and Promethean technology.
- Teachers will explore web addresses for instructional program sites and communities in practice on their individual laptops.

10:30AM- 10:45AM

Break

10:45-12:00Noon

- Teachers will set up personal Log In accounts and create a password for access to Lexia.com online instructional program.
- Teachers will set up personal Log In account and create a password for access to First In Math.com instructional program
- Teachers will set up personal Log In account and create a password for access to Edmodo.com online CoP.

12:00-12:45PM

Lunch

Afternoon Session

12:45-2:00PM

- Teachers will experiment with online instructional programs to support intentional practice using technology and Internet exploration.

Experiential Practice

2:00-3:00PM

- Teachers will organize newly acquired knowledge, programs and technology applications to be shared with professional development participants.
- Teachers will collaborate in teams to share newly acquired knowledge.

Open Ended Discussion/Presentations

3:00-4:30PM

- Teams will choose one (1) technology tool or application from Lexia.com, First In Math, Pinterest, or Edmodo to demonstrate the technology uses for teaching and learning.

4:30-4:45PM

- Teachers will complete a paper evaluation of PD session 1.

Day 2

Morning Session

7:30-8:30AM

- Teachers will be asked to Log In to Pinterest, Lexia, and Edmodo accounts
- Teachers will be asked to peruse Pinterest and Lexia instructional programs and identify strategies for teaching and learning of a content area of choice.

8:30-10:30AM

Experiential Practice

10:30-10:45AM

Break

10:45-12:00Noon

Experiential Practice

- Teachers will be asked to draft a whole class lesson or individual learning plan using one strategy from Pinterest.com and Lexia.com.

Lunch

12:00-12:45PM

Afternoon Session

12:45-2:00PM

- Teachers will be asked to Log In to Edmodo.com and create a community of practice designated for collaboration of the study participants.

Experiential Practice

2:00-3:00PM

- Teachers will be asked to post ideas and plans for instructional strategies and student activities on the Edmodo.com participant CoP
- Teachers will collaborate with CoP participants through Edmodo.com

Open Ended Discussion/Presentations

3:00-4:30PM

- One teacher per team will report out or present one (1) application learned through the Edmodo.com postings.

4:30-4:45PM

- Teachers will complete a paper evaluation of PD session 2.

Day 3

Morning Session

Experiential Practice

7:30-8:30AM

- The technology teacher leader will review features of the Smart Board, stylus, and how to use the digital companion, Activotes; each participant will interact with the Smart Board and Activotes device and demonstrate their ability to operate the technology for use in the classroom.

8:30-10:30AM

Experiential Practice

- Teachers will be asked to Log In to Pinterest.com, Lexia.com, and First In Math to finalized their whole lesson plan or individual learning plan.

10:30-10:45AM

Break

10:45-12:00Noon

Technology Based Teaching Strategy Presentations

- Each grade group team will be asked to present and facilitate a strategy or lesson for interactive learning from Pinterest.com, First In Math, and Lexia.com with other participants during the professional development session.

12:00-12:45PM

Lunch

Afternoon Session

12:45-3:00PM

Technology Based Teaching Strategy Presentations

- Continue grade group presentation of strategies or lessons for interactive learning with use of Pinterest.com, Lexia.com and First In Math
- Each grade group team will be asked to Log In to Edmodo.com CoP to reflect on presentations and share ideas for use in their individual classroom.

3:00-4:30PM

Open Ended Discussion and Reflection

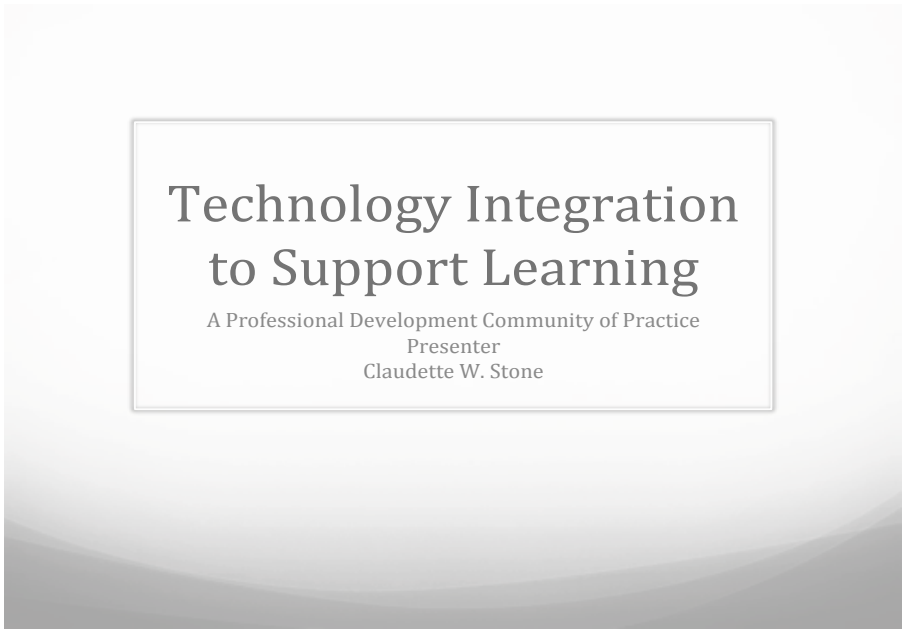
- Each grade group team will be asked to discuss in the Edmodo.com CoP ways to incorporate ideas school wide.
- Summation of the day's learning, schedule follow up and training for technology integration CoP monthly focus.

4:30-4:45PM

- Teachers will complete a paper evaluation of PD session 3

Fall Professional Development Powerpoint Slides

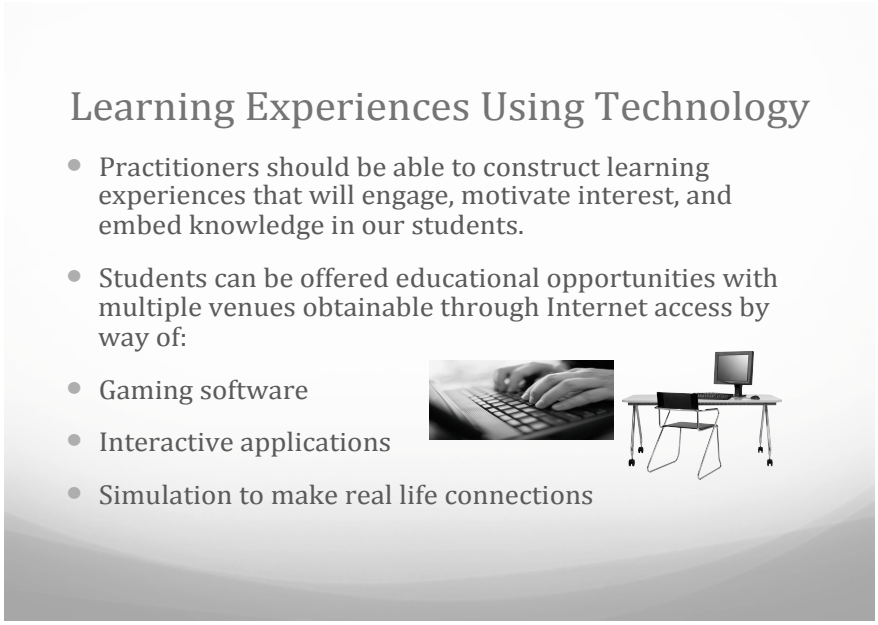
Slide 1



Slide 2

Presenter and participants will engage in a whole group 10-minute discussion regarding how technology is used in school management, daily routines, occupations, and instruction in their school.

Slide 3



Participants will create individual Venn Diagrams on their laptops then compare and contrast how technology is used school-wide and in their individual classrooms.

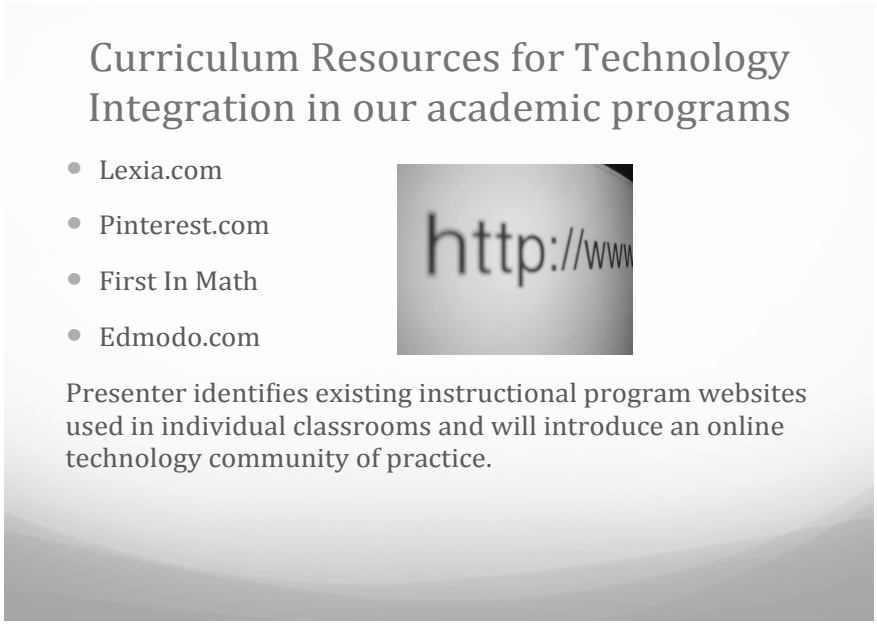
Slide 4

Presenter discusses how technology integration training may occur for each teacher or practitioner.

Slide 5

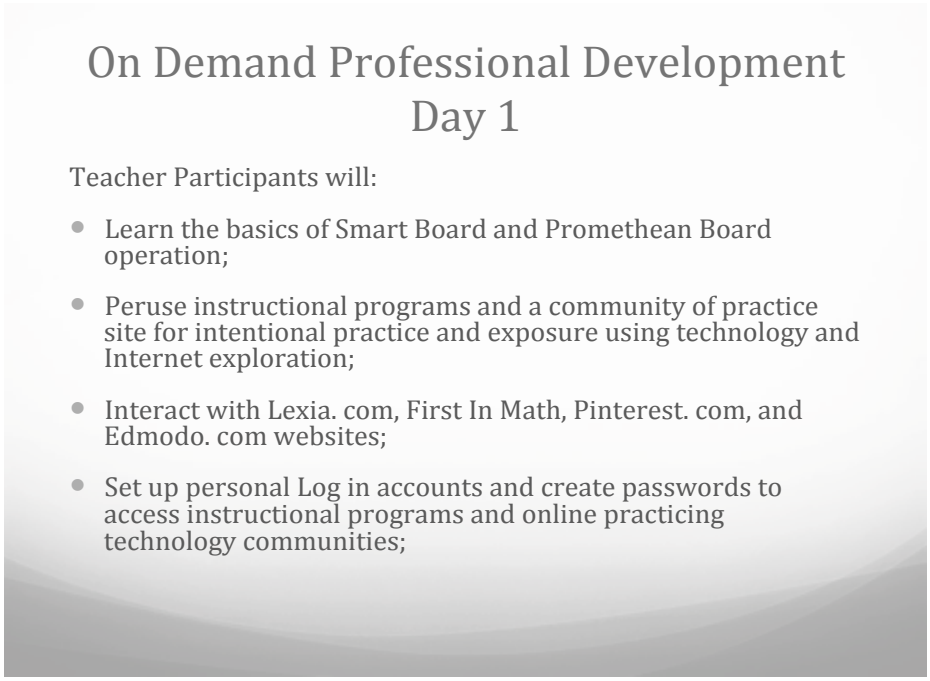
Presenter discusses with the participants types of hardware and software needed to create a progressive technology integration network.

Slide 6



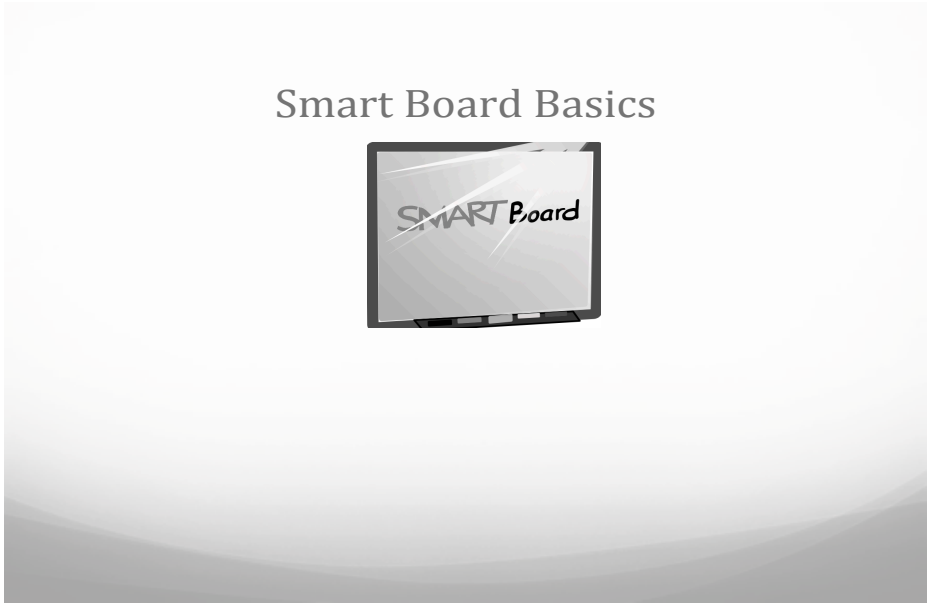
Presenter guides the participants in perusal of the websites.

Slide 7



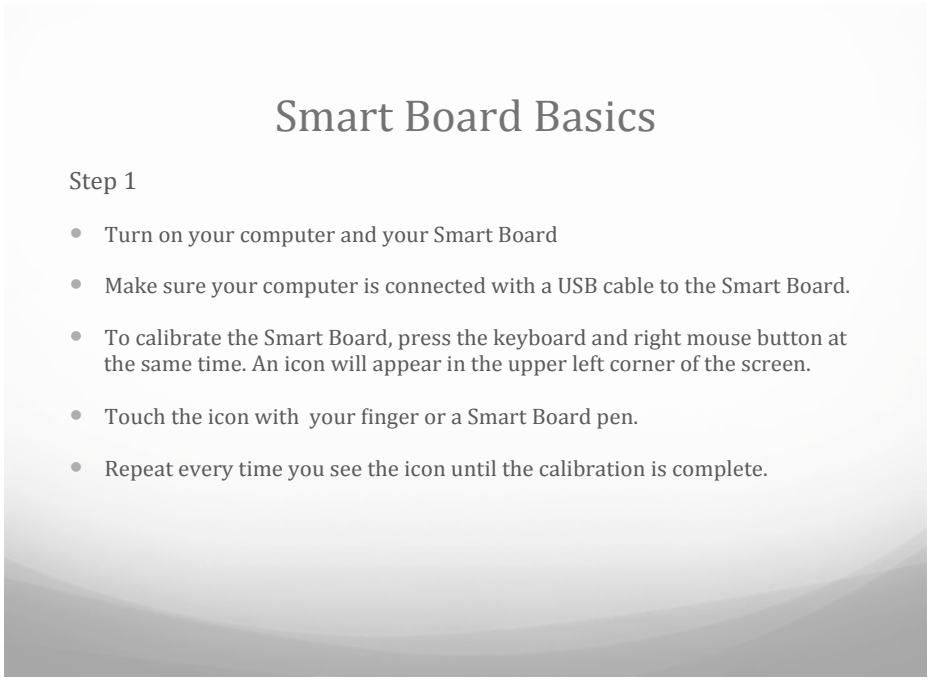
Presenter identifies the staff development learning outcomes for day 1.

Slide 8



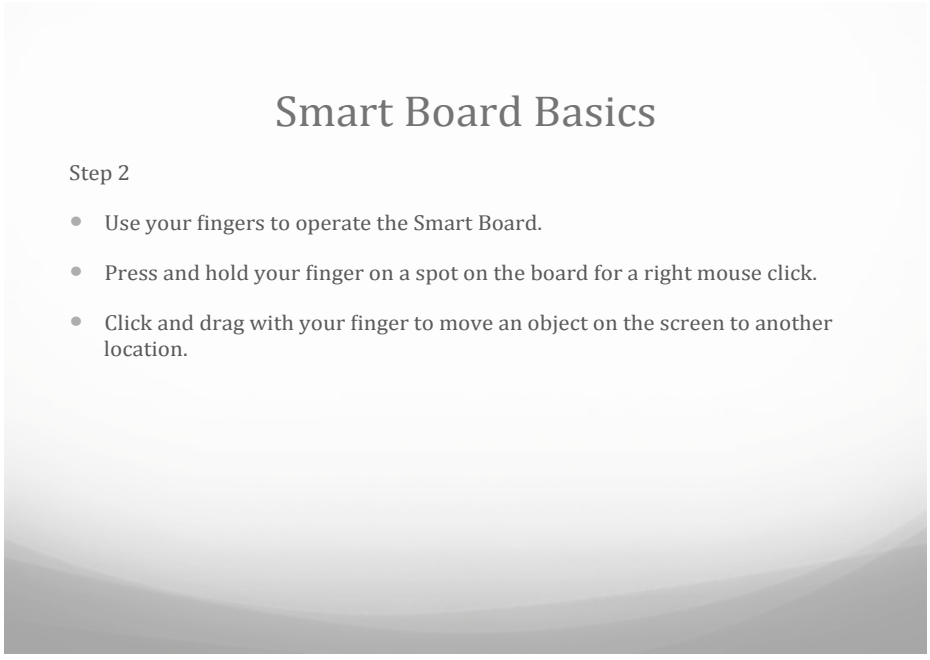
Presenter demonstrates how and guides the participants with login and perusal of each website using a classroom Smart Board.

Slide 9



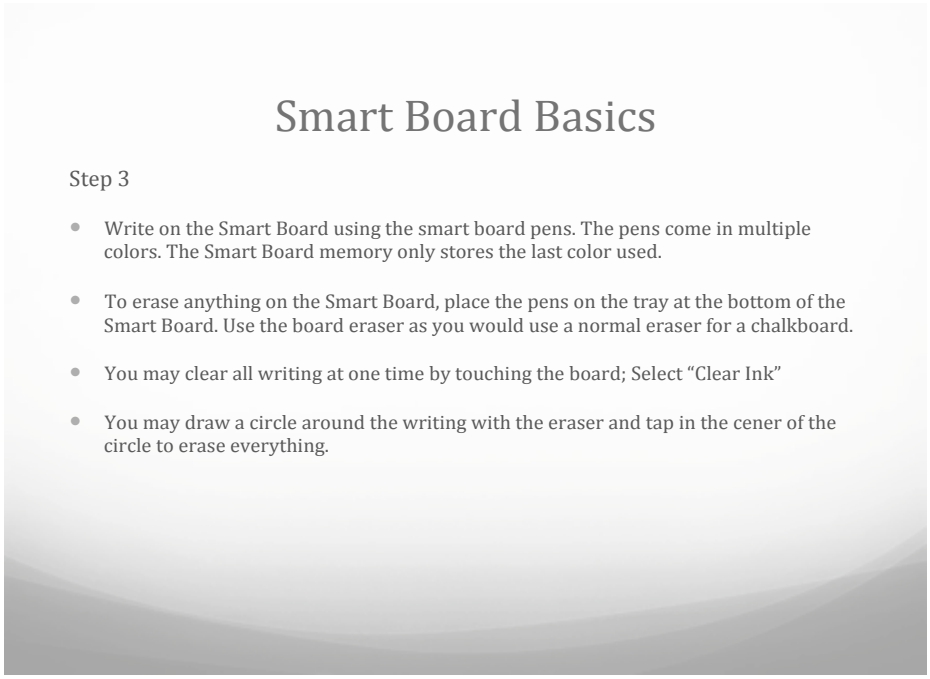
Presenter demonstrates step-by- step basic use of the Smart Board.

Slide 10



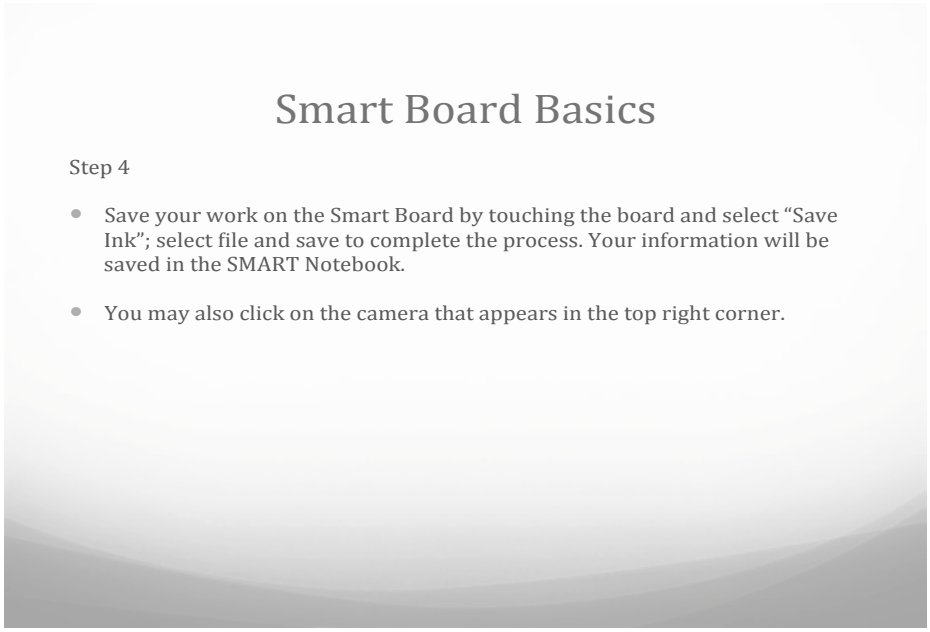
Presenter demonstrates step-by- step basic use of the Smart Board.

Slide 11



Presenter demonstrates step-by- step basic use of the Smart Board.

Slide 12

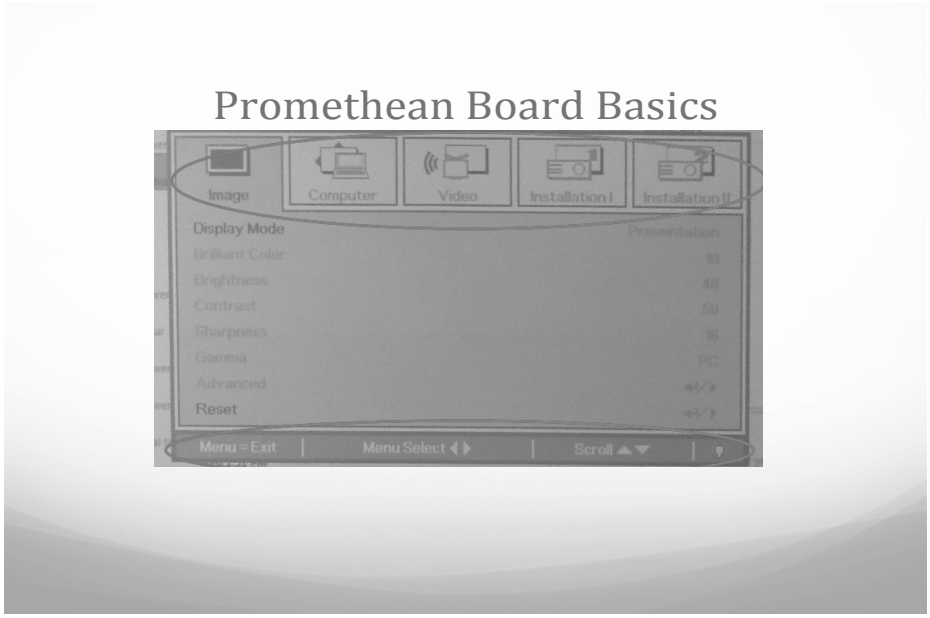


Presenter demonstrates step-by- step basic use of the Smart Board. Participants will follow prompts to interact with the Smart Board for experiential practice by teams.

Slide 13

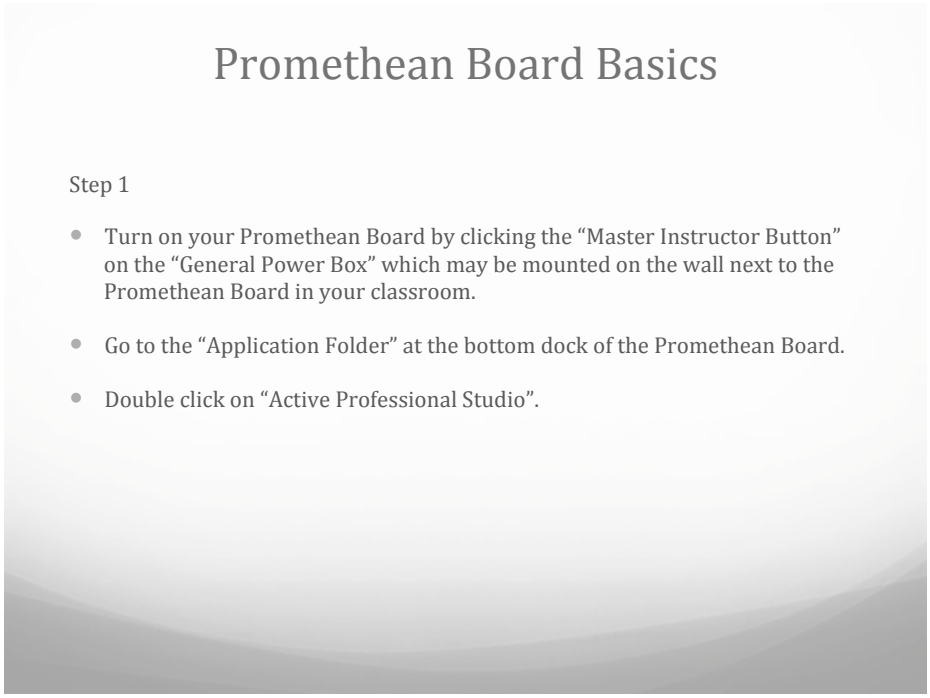
Presenter demonstrates step-by- step basic use of the Smart Board. Participants will follow prompts to interact with the Smart Board for experiential practice by teams.

Slide 14



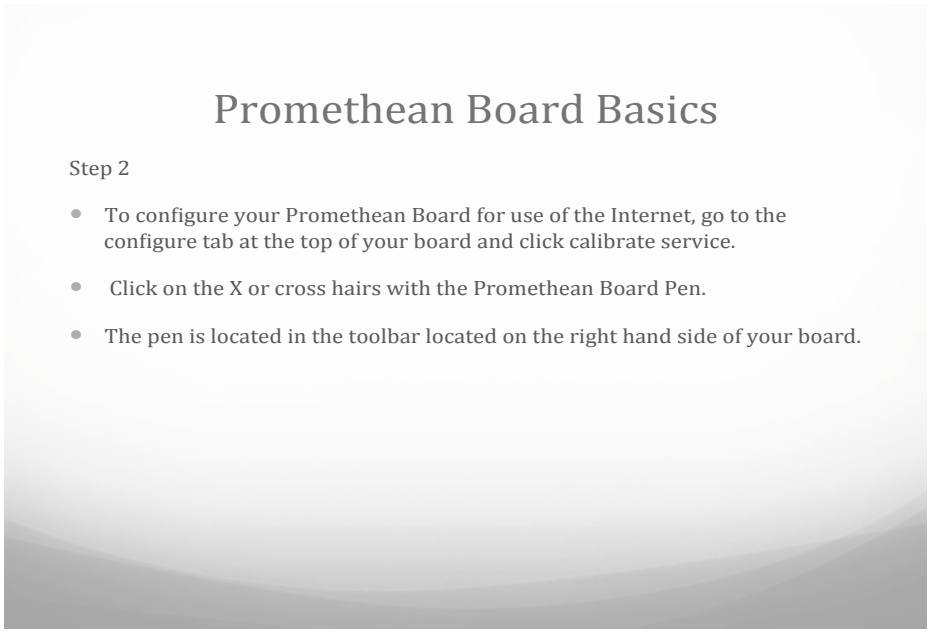
Presenter demonstrates step-by-step basic use of the Promethean Board.

Slide 15



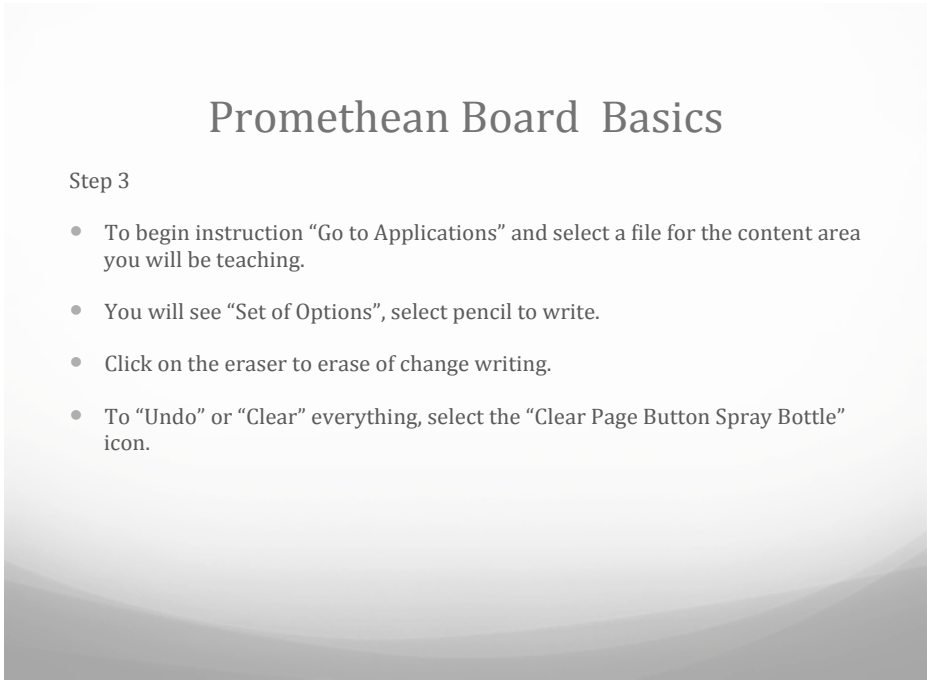
Presenter demonstrates step-by-step basic use of the Promethean Board.

Slide 16



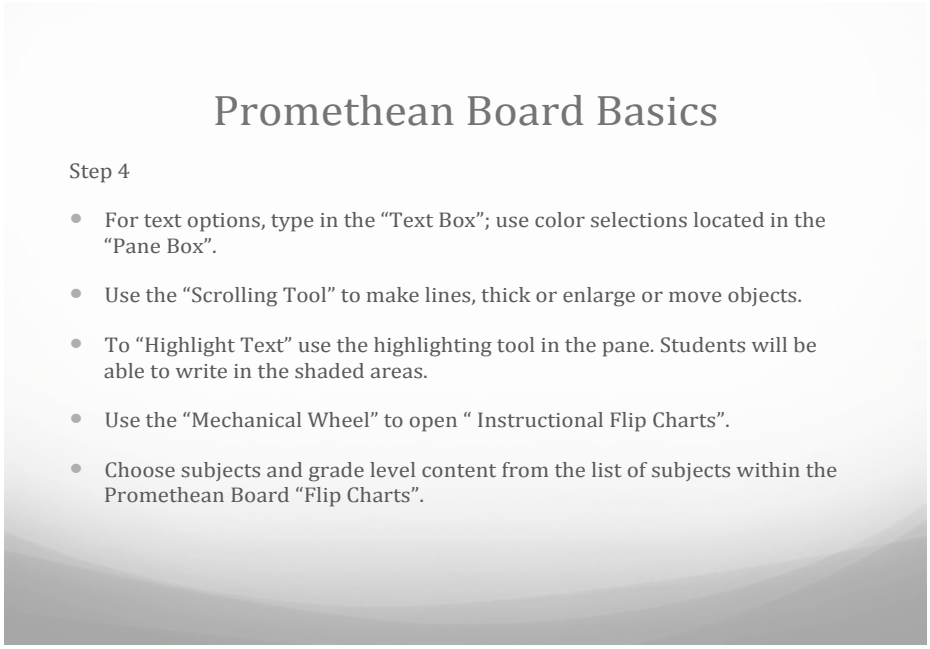
Presenter demonstrates step-by-step basic use of the Promethean Board.

Slide 17



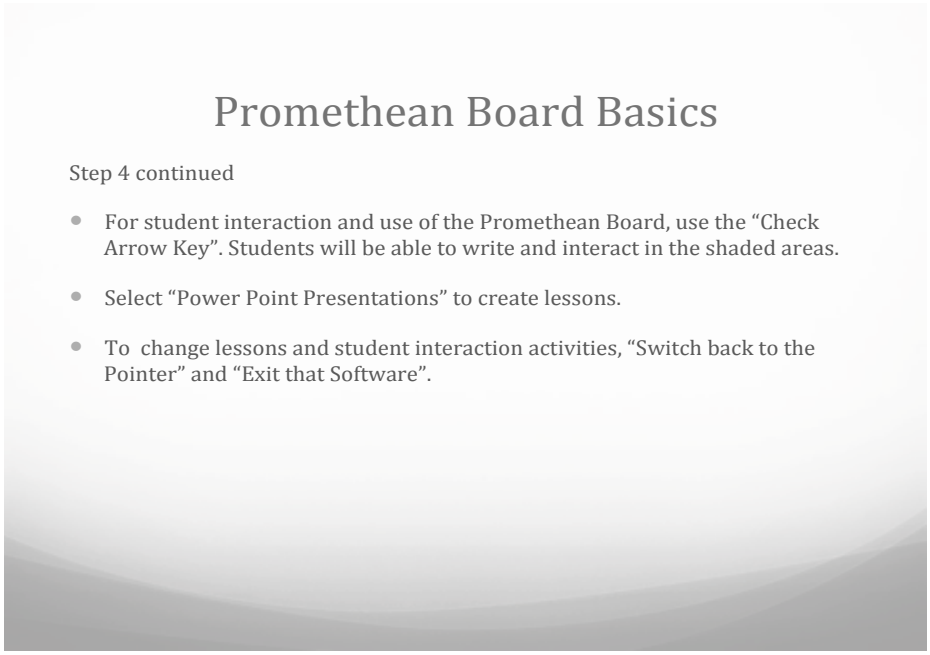
Presenter demonstrates step-by-step basic use of the Promethean Board.

Slide 18



Presenter demonstrates step-by-step basic use of the Promethean Board.

Slide 19



Presenter demonstrates step-by-step basic use of the Promethean Board.

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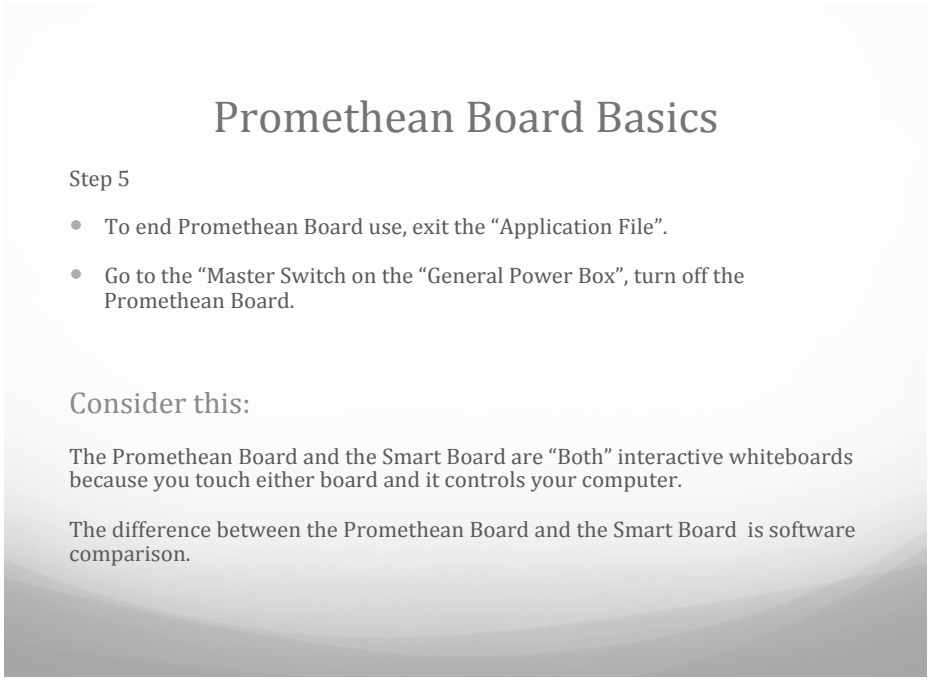
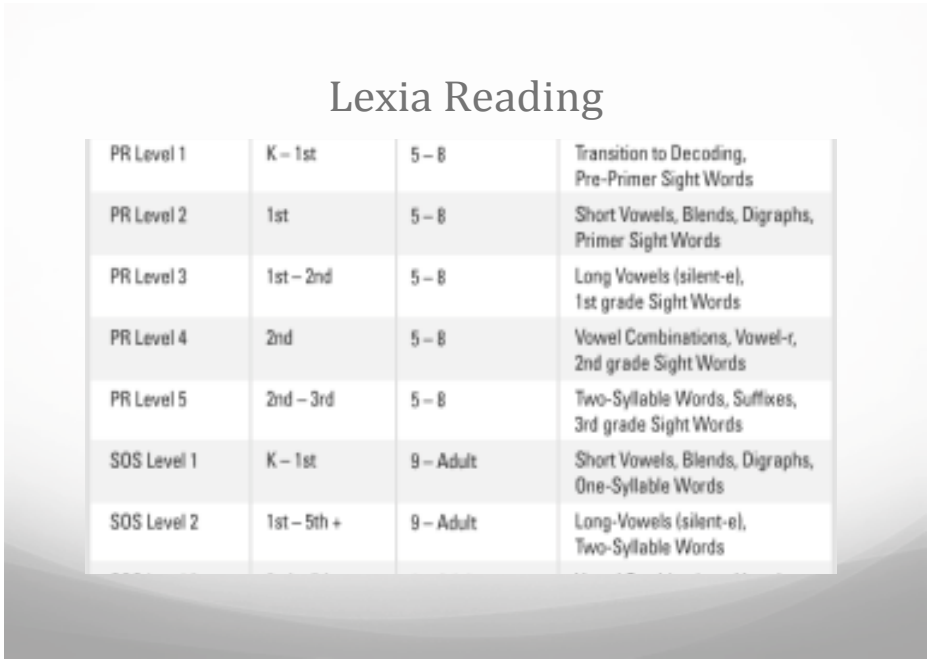


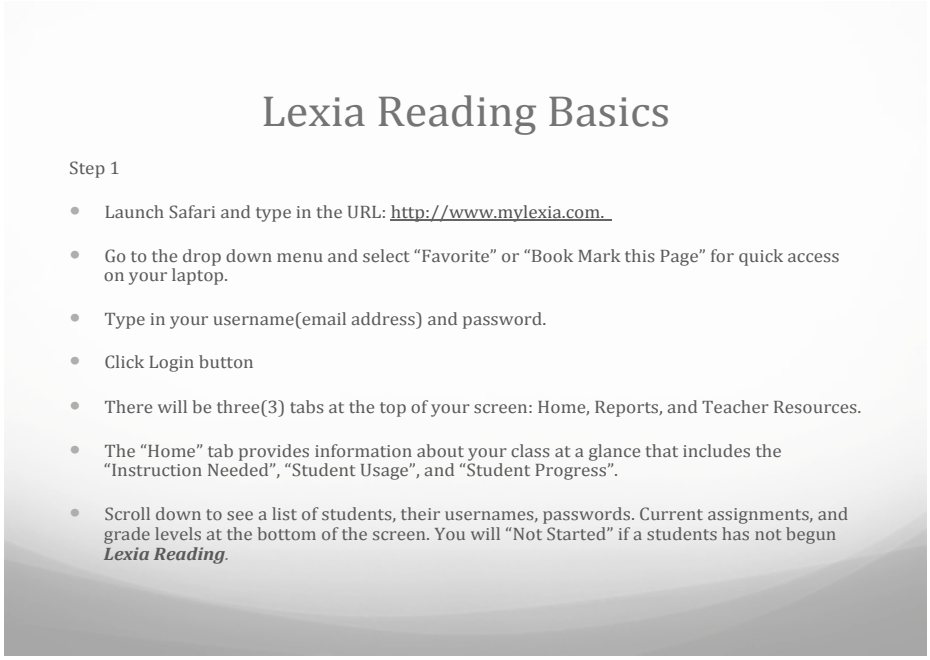
Presenter demonstrates step-by-step basic use of the Promethean Board.

Slide 21



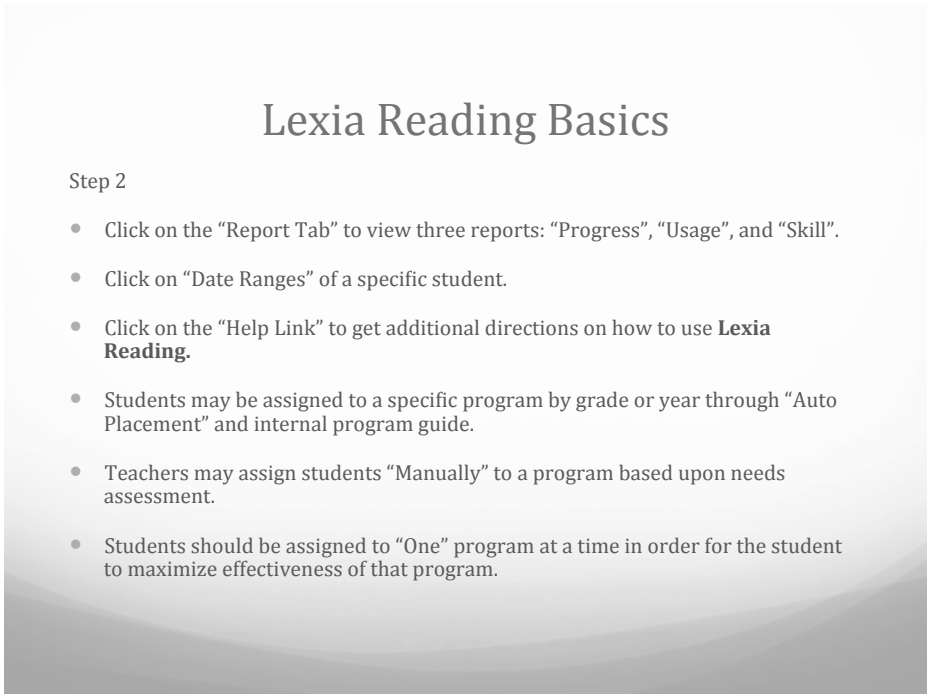
Presenter gives an overview of the reading program.

Slide 22



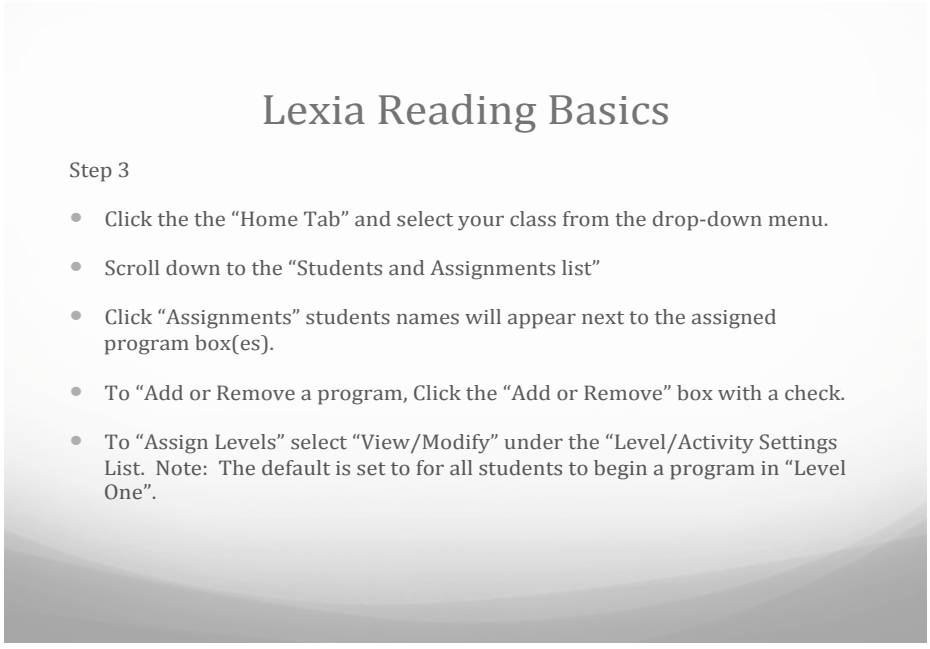
Presenter demonstrates step-by-step access to and program set-up to use Lexia Reading.

Slide 23



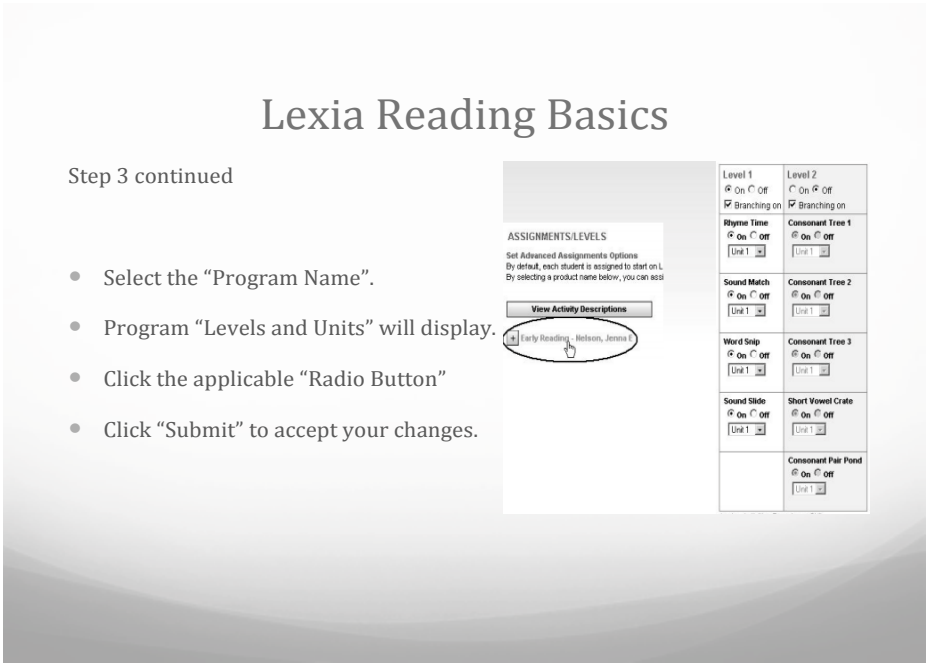
Presenter demonstrates step-by-step basic use of Lexia Reading.

Slide 24



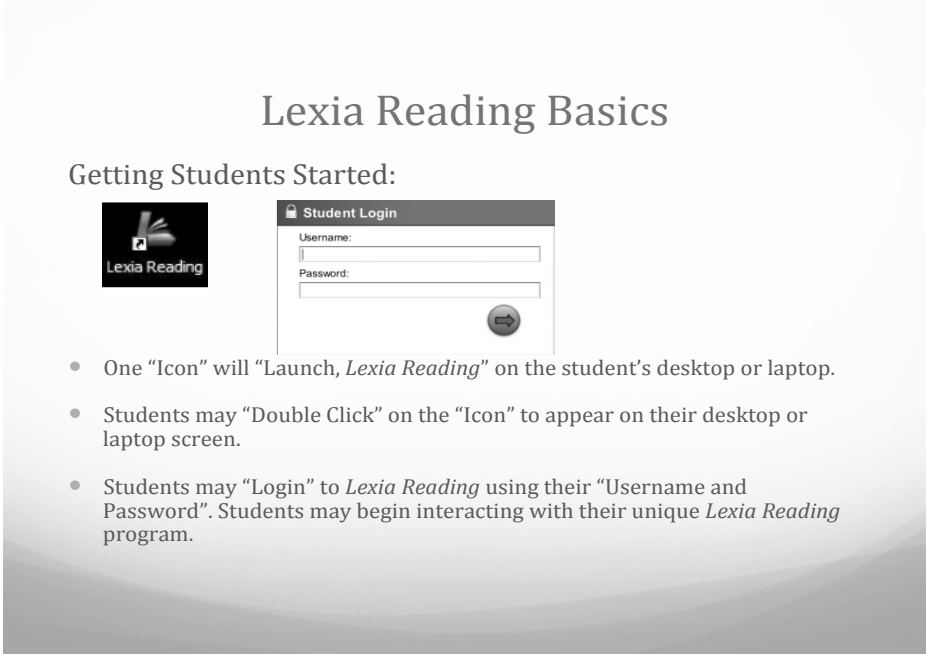
Presenter demonstrates step-by-step basic use of Lexia Reading.

Slide 25



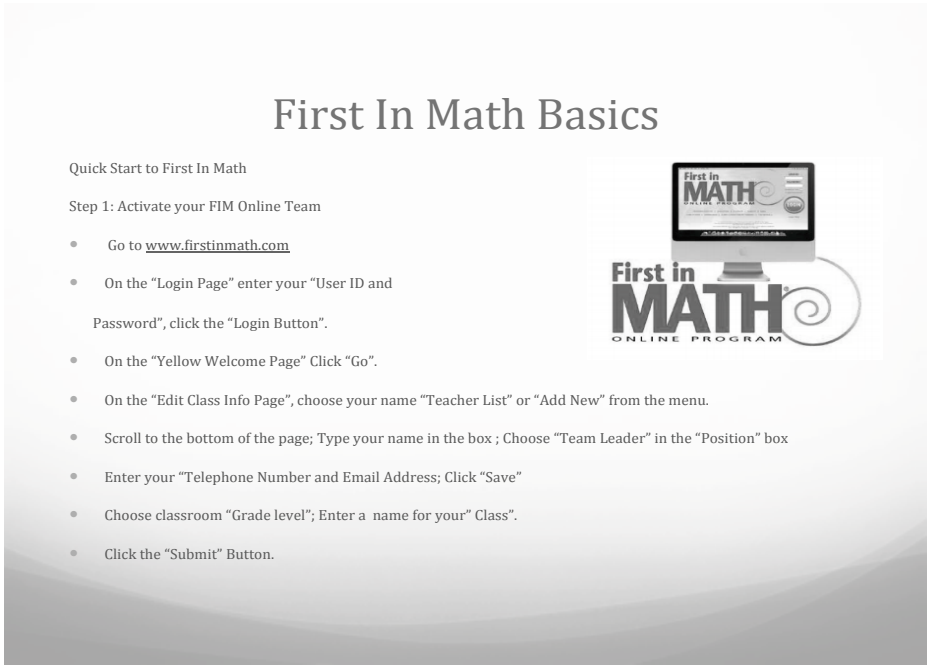
Presenter demonstrates step-by-step basic use of Lexia Reading.

Slide 26



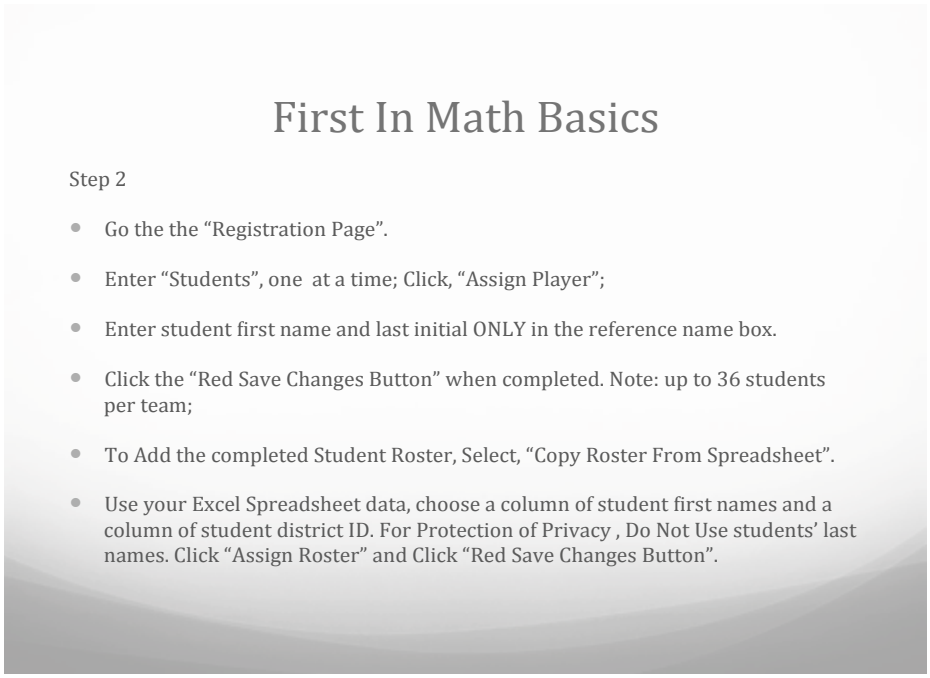
Presenter demonstrates step-by-step program set up for student use of Lexia Reading.

Slide 27



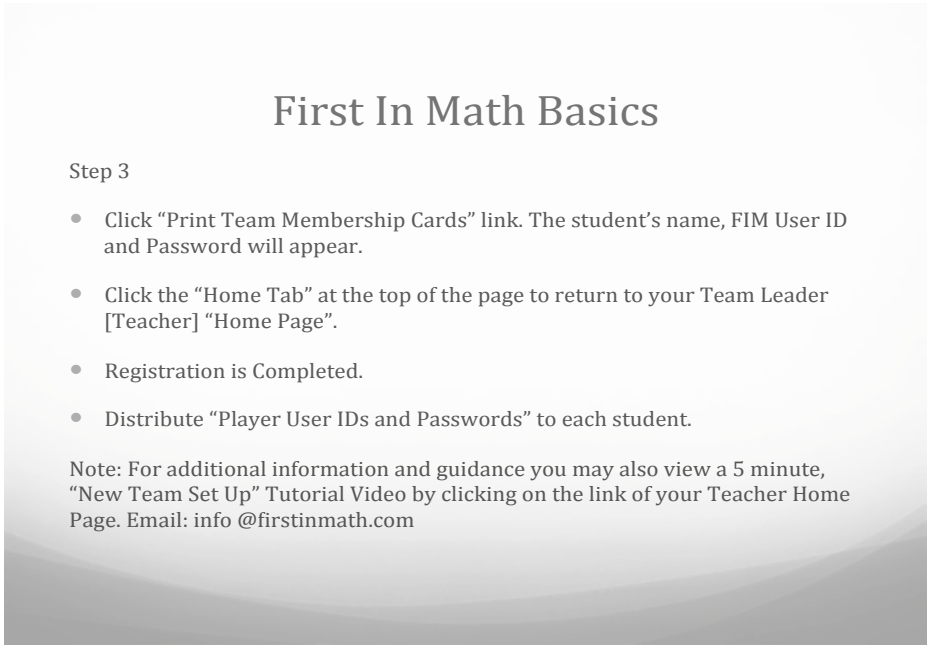
Presenter demonstrates step-by-step program set up to use First In Math (FIM).

Slide 28



Presenter demonstrates step-by-step program set up to use First In Math (FIM).

Slide 29



Presenter demonstrates step-by-step program set up to create teams and user identification to access First In Math (FIM).

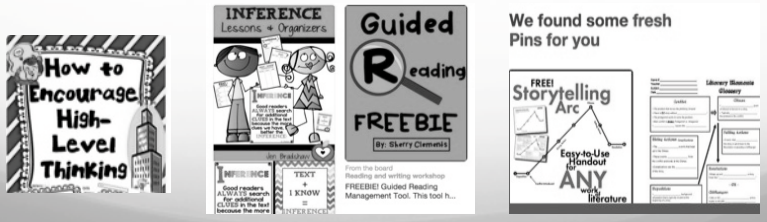
Slide 30

Presenter introduces Pinterest.

Slide 31

Pinterest Basics

Pinterest is a pictorial/graphic bookmarking tool that encourages the viewer to discover and save innovative ideas. Pinterest is also used as a social network to visually promote and share with viewers new interests on common themes that others have "pinned".
http://help.pinterest.com/en/guide/all-about-pinterest



Presenter describes the purpose and benefits of Pinterest.

Slide 32

Pinterest Basics

Creating a Pinterest Account:

Step 1:

- Go to www.pinterest.com
- Create an "Account with your Email Address or Facebook".
- Create a Username and "Strong Password with a combination of 8 letters, numbers, and characters.
- You may enter your "First and Last Name" or a "Pseudonym".
- Click "Create Account".
- Read and Agree to the "Privacy Disclosure".

Presenter demonstrates step-by-step how to create a Pinterest account.

Slide 33

Pinterest Basics

Step 1: continued

- Receive “Confirmation” and “Confirm Account Login”.
- Your are ready to create your first board.
- Check a “Category of Interest” [e.g. ESL Literacy)
- Create a “ Name for your Interest”.
- Select 5 boards that inspire you; Pin those boards to your category of interest.
- Your “Page is Populated” .

Presenter demonstrates step-by-step use of Pinterest

Slide 34

Pinterest Basics

Step 2:

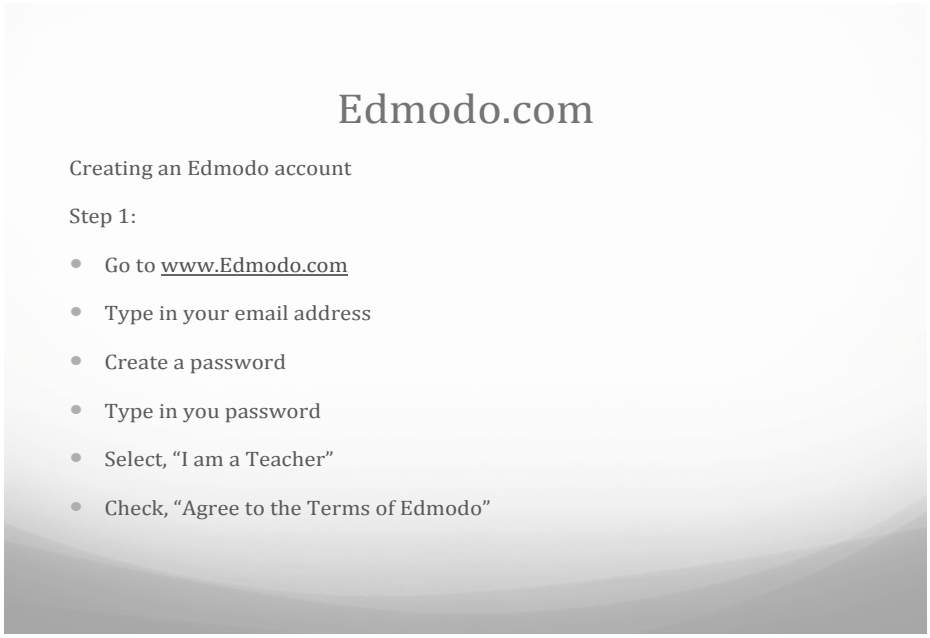
- Click on the “Red Board” that you like[*Pin it*].
- Select 5 Boards, then Click “Next” for “Your Home Page”
- Your “Inspiration Pins” will be housed on “Your Home Page”.
- Your are able to house, create, share, and follow “Inspirational Pins” of others from your “Home Page”.

Presenter demonstrates step-by-step use of Pinterest.

Slide 35

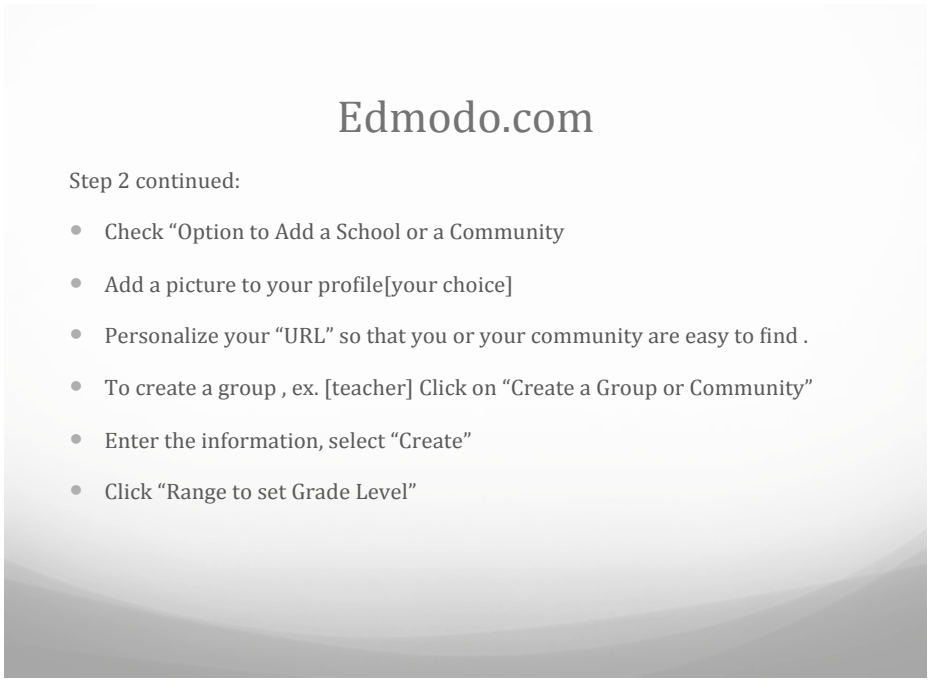
Presenter introduces Edmodo and describes the benefits of the online community

Slide 36



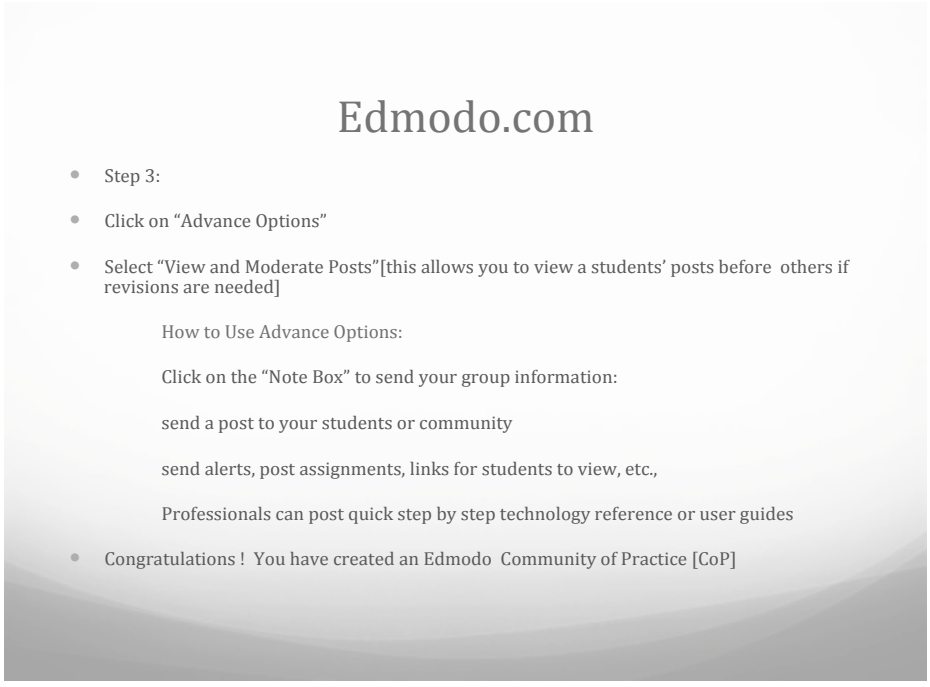
Presenter demonstrates step-by-step how to set up an Edmodo account.

Slide 37



Presenter demonstrates step-by-step how to set up Edmodo account

Slide 38



Professional Development Exit Questionnaire

Name_____(optional)Position Title/Role: _____

School_____Date: _____

Topic (s): _____ Day and Time:_____

Please tell me the extent of your agreement or disagreement with the items below:

The professional development:

1. Was of high quality and timely _____ Agree _____ Disagree
2. Was formatted and structured to meet my needs _____ Agree_____ Disagree
3. Helped me gain new information and skills _____Agree _____ Disagree
4. Provided important resources for my teaching strategies _____ Agree _____ Disagree
5. Will assist with informed decision-making about technology use _____Agree _____Disagree
6. Helped me achieve desired goals _____ Agree _____ Disagree

Please answer the following:

How will you use what you have learned?

What was the most useful part of this professional development? Please explain

What was the least useful part of this professional development? Please explain

What additional training support do you need? Please explain

Appendix B: NIH Certification

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Claudette Stone** successfully completed the NIH Web-based training course "Protecting Human Research Participants."
Date of completion: 11/05/2013
Certification Number: 1320406

Appendix C: Interview Protocol

Classroom Technology Integration: A community of practice to support learning

Time of Interview:
Date:
Place:
Interviewer:
Interviewee:
Position of Interviewee:

[The researcher will describe the project, tell the interviewee about (a) the purpose of the study, (b) the individual sources of data to be collected and analyzed, (c) what will be done with the data to protect confidentiality of the interviewee, and (d) how long the interview will take].
[The interviewee will read and sign the consent form]

Questions:

1. What is your understanding of technology integration and how is it incorporated in your classroom setting?

2. To what extent does professional development improve teacher efficacy with technology integration? Please explain

3. How do your professional learning community team members view technology integration and its impact on content instruction?

4. What are some major issues the school has encountered over the past five years integrating technology in classroom learning?

5. What types of technology equipment and devices are accessible for use in classroom instruction?

6. Do your students integrate technology in daily assignments and overall activities? Please explain

7. What are your thoughts about transforming a traditional classroom into a digital environment for progressive use of technology to advance learning?

Interview Protocol adapted from: Creswell, 2012, p. 226.

Appendix D: Teacher Effectiveness Observation Tool

(Optional)	_____ Formative _____ Summative
This column completed with teacher through rubric comparison	**LESSON PLAN: EVIDENCE OF DOMAINS 1** **(To be completed by the teacher in advance of announced observation and sent to evaluator 2 days in advance)**
	DOMAIN 1
o F o NI o P o D	1a. Demonstrating Knowledge of Content and Pedagogy: What is the content to be taught? What prerequisite learning is required?
o F o NI o P o D	1b. Demonstrating Knowledge of Students: Characterize the class. How will you modify this lesson for groups or individual students?
o F o NI o P o D	1c. Selecting Instructional Outcomes: What do you want students to learn during this lesson?
o F o NI o P o D	1d. Demonstrating Knowledge of Resources: What resources were considered for this lesson and rejected? Why? What resources will be used? Why?
o F o NI o P o D	1e.Designing Coherent Instruction: List very briefly the steps of the lesson
o F o NI o P o D	1f: Designing Student Assessments: How will you measure the goals articulated in 1c? What does success look like?

Note. Adapted From "Lesson Plans: Evidence of Domain 1 and 4" by P. Bevan, 2013, Tools for Teacher Evaluation, pp. 1-2. Retrieved from http://carmarealibrary.wikispaces.com/file/view/Observation +Tools.pdf

(Optional) This column completed with teacher through rubric comparison	**OBSERVATION: EVIDENCE FOR DOMAINS 2, 3** **_____Announced ____Unannounced** **_____ Formative ___ Summative**		(Optional) This column completed with teacher through rubric comparison
o F o NI o P o D	**2a. Creating a Climate of Respect and Rapport** *Teacher Interaction with Students* *Student Interactions with One Another*	**3a. Communicating with Students** *Expectations for Learning* *Directions and Procedures* *Explanations of Content* *Use of Oral and Written Language*	o F o NI o P o D
o F o NI o P o D	**2b. Creating a Culture for Learning** *Importance of the Content* *Expectations for Learning and Achievement* *Student Pride in Work*	**3b. Using Questioning and Discussion Techniques** *Quality of Questions* *Discussion Techniques* *Student Participation*	o F o NI o P o D
o F o NI o P o D	**2c. Managing Classroom Procedures** *Management of Instructional Groups* *Management of Transitions* *Management of Materials And Supplies* *Performance of Non-Instructional Duties* *Supervision of Volunteers And Paraprofessionals*	**3c. Engaging Students in Learning** *Activities and Assignments* *Grouping of Students* *Instructional Materials and Resources* *Structure and Pacing*	o F o NI o P o D
o F o NI o P o D	**2d. Managing Student Behavior** *Expectations* *Monitoring of Student Behavior* *Response to Student Misbehavior*	**3d. Assessing Student Learning** *Assessment Criteria* *Monitoring of Student Learning* *Feedback to Students* *Student Self-Assessment and Monitoring of Progress*	o F o NI o P o D
o F o NI o P o D	**2e. Organizing the Physical Space** *Safety and Accessibility* *Arrangement of Furniture and Use of Physical Resources. ‘*	**3e. Demonstrating Flexibility and Responsiveness** *Lesson adjustment* *LeR Response to Students* *Persistence*	o F o NI o P o D

Note. Adapted From “Observation: Evidence for Domains 2, 3” by P. Bevan, 2013, *Tools for Teacher Evaluation*, p. 3. Retrieved from http://specialed.iu1.wikispaces.net/file/view/day3handouts.pdf

Observation Summary

Teacher: _____ Observer: _____ Date: _____

Component Strengths of the Teacher's Practice. (List no more than two components.)

Component Areas for Growth in the Teacher's Practice. (List no more than two components.)

Next Steps:

We have conducted a conversation and rubric assessment on the above items.

Teacher's signature: _____ Date: _____

Administrator's signature: _____ Date:_____

Note. Adapted From "Observation Summary" by P. Bevan, 2013, *Tools for Teacher Evaluation*, p. 4. Retrieved from http://specialed.iu1.wikispaces.net/file/view /day3handouts.pdf

Domain I Rubric

FRAMEWORK RUBRICS Teacher Self-assessment___ Evaluator Assessment____ Teacher:_____ Observer:_____ Date:_____					
Domain 1: Planning and Preparation					
COMPONENT	**FAILING**	**NEEDS IMPROVEMENT**	**PROFICIENT**	**DISTINGUISHED**	**N/A**
1a: Demonstrating knowledge of content and pedagogy	Teacher's plans and practice display little knowledge of the content, pre- requisite relation- ships between different aspects of the content, or of the instructional practices specific to that discipline.	Teacher's plans and practice reflect some awareness of the important concepts in the discipline, prerequisite relations between them and of the instructional practices specific to that discipline.	Teacher's plans and practice reflect solid knowledge of the content, pre-requisite relations between important concepts and of the instructional practices specific to that discipline.	Teacher's plans and practice reflect extensive knowledge of the content and of the structure of the discipline. Teacher actively builds on know ledge of prerequisites and misconceptions when describing instruction or seeking causes for student misunderstanding.	
1b: Demonstrating knowledge of students	Teacher demonstrates little or no knowledge of students' back-grounds, cultures, skills, language proficiency, interests, and special needs, and does not seek such understanding.	Teacher indicates the importance of understanding students' back-grounds, cultures, skills, language proficiency, interests, and special needs, and attains this knowledge for the class as a whole.	Teacher actively seeks knowledge of students' back-grounds, cultures, skills, language proficiency, interests, and special needs, and attains this knowledge for groups of students.	Teacher actively seeks knowledge of students' backgrounds, cultures, skills, language proficiency, interests, and special needs from a variety of sources, and attains this knowledge for individual students.	
1c: Setting instructional outcomes	Instructional outcomes are unsuitable for students, represent trivial or low-level learning, or are stated only as activities. They do not permit viable methods of assessment.	Instructional outcomes are of moderate rigor and are suitable for some students, but consist of a combination of activities and goals, some of which permit viable methods of assessment. They reflect more than one type of learning, but teacher makes no attempt at coordination or integration.	Instructional outcomes are stated as goals reflecting high- level learning and curriculum standards. They are suitable for most students in the class, represent different types of learning, and are capable of assessment. The outcomes reflect opportunities for coordination.	Instructional outcomes are stated as goals that can be assessed, reflecting rigorous learning and curriculum standards. They represent different types of content, offer opportunities for both coordination and integration, and take account of the needs of individual students.	

1d: Demonstrating knowledge of resources	Teacher demonstrates little or no familiarity with resources to enhance own knowledge, to use in teaching, or for students who need them. Teacher does not seek such knowledge	Teacher demonstrates some familiarity with resources available through the school or district to enhance own knowledge, to use in teaching, or for students who need them. Teacher does not seek to extend such knowledge	Teacher is fully aware of the resources available through the school or district to enhance own knowledge, to use in teaching, or for students who need them.	Teacher seeks out resources in and beyond the school or district in professional organizations, on the Internet, and in the community to enhance own knowledge, to use in teaching, and for students who need them.	
1e: Designing coherent instruction	The series of learning experiences are poorly aligned with the instructional outcomes and do not represent a coherent structure. They are suitable for only some students.	The series of learning experiences demonstrates partial alignment with instructional outcomes, some of which are likely to engage students in significant learning. The lesson or unit has a recognizable structure and reflects partial knowledge of students and resources.	Teacher coordinates knowledge of content, of students, and of resources, to design a series of learning experiences aligned to instructional outcomes and suitable to groups of students. The lesson or unit has a clear structure and is likely to engage students in significant learning.	Teacher coordinates knowledge of content, of students, and of resources, to design a series of learning experiences aligned to instructional outcomes, differentiated where appropriate to make them suitable to all students and likely to engage them in significant learning. The lesson or unit's structure is clear and allows for different pathways according to student needs.	
1f: Designing student assessment	Teacher's plan for assessing student learning contains no clear criteria or standards, is poorly aligned with the instructional outcomes, or is inappropriate to many students. Assessment results not used in planning.	Teacher's plan for student assessment is partially aligned with the instructional outcomes, without clear criteria, and inappropriate for at least some students. Teacher intends to use assessment results to plan for future instruction for the class as a whole.	Teacher's plan for student assessment is aligned with the instructional outcomes, using clear criteria, is appropriate to the needs of students. Teacher intends to use assessment results to plan for future instruction for groups of students.	Teacher's plan for student assessment is fully aligned with the instructional outcomes, with clear criteria and standards that show evidence of student contribution to their development. Assessment methodologies may have been adapted for individuals, and the teacher intends to use assessment results to plan future instruction for individual students.	

Note. From "Framework Rubrics" by P. Bevan, 2013, *Teacher Observation Tools, Phase III*, pp. 1-2. Retrieved from The Pennsylvania State Education Association website: https://www.psea.org /uploadedFiles/TeachingandLearning/Teacher_Evaluation/PDETeacherEvaluationPhaseIIIRubric - Fall2012.pdf

Domain II Rubric

FRAMEWORK RUBRICS Teacher Self-assessment___ Evaluator Assessment____ Teacher:_____ Observer:_____ Date:_____					
Domain 2: The Classroom Environment					
COMPONENT	**FAILING**	**NEEDS IMPROVEMENT**	**PROFICIENT**	**DISTINGUISHED**	**N/A**
2a: Creating an environment of respect and rapport	Classroom interactions, both between the teacher and students and among students, are negative, inappropriate, or insensitive to students' cultural back-grounds, and characterized by sarcasm, put-downs, or conflict.	Classroom interactions, both between the teacher and students and among students, are generally appropriate and free from conflict but may be characterized by occasional displays of insensitivity or lack of responsiveness to cultural or developmental differences among students.	Classroom interactions, between teacher and students and among students are polite and respectful, reflecting general warmth and caring, and are appropriate to the cultural and developmental differences among groups of students.	Classroom interactions among the teacher and individual students are highly respectful, reflecting genuine warmth and caring and sensitivity to students' cultures and levels of development. Students themselves ensure high levels of civility among members of the class.	
2b: Establishing a culture for learning	The classroom environment conveys a negative culture for learning, characterized by low teacher commitment to the subject, low expectations for student achieve-ment, and little or no student pride in work.	Teacher's attempt to create a culture for learning are partially successful, with little teacher commitment to the subject, modest expectations for student achievement, and little student pride in work. Both teacher and students appear to be only "going through the motions."	The classroom culture is characterized by high expectations for most students, genuine commitment to the subject by both teacher and students, with students demonstrating pride in their work.	High levels of student energy and teacher passion for the subject create a culture for learning in which everyone shares a belied in the importance of the subject, and all students hold themselves to high standards of performance, for example by initiating improvements to their work.	
2c: Managing classroom procedures	Much instructional time is lost due to inefficient classroom routines and procedures, for transitions, handling of supplies, and performance of non-instructional duties.	Some instructional time is lost due to only partially effective classroom routines and procedures, for transitions, handling of supplies, and performance of non-instructional duties.	Little instructional time is lost due to classroom routines and procedures, for transitions, handling of supplies, and performance of non-instructional duties, which occur smoothly.	Students contribute to the seamless operation of classroom routines and procedures, for transitions, handling of supplies, and performance of non-instructional duties.	

2d: Managing student behavior	There is no evidence that standards of conduct have been established, and little or no teacher monitoring of student behavior. Response to student misbehavior is repressive, or disrespectful of student dignity.	It appears that the teacher has made an effort to establish standards of conduct for students. Teacher tries, with uneven results, to monitor student behavior and respond to student misbehavior.	Standards of conduct appear to be clear to students, and the teacher monitors student behavior against those standards. Teacher response to student mis-behavior is appropriate and respects the students' dignity.	Standards of conduct are clear, with evidence of student participation in setting them. Teacher's monitoring of student behavior is subtle and preventive, and teacher's response to student misbehavior is sensitive to individual student needs. Students take an active role in monitoring the standards of behavior.	
2e: Organizing physical space	The physical environment is unsafe, or some students don't have access to learning. There is poor alignment between the physical arrange-ment and the lesson activities.	The classroom is safe, and essential learning is accessible to most students, and the teacher's use of physical resources, including computer technology, is moderately effective. Teacher may attempt to modify the physical arrangement to suit learning activities, with partial success.	The classroom is safe, and learning is accessible to all students; teacher ensures that the physical arrangement is appropriate to the learning activities. Teacher makes effective use of physical resources, Including computer technology.	The classroom is safe, and the physical environment ensures the learning of all students, including those with special needs. Students contribute to the use or adaptation of the physical environment to advance learning. Technology is used skillfully, as appropriate to the lesson.	

Note. From "Framework Rubrics" by P. Bevan, 2013, *Teacher Observation Tools, Phase III*, p. 3. Retrieved from The Pennsylvania State Education Association website: https://www.psea.org/uploadedFiles /TeachingandLearning/Teacher_Evaluation/PDETeacherEvaluationPhaseIIIRubric -Fall2012.pdf

Domain III Rubric

FRAMEWORK RUBRICS **Teacher Self-assessment___ Evaluator Assessment____** **Teacher:_____ Observer:_____ Date:_____**					
Domain 3: Instruction					
COMPONENT	**FAILING**	**NEEDS IMPROVEMENT**	**PROFICIENT**	**DISTINGUISHED**	**N/A**
3a: Communicating with students	Expectations for learning, directions and procedures, and explanations of content are unclear or confusing to students. Teacher's use of language contains errors or is inappropriate to students' cultures or levels of development.	Expectations for learning, directions and procedures, and explanations of content are clarified after initial confusion; teacher's use of language is correct but may not be completely appropriate to students' cultures or levels of development.	Expectations for learning, directions and procedures, and explanations of content are clear to students. Communications are appropriate to students' cultures and levels of development.	Expectations for learning, directions and procedures, and explanations of content are clear to students. Teacher's oral and written communication is clear and expressive, appropriate to students' cultures and levels of development, and anticipates possible student misconceptions.	
3b: Using questioning and discussion techniques	Teacher's questions are low-level or inappropriate, eliciting limited student participation, and recitation rather than discussion.	Some of the teacher's questions elicit a thoughtful response, but most are low-level, posed in rapid succession. Teacher' attempts to engage all students in the discussion are only partially successful.	Most of the teacher's questions elicit a thoughtful response, and the teacher allows sufficient time for students to answer. All students participate in the discussion, with the teacher stepping aside when appropriate.	Questions reflect high expectations and are culturally and developmentally appropriate. Students formulate many of the high-level questions and ensure that all voices are heard.	

3c: Engaging students in learning	Activities and assignments, materials, and groupings of students are inappropriate to the instructional outcomes, or students' cultures or levels of understanding, resulting in little intellectual engagement. The lesson has no structure or is poorly paced.	Activities and assignments, materials, and groupings of students are partially appropriate to the instructional outcomes, or students' cultures or levels of understanding, resulting in moderate intellectual engagement. The lesson has a recognizable structure but is not fully maintained.	Activities and assignments, materials, and groupings of students are fully appropriate to the instructional outcomes, and students' cultures and levels of understanding. All students are engaged in work of a high level of rigor. The lesson's structure is coherent, with appropriate pace.	Students are highly intellectually engaged throughout the lesson in significant learning, and make material contributions to the activities, student groupings, and materials. The lesson is adapted as needed to the needs of individuals, and the structure and pacing allow for student reflection and closure	
3d: Using Assessment in Instruction	Assessment is not used in instruction, either through students' awareness of the assessment criteria, monitoring of progress by teacher or students, or through feedback to students.	Assessment is occasionally used in instruction, through some monitoring of progress of learning by teacher and/or students. Feedback to students is uneven, and students are aware of only some of the assessment criteria used to evaluate their work.	Assessment is regularly used in instruction, through self-assessment by students, monitoring of progress of learning by teacher and/or students, and through high quality feedback to students. Students are fully aware of the assessment criteria used to evaluate their work.	Assessment is used in a sophisticated manner in instruction, through student involvement in establishing the assessment criteria, self- assessment by students and monitoring of progress by both students and teachers, and high quality feedback to students from a variety of sources.	
3e: Demonstrating flexibility and responsiveness	Teacher adheres to the instruction plan, even when a change would improve the lesson or of students' lack of interest. Teacher brushes aside student questions; when students experience difficulty, the teacher blames the students or their home environment.	Teacher attempts to modify the lesson when needed and to respond to student questions, with moderate success. Teacher accepts responsibility for student success, but has only a limited repertoire of strategies to draw upon.	Teacher promotes the successful learning of all students, making adjustments as needed to instruction plans and accommodating student questions, needs and interests.	Teacher seizes an opportunity to enhance learning, building on a spontaneous event or student interests. Teacher ensures the success of all students, using an extensive repertoire of instructional strategies.	

Note. From "Framework Rubrics" by P. Bevan, 2013, *Teacher Observation Tools, Phase III*, pp. 4-5. Retrieved from The Pennsylvania State Education Association website: https://www.psea.org /uploadedFiles/TeachingandLearning/Teacher_Evaluation/PDETeacherEvaluationPhaseIIIRubric - Fall2012.pdf

Appendix E: Assessing Educator Progress in Technology Integration

To the Teacher

This questionnaire is adapted from validated sections of the Assessing Educator Progress in Technology Integration attitudinal survey developed by R. Christensen and G. Knezek, K. Miyashita, and M. Ropp researchers of the University of North Texas. Your responses will assist the researcher with creating a profile describing your views of technology. Please respond to the questions and describe in detail your experiences. Your answers will remain confidential and read by the researcher only. Upon completion please email this questionnaire to HYPERLINK "mailto:claudette.stone@waldenu"claudette.stone@waldenu. edu

Thank you for your consideration and cooperation in this important work.

Claudette W. Stone,
Doctorate of Education Student
Walden University

1. How do you feel about working with technology to deliver instruction on a daily basis? Please explain.

2. Who are the person(s) that offer the best ideas for improving teaching strategies and most likely know a great deal about computers? Please explain.

3. Are computers an easy, frustrating, or a worthwhile tool needed to design creative learning activities? Please explain.

4. Do you feel the use of computers in education almost always reduces the personal treatment of students? Why or Why not? Please explain.

5. How can technology be a useful instructional aid in all subject areas that will improve education? Please describe your action plan.

6. Are you able to apply what you know about technology and integrate it into the 7. curriculum? Please describe your experience and provide examples.

7. How would professional development help you understand the process of using technology for specific tasks that may be useful to students? Please explain.

8. Do you feel competent working with students with special needs that may benefit significantly by use of adaptive technology or various information technology

environments? (such as standalone and networked computers, labs, laptop carts) Please discuss and provide examples.

9. How has technology impacted your students' achievement?
What barriers prevent you from integrating technology? Please explain

Appendix F: Instrument Copyright and Permissions

Instruments for Assessing Educator Progress in Technology Integration

by

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Rhonda W. Christensen
Keiko T. Miyashita
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with contributions by

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Appendix G: Request to Use Instrument

September 29, 2014

Dear Researchers,

I am a doctoral student matriculating at Walden University. This letter is to inform you that I acknowledge the protocol that is to be followed for use and administration of the Instruments for Assessing Educator Progress in Technology Integration, authors G. Knezek, R. Christensen, K. Miyashiata, and M. Ropp. I have reviewed your comprehensive instrument and per directions of your website and as protocol the IRB of Walden University, documentation must be provided to the university.

For my instrumental case study, I plan to utilize three (3) sections of your ten (10) part instrument in an adapted electronic questionnaire. Pre-Service Competency, Part I Teacher Attitudes Towards Computers, Part II and Stages of Adoption, Part IV are most applicable instruments to collect data for my instrumental case study, Classroom Technology Integration: A community of practice to support student learning.

Upon authorization of Walden University's International Review Board (IRB) to proceed with data collection, results of the study will be forwarded to you in a final report approved by the Chief Academic Officer of Walden University.

Thanking you in advance,

Claudette W. Stone

Appendix H: Notification of Instrument Use and Adaption

October 21, 2014

Dear Dr. Knezek,

It was a pleasure speaking with you today regarding use of your instrument, Assessing Educator Progress in Technology Integration, authors G. Knezek, R. Christensen, K. Miyashiata, and M. Ropp. As a follow-up to our discussion, I acknowledge that your instrument is available for research purposes solely and may not be used for commercial or financial prosperity.
Per our discussion and your request please find attached an adapted electronic questionnaire version of the aforementioned instrument and my approved Prospectus by Walden University, Dr. Jeanette Edlow, Chair and Dr. Ann Marie Smith, Second Committee Member.

Additionally, upon conclusion of my qualitative research, an approved written report of the instrumental case study findings will be forwarded to you as discussed.

Thank you in advance,
Claudette W. Stone
Student
Doctorate of Education
Specialization: Teacher Leadership
Walden University

Appendix I: WOT Themes of Interview Responses

Table 1

Coded Category: Ways of Thinking (WOT) about People and Objects

Research Questions	RQ1: Theme I (WOT) Perceptions of Technology Integration	RQ2: Theme II (WOT) Technology Impact on Professional Practice
RQ1: What are teachers' perceptions of technology integration as a prospective curriculum strategy for students in grades three through eight?	XYZ-1 "The population of ELL need visuals; I can learn and I have an advantage to use visuals to help ELL to understand and communicate."	XYZ-1 "It hits consistency that chart paper does not; it's better for organization file cabinet v. toolbox; setting self up for future use; it's the best educational experience, engaging, exciting and collaborative with other teachers; can share power-point skills";
	GWJ-1 "I have a great under-standing; it's hands on; it's hand held devices; lets kids find information instead of opening the book; it's incorporated in ELA; it's discovery for kids, the main thing";	GWJ-"1 I think it's lacking; it's more like directive instruction for us; we are taught something new and expected to do it right away without practice; we are taught what we need to do, this what 'we' want done; here's the print, look at this; then we are given an half hour to learn something new and incorporate it."
RQ2: What are teachers' perceptions regarding how technology may impact professional practices and its potential to improve third through eighth grade student performance?	XYZ-2 "Embracing it appeals to all learners; provides visual and natural experiences for children that may not have had those experiences; I can take a child to the beach that hasn't been there; Basic skills/virtual experience and natural experience provides a Website to define words."	XYZ-2 "It provides teachers with training to gain insight and expertise to be utilized successfully in the classroom."
	GWJ-2 "The world is technology and it is used across the board in all subjects; Promethean Board, Interactive Flip Chart, virtual manipulatives, Smart Tables Kids are highly engaged, it's their world."	GWJ-2 "Hum, extremely crucial; only way teachers learn is through practice; get in an do it; teachers need to see it practiced; can't just give out technology and not train for it; lots of flukes, some teachers are scared; we forget they need an expert at every school; changing a bulb is a

	XYZ-3 “Well, my understanding is that using technology sites affiliated with the Internet drives your instruction.”	big thing; technology changes from year to year; teachers are still using ‘tapes and not tablets’; we got brand new laptops for teachers not being used because not everyone knows how.”
	GWJ-3 “I am still a novice at it; It’s very important because our personal children are engaged with it. Activities, handheld at the student’s desk is a companion to the Smart Board and used for math interactives in a pre-do lesson on the Smart Board”; XYZ-4 “ It extends beyond the blackboard and everyone gets something out of it; steers the child to what they know and where to go get it”;	XYZ-3 “I would say if done substantially; the main purpose for a lot of PD is to look good on paper instead of teaching teachers actual information to enhance the ‘art of teaching’; administrators submit plans to look productive; the way it’s done is nothing more than a paper log; should be another tool in the toolbox to become effective teachers for children”. GWJ-3 “It definitely has to be constant teacher development to know how to use properly; when I came here I had to learn how to use technological pieces to enhance learning for students; I can learn through technology PD because that’s where we are going”. XYZ-4 “ Very little development in the ‘current structure’; it’s hard to make PD adventurous to try things; PD typically is most valuable if its helpful; people fight the process rather than learning the skills; we are flooded with ‘here’s how to do it’; You really need to go in and play; Don’t be afraid to crash; PD can be valuable to people in three ways similar to homework; Don’t

		need to complete quickly, create technology PD groups so others that 'don't want to', 'don't care', or 'avoid use', can copy from others; and to show what is learned in the PD is not random teaching".
	GWJ-4 "I introduce the skill for that day with Internet sources, 'cute little interactive games and academic songs'; I use cross curricular content; nonfiction/close reading and National Geographic kids" video; Internet brings things to life when kids have no prior knowledge; We went camping on the Internet and pretended to roast marshmallows"; "To be honest, we are in the age of action and adventure; kids love when you put action in your classroom; their attention goes immediately to it; they are obsessed with technology,"	
		GWJ-4 " Usually in the beginning of the year, there's a lot of PD around then it 'fizzles out'; For me being forced to use it was the best way; My first year here, I was thrown in and forced to use a Smart Board; Being thrown in is okay because here it forces you to learn what to do; I always did PD within school and now we go to other locations which is sometimes good";

Appendix J: SC Themes of Interview Responses

Table 2

Coded Category: Situation (SC)

Research Questions	IQ3: Theme I (SC) Professional Learning Community Perceptions of Technology Integration	IQ4: Theme II (SC) Classroom Technology Integration Issues
RQ1: What are teachers' perceptions of technology integration as a prospective curriculum strategy for students in grades three through eight?	XYZ-1 " My partners and I think it's pretty important for collaboration its uses are a definite advantage. Parents are satisfied. I don't know about the others; I'll just talk about the whole school and its unique setting.	XYZ-1 "I think it's sad and a disadvantage for the kids of teachers outside the main building who don't use technology as often Kids have alternate schedules based on individualized learning plans
	GWJ-1 "We all love technology. All are on board and try to bring technology into lessons. It's nice when someone struggles; we have discussion of how we can use it differently. My team, we are achievers".	GWJ- 1 " Issues are the number of computers in the classroom. We each have three; we should have more, every group has 6 students; the outdated computers are not working as well; we can't update the computer lab because it would take $1500 per computer to upgrade."
RQ2: What are teachers' perceptions regarding how technology may impact professional practices and its potential to improve third through eighth grade student performance?	XYZ-2 "It depends on who has the experience and people who have experience embrace technology integration in my team. People seem to be more comfortable with using in class and people who lack are more reluctant and hesitant at first."	XYZ-2 "We have a huge lack of technology because of limited funding and district resources; Technology integration is mostly implemented in the middle years grades. The trailers are desserts. Being in the trailer for 5 years, I had 2 computers and 1 overhead projector. Most K-5 teachers are lucky to have 2 computers in their classrooms."
	GWJ-2 " I think we are ideal and have gone home and found '800' resources. We are all into it"	GWJ-2 " Here at our school maintenance is an issue. When something goes wrong who can fix it? I was the 'fixer' on board. The wing temperature is not equipped to handle it. Computers must be updated for new

		programs. We start off strong, but no plan B. It's good now but doesn't last".
	XYZ-3 "The view of technology integration with my colleagues are different degree levels; some use to varying degrees, some not at all, some tremendous".	XYZ-3 " When students are asked to be analytical or to synthesize they can't at the middle school level; that's why you have remedial websites in middle school that doesn't help kids; tech games don't do much good. Students are getting technology much too late; the approach should be done from the bottom up; technology has its place and certain skills students should learn at the primary level; It's all about mastering basic skills to be enhanced at the middle level; we don't use technology in the proper time; students have to know how to transfer knowledge and synthesize at the primary level; students are taught more rigorously at the primary level in other countries; technology should supplement not replace rigorous instruction."
	GWJ-3 "Everybody is using Smart Boards. In the beginning I was scared; I was a 'chart paper' kind of teacher; Where I came from that's all we had to use; I knew I better step my game up".	
	XYZ-4 " Well, one side likes technology and some not reaching; there are the avoiders, the copiers, and the I'll set up the Wiki space; the reason I set up a Wiki space to create a virtual library of resources for others to use and appreciate".	GWJ-3 " I don't think there's any issues with integrating technology in the upper grades; maybe in the lower grades; I've been here 3 years; everybody seems to be okay.
	GWJ-4 "All teachers realize the importance and incorporation of technology; you always have some teachers that are intelligent with technology and use it more."	XYZ-4 " The issues are availability and technology integration is top heavy in the upper grades; cooperative and collaboration are not built in; therefore not experience to share; they are fighting two fights i.e., some are good with technology, another group does what they are comfortable with; flawed mentality; make learning anonymous; it's not cool to learn from one another; it feels like a lack of traditional or fundamental

	flow integrating technology; good students become teachers; how does the good student 'all star' the marginal person? We have to look at it differently in order to compete."
	GWJ-4 " Everyone is not on board; everyone does not have the aptitude; issues are with a difference in classroom allocation."

Appendix K: CC Themes of Interview Responses

Table 3

Coded Category: Context (CC)

Research Questions	IQ5: Theme I (CC) Context Types of Technology Equipment and Devices	IQ5: Theme II (CC) Context Accessibility and Use for Classroom Instruction
RQ1: What are teachers' perceptions of technology integration as a prospective curriculum strategy for students in grades three through eight?	XYZ-1 "Smart Board, 1 pretty, new Apple desktop, laptop cart."	XYZ-1 "Teacher leaders received brand new Mac desktop computers; recently, K-5 was provided with MacAir laptops to be used with AIMS assessment for reading fluency; accessibility to computer lab, laptop cart with 30 laptops..
	GWJ-1 " 1 Smart Board, 3 desktop computers, 3 laptops, and 1my personal laptop."	GWJ- 1 " Teachers go to donorschoose.com to try and get equipment through charities and corporations; borrowed android tablets from other classrooms."
	XYZ-2 "Laptop cart, 1 laptop per child, 2 desktop computers, 1 Smart Board, 1 Emac at least 10 years old;	XYZ-2 "1 laptop cart of 30 I have 35 students in my class; 2 computers, 1 Emac that is 10 years old, 1 Smart Board; I was provided with a MacAir used to complete the AIMS another name for the Developmental Reading Assessment(DRA)
	GWJ-2 "I have 7 tablets, 3 desktops, 10 laptops, '100' years old, Smart Table, Promethean Board and a Document Scanner	GWJ-2 "I use the older laptop carts for special education students that use Lexia; the Smart Board table is used for guided reading; the document scanner creates visuals as examples for use in mini lessons that connect the classroom to anywhere."
RQ2: What are teachers' perceptions regarding how technology may impact professional practices and its potential to improve third through eighth grade student performance?	XYZ-3 " Promethean Board and upgraded calculator, TI 80 series."	XYZ-3 "I am fortunate, the administration understands the importance of using technology that includes upgraded calculators and use of my Promethean Board in order to enhance my ability to advance instruction; I am not deprived..

	GWJ-3 “I have a Smart Board, Activotes (clicker device), 3 desktops, 1 laptop cart, and a MacAir laptop for the teacher.”	GWJ-3 “ I use the Smart board and students use the companion, Activotes (clicker device) that protects their identity and keeps them from being embarrassed if the wrong answer is given; It also tells me what students need help and what areas need reinforcement.”
	XYZ-4 “ Well, one side likes technology and some not reaching; there are the avoiders, the copiers, and the I’ll set up the Wiki space; the reason I set up a Wiki space to create a virtual library of resources for others to use and appreciate”.	XYZ-4 “IPad, students bring their tablets and cell phones, overhead projector for used with the Promethean Board for math manipulatives.”
	GWJ-4 “I have a projector, document camera, IPAD, White Board, I use as a screen and a radio.”	GWJ-4 “The projector is used to stream on line educational videos; I use the document camera to project a paper on White Board I use as a screen to teach writing; I also use the document camera as a hands-on manipulative for math problem solving; I use the IPad as an student incentive and the IPad is used by special education student to provide extra support in reading of an online reading program ‘app’, Lexia.com; Lexia.com is leveled for their independence. I use the radio in the listening center; I hear students singing to the music for enjoyment and they understand; cenral.org is projected on my White Board screen; it is similar to a Smart Board without the stylus pen; you can just wipe the information off without having to use technical applications to change information.

Appendix L: EC Themes of Interview Responses

Table 4

Coded Category: Event (EC)

Research Questions	IQ6: Theme I (EC) Context Technology Integration in Daily Student Assignments	IQ6: Theme II (EC) Context Technology Integration in Overall Activities
RQ1: What are teachers' perceptions of technology integration as a prospective curriculum strategy for students in grades three through eight?	XYZ-1 "Students are involved in RTII, Imagine It Reading Series and MySciLearning.	XYZ-1 "I have an Edmodo page; students and parents can access reading and math books at home."
	GWJ-1 "Hands-on works for students; there are different interactive math games that makes learning and teaching a fun environment daily; students use First In Math daily or depending upon what we are doing; maybe once or twice a week students use androids in a timeline to search out information; students use the Smart Board daily."	GWJ- 1 "Students use the Smart Boards in overall activities; students learn with me; we put information on the big screen; students use hand held devices—active inspired software where students can select multiple choice answers using clickers and I mark the percentage of students using the clicker.
RQ2: What are teachers' perceptions regarding how technology may impact professional practices and its potential to improve third through eighth grade student performance?	XYZ-2 "Specific learners reading below level receive at least 10-15 minutes direct instruction using FastForword daily; other students use SciLearning or other programs."	XYZ-2 "Students access other programs that I have discovered like 'Moby Max Math'; that program is used when required assignments have been completed by the student."
	GWJ-2 "Yes, definitely; the students do Social Studies online; they practice percentage off for real-life experience; they bring advertisements for sneakers and games to create their own online advertisement."	GWJ-2 "Technology is integrated in every student assignment or project; kids are so smart they could help us along the way; we do a tone of integration; what we do outside the classroom we do in the in classroom; students do online shopping as well."
	XYZ-3 " No, main reason is, level I Common core standards for math are not done from a technology standpoint; middle school students are challenged to synthesize and be able to critically analyze problems and solutions.	XYZ-3 "Students use the TI 80 Series calculators or their personal cell phone; advanced algebra students use the calculators to solve problems and plot the answers

		on the Promethean Board during their lunch breaks for additional help."
	GWJ-3 "We do have students that use technology bi-weekly for First In Math and Lexia.com for reading; students use Activotes with a Go Math program; the students use technology for interactive notebooks and Science Ecosystems; students write daily to publish a copy of their writings by the end of the school year."	GWJ-3 " So much goes on throughout the school year; students build up their writing and typing skills; they type out their assignments."
	XYZ-4 "No not daily; I integrate weekly; I try to show them 'cool stuff' through available resources like Brainfuse and Pinterest; I am trying to jump on board; my student teacher likes to use technology in the daily lessons."	XYZ-4 "Kids are involved in social media and communicate through electronic media overall.
	GWJ-4 "We look up information using the IPad; we use BrainPop to find facts through National Geographic; we find non-fiction and chapter stories on animal habitats; students use the IPad to strengthen letter, sight word skills so they can reach their academic needs; we go online to create timelines for biographies; for weekly spelling tests, the students text or email me their spelling words in class, I grade and text or email them back."	GWJ-4 "We use code.org to communicate with parents; email school information and reminders through this website; students are given projects every other month; they use clip art, graphics, typing and they print out."

Appendix M: SP Themes of Interview Responses

Table 5

Coded Category: Subject Perspective (SP)

Research Questions	IQ7: Theme I (SP) Transform Traditional To Digital Classrooms	IQ7: Theme II (SP) Technology to Advance Learning
RQ1: What are teachers' perceptions of technology integration as a prospective curriculum strategy for students in grades three through eight?	XYZ-1 "It shouldn't take over; technology can be used as a facilitator and guide because you need human interaction; every classroom should have a balance of technology as a tool and resource for an instructional lesson; you want everything in fidelity; some people don't know the right way; got an email from the district and ended up having to the do the work over because of misinformation." GWJ-1 "Paperless classroom is the best thing out there."	XYZ-1 "I compete against myself; I look at data all the time; anyone that doesn't look at data available through the technology is at a disadvantage; I compare with the region and overall district to align with the standards; follow through with what they give you is really important for execution; I want to know how my teaching is." GWJ-1 "Everyone has a laptop or Chrome Book; teachers can work off the Smart Board."
RQ2: What are teachers' perceptions regarding how technology may impact professional practices and its potential to improve third through eighth grade student performance?	XYX-2 "Initially I was not sure; I became more open-minded through a technology education course; It helped me realize that technology is dominant and you have to learn to make it work." GWJ-2 " It's a wonderful idea; but it also cannot replace good teaching; there is a time and place for everything; they do need explicit instruction to support online learning." XYZ-3 " Middle School and beyond don't have the basic skills; what good is technology? Technology serves as a barrier at the middle level in my experience as a math teacher; you get more bang out of your buck in the little kids; people are looking at this wrong; technology won't do anything faster in the middle years." GWJ-3 " Very crucial to our society;	XYZ-2 "Technology is truly taking over the world; children are quick with it; we have to make their efficiency benefit their learning." GWJ-2 "Kids are very receptive; they get their work done; guided reading at the Smart Board Tables and with tablets are good but can't replace the student interaction, the noise; technology has many opportunities for reinforcement; the teacher who is fluent has to create a balance." XYZ-3 "We would be the best country if it was about technology in math; we don't want master craftsman; we want a jack of all trades; that's why our scores reflect it; we need math in technology, not other certificates." GWJ-3 "Nobody is reading books anymore; they use Kindles; the books are just sitting there; technology is beneficial to

	transforming from paper and pencil to schools that have no books in classroom; we are further along; books are outdated and will be a thing of the past; it's a good idea to transform from traditional classroom techniques if we had the money;	students to become lifelong learners.; there is information out in the world web."
	XYZ-4 " My thoughts are: bridge the education gap; there is a common language with technology that most students understand; the digital community monitors itself; it's transformative for the underserved, over-represented, and those with exceptionalities who communicate differently; can give folks a common voice in a diverse classroom."	XYZ-4 " Teachers can shape experience for the child if they don't understand; technology is not magically different; I don't know that enough teachers know or appreciate the dynamics of teaching; I worry sometimes about the difference between technology and effective teaching; the progression includes writing a plan or guide of what I said I was going to do throughout the year; technology as a part of that takes the pressure off of me and provides experience for students that I can't provide on my own; what about putting a problem on the board and the student shows me how to do it with technology; we can be creative with technology."
	GWJ-4 " That would be a dream come true; you get so much more out of computer based learning; so many people give busy work to our shining stars and they don't remember the information; I would love it; every child could have an IPAD; the transformation would make practices a lot easier to access and the students would produce better quality work."	GWJ-4 " I feel like kids can make their own slide shows; they are so advanced; a little kid out of nowhere can help you with technology; we assimilated being slaves using technology to experience what it felt like being discriminated against in a lesson; technology provides you with experience of what you remember and where you were." My own children teach me different skills using the IPAD; the progressive use of technology would create a better connection."