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Exploring Teacher's Attitudes and Behaviors in Implementing Instructional Technology into Curriculum

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Abstract

This program evaluation explored how effective integration of technology resources and systems with teacher training and curriculum development can occur despite teachers limited technology competencies. Theses competencies increase when teachers have desire and opportunities to become better acquainted with utilizing digital tools. Perceived technology integration skills of teachers solely, cannot predict the effective integration of technology in student products to address new learning (Ertmer, 2005). Technology integrated lesson plans, the relationship between teachers' beliefs and their use of various strategies to integrate technology and a model that teachers can use to guide them through the necessary changes they will need to make to be successful in integrating new technology into their classroom (Wong, Li, Choi, & Lee, 2008). This process offers the potential to assist teachers in identifying and assessing Wisconsin's mandated student technology literacy standards. Continuity of professional development, time for both professional and curricular development activities (such as reviewing the software, exploring available resources, and creating new lessons) and technical, administrative, and pedagogical support for teachers can facilitate strategies to integrate technology in all content areas (Lim & Khine, 2006).

Dedication

I dedicate this work to my fallen angels who made their mark on this world and went back to Love. To my special angels, Simeon Joel Raphael and Terri whom I carry in my heart daily. Peace.

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This dissertation could not have been completed without the great support that I have received from so many people over the years. I wish to offer my most heartfelt thanks to the following people.

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Selah.

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Statement of the Problem

Teachers in Sunnyville Public Schools (SPS) are provided rubrics based on the International Society for Technology in Education's National Educational Technology Standards (ISTE's NETS) to assist them in identifying and assessing Wisconsin's mandated student technology literacy standards. What seems to be lacking is a model that teachers can use to guide them through the necessary changes they will need to make to be successful in integrating new technology into their classroom (Woodbridge, 2004). Consequently, SPS teachers ought to look to technology standards as a guide for technology integration and lesson design enhancement to incorporate technology standards into their professional practice for diffusing technology literacy to their students. Changes in traditional student and teacher roles will increasingly motivate teachers and students to be contributors of knowledge and more willing to explore (Bakia, Gallagher, & Means, 2009). A model which support a student- centered environment, continuous professional development, and time for both professional and curricular development activities, such as reviewing the software, exploring available resources, and creating new lessons have innovative potential. Technical, administrative, and pedagogical support for provide opportunity for teachers and students to take charge not only of learning but also of creating and directing learning opportunities, and as co-investigators and citizens of the global learning community (Jones, Valdez, Nowakowski, & Rasmussen, 1995).

Effective integration of technology resources and systems with teacher training and curriculum development can occur despite teachers limited technology competencies, provided they have desire and opportunity to increase these competencies. Perceived technology integration skills of teachers solely, cannot predict the effective integration of technology in student products to address new learning (Ertmer, 2005). Technology integrated lesson plans, the relationship between teachers' beliefs and their use of various strategies to integrate technology and a model that teachers can use to guide them through the necessary Woodbridge (2004) changes they will need to make to be successful in integrating new technology into their classroom offers the potential to assist them in identifying and assessing Wisconsin's mandated student technology literacy standards.

International Society for Technology in Education

The International Society for Technology in Education (ISTE) is a source for professional development, knowledge generation, advocacy, and leadership for innovation (ISTE, 2000). A nonprofit membership organization, ISTE provides guidance to improve teaching, learning, and school leadership by advancing the effective use of technology in PK–12 and teacher education. ISTE published the National Educational Technology Standards (NETS) for Students, Teachers, and Administrators in 1998 and ten years later, refreshed these standards to usher the next generation of NETS focusing more on using technology to learn and less on learning the tools. The standards, now used in every U.S. state and many countries, are credited with significantly influencing expectations for students and creating targets of excellence relating to technology.

National Educational Technology Standards ISTE (2000) and their indicators for students are as follows:

ISTE Standard	Indicator	Activity
Creativity and Innovation	Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.	Make It
Communication and Collaboration	Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.	Share It
Research and Information Fluency	Students apply digital tools to gather, evaluate, and use information.	Find It
Critical Thinking, Problem Solving, and Decision Making	Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.	Solve IT
Digital Citizenship	Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.	Protect It
Technology Operations and Concepts	Students demonstrate a sound understanding of technology concepts, systems, and operations.	Use It

Figure 1. International Society for Technology Education (ISTE) standards for students.

Wisconsin's Model Academic Standards for Information and Technology Literacy

Wisconsin's Model Academic Standards (WMAS) for Information and Technology Literacy (ITL) identifies and defines the knowledge and skills essential for all Wisconsin students to access, evaluate, and use information and technology (WDPI, 2008). These standards connect and inter- relate current perspectives in information literacy, media literacy, and technology literacy into a unified conceptual framework.

The purpose of these standards is to identify information and technology content and performance standards for all students throughout the pre-kindergarten to grade twelve (PK-12) curricula. The standards are designed to be integrated into the various content and skill areas of the school curriculum. The focus is on learning with information and technology rather than learning about information and technology (WDPI, 1998). This integration is varied and diverse based on the curricula of individual schools and school systems. The focus is on a sequential and broad set of Information and Technology content and performance standards that are necessary for full development of skills for "learning how to learn" addressed in the core areas of the PK-12 curriculum (WDPI, 2008).

The four content standards are:

a. Media and Technology—Students in Wisconsin will select and use media and technology to access, organize, create, and communicate information for solving problems and constructing new knowledge, products, and systems.

b. Information and Inquiry—Students in Wisconsin will access, evaluate, and apply information efficiently and effectively from a variety of sources in print, non- print, and electronic formats to meet personal and academic needs.

c. Independent Learning—Students in Wisconsin will apply technological and information skills to issues of personal and academic interest by actively and independently seeking information; demonstrating critical and discriminating reading, listening, and viewing habits; and, striving for personal excellence in learning and career pursuits.

d. The Learning Community—Students in Wisconsin will demonstrate the ability to work collaboratively in teams or groups, use information and technology in a responsible manner, respect intellectual property rights, and recognize the importance of intellectual freedom and access to information in a democratic society.

Each content standard is followed by performance standards that tell how students will show that they are meeting the content standard. Each performance standard includes several indicators that detail how students will demonstrate proficiency in a performance area. When students demonstrate proficiency in these performance standards and indicators, theoretically, they will have mastered a literacy that is necessary for them to be promoted to high school.

Purpose of the Evaluation

An action research case study design was used to examine teacher experiences in classrooms where teachers employ technology standards as an evaluation tool for deciding if students meet their mandated technology literacy requirements. This study

revealed how effective integration of technology resources and systems with teacher training and curriculum development can occur despite teachers limited technology competencies. In addition, teachers should have desire and opportunity to increase these competencies. Technology integrated lesson plans, the relationship between teachers' beliefs and their use of various strategies to integrate technology and a model that teachers can use to guide them through the necessary changes they will need to make to be successful in integrating new technology into their classroom (Bybee & Starkweather, 2006). This study provided understanding of the interactions, practices, and contexts that are hindering or fostering the integration of technology in social studies classrooms at SJH. Qualitative methodology was used to gather detailed data of teachers' beliefs, experiences, reflections, goals, and interactions while they created learning environments that integrated technology resources with their existing curriculum.

This study examined ways that teachers integrate technology related activities into their instructional practices, and the extent to which students' instructional technology use reflect the technology standards. A teacher LoTi Digital Age Survey for Teachers, lesson observations using the Looking for Technology Integration (LoFTI) tool and interviews were used to collect information about ways teachers use technology with their students and analyze the information to determine how the described activities reflect the technology standards. This examination of the current state of instructional technology use in SJH will provided insights into whether and how students are experiencing activities that are consistent with technology standards in their classrooms. The research purpose was not to determine the degree to which teachers are aware of the

technology standards, but whether these technology standards influenced their practice, or the extent to which teachers are systematically and consciously applying technology standards in their teaching. Technology standards was used as a framework for analyzing the technology- based teaching practice that occur in these classrooms.

The outcome of this study provided specific instructional strategies that teachers of all IT competency levels can utilize in their classroom instructional delivery. Additionally, teacher pedagogies and desire to appreciate the significance of utilizing technology in their instructional practices determined to what degree their beliefs fostered or hindered the level of including technology into their classroom curriculum.

Goals of the Evaluation

The goal of this study was to gain insight on teachers' beliefs and attitudes about infusing technology into their curriculum practices. It aimed to determine to what extent do Social Studies teachers at Sunnyville Junior High (SJH) utilize technology standards to gauge level of technology inclusion in their classrooms.

Research Questions

The questions driving this study aimed to determine to what extent do Social Studies teachers at Sunnyville Junior High (SJH) utilize technology standards to gauge level of technology inclusion in their classrooms.

a. How do teachers perceive their competencies to technology integration?

b. How do teachers perceive their students' classroom usage of technology?

c. To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?

In the 2005- 2006 school year, SPS' eighth-grade technology literacy requirements identified criteria to determine to what degree, eighth-grade students who were technology literate. A portfolio was created with the criteria printed on the outside for teachers to rate their grade eight students on the technology standards, their performance indicators, and descriptors of what students should know and be able to do by the end of eighth grade (Davis, 2007). Due to the release of the new technology standards for students in 2007, technology leaders in SPS, reviewed and revised the process to be implemented in the 2008-09 school year. This revision aligns with the school district's adoption of a new Information and Technology Strategic Plan for SPS covering the years 2008-2011 (WDPI, 1998).

The new process includes:

a. Identifying middle school projects that will be enhanced with technology for teacher to choose from to help their students meet this requirement.

b. Developing criteria for acceptable educator-designed projects, aligned with technology standards, to be used in place of district identified projects.

c. Defining rubrics that will allow teachers to identify and rate student technology proficiency in the identified projects and in teacher written projects.

d. Monitoring of school compliance with recording requirements by Central Services staff.

Simply stated, most educators and parents now consider technology to be an integral part of providing a high-quality education (Ertmer, 2005). Per the technology standards for teachers in 2002, teaching in all settings should encompass student-centered

learning approaches to learning. Students and teachers must have the opportunities to identify problems, collect and analyze data, draw conclusions, and convey results using electronic tools to accomplish each task. Therefore, the technology standards for students can be employed as a guide to promote responsible and proficient use of technology while expanding or extending a teacher's understanding after the teacher gets over the hump of learning it (Woodbridge, 2004).

Context of the Study

According to the U.S. Census Bureau American Fact Finder, a significant number of children in Sunnyville live in poverty. The percent of families with related children under the age of 18 years living below the poverty level in the city of Sunnyville is 33.2 %, compared to 13.7 % for the state of Wisconsin. This percent increases to 48.9 % for families with female-headed households in Sunnyville, compared to 37.6 % for the state. The non-white composition of the city of Sunnyville is 52.6 % compared to 12.8 % for the state of Wisconsin ("US Census," 2012).

Per data obtained from the Wisconsin Department of Public Instruction, Sunnyville Public Schools is the largest school district in the state located in southeastern Wisconsin servicing approximately 75,500 students in grades PK- 12 serviced by nearly 8,700 teachers (WDPI, 2008). A publicly elected school board, the Sunnyville Board of School Directors, provides direction and oversight, with a superintendent heading the organization's administration.

Over the past 5 years, enrollment and teaching staff has declined. These changes are accredited to both a decline in overall enrollment as well as enhancements in operational

efficiencies. SPS has a significantly higher percentage of economically disadvantaged students than compared the rest of the state. Nearly 90 % of students qualify for free or reduced lunch (WDPI, 2008).

The most recent data shows that in grade 10, the number of SPS students proficient or advanced in reading is 14 % while the state average is 38 %. In math 12 % are proficient or advanced in math while the state average is 44 %. African American males fall behind almost from their first day of school and the gap between them and their peers widens as they get older (Wisconsin Policy Research Institute [WPRI], 2007).

Sunnyville Junior High (SJH) offers an arts program to students across the city. It is one of 6 middle schools (6th -8th grade) located on historic Walnut Street in a cluster of arts-focused schools. Per the most recent data from the Wisconsin Department of Public Instruction, SJH has 429 students; 94 % are African American, 92 % receive free or reduced lunch and 30 % of the school population are students with disabilities. Fifty percent fails to meet expectations in the areas of reading and math. SJH offers Positive Behavioral Intervention and Supports (PBIS) program that reinforces positive behaviors while also offering numerous after-school activities that include arts, sports, and academics. Community sponsors help to provide after school tutoring and other programs.

Many in the educational community agree that gender, race, and income are key measures in determining student performance (Ireland, 2016). These gaps between gender, race and income demonstrate an urgency to close these gaps if we want a future for our students (WPRI, 2007). Economically, our livelihood depends on closing the gap

between those who have and those who have not. Although the educational community may be well intentioned, we cannot ignore the reality that current efforts are not working.

SPS as part of its district strategic plan, drafted the Information and Technology Strategic Plan. The purpose of this plan is to use it as a systematic framework to maximize current resources and to build momentum towards a 21st century learning environment to serve the needs of all students. These key components include: a.) focus on educator and student proficiency, b.) communication with parents and stakeholders, c.) a robust library media program, d.) the need to maintain the technology transport to meet the needs of the schools to seamlessly integrate tools and methods into an educational model and business practice

This plan focuses on the achievement of all students to meet the needs of preparing for a growing digital society. SPS analyzes the achievement gap in two ways. They examine the gap between the district and the state and then within the district between student groups. Sunnyville's regular diploma graduation rate at 66.2 %. Nearly 90 % of the population are students of color, 80 % are economically disadvantaged and 20 % have special needs. Within these groups, there is a significant achievement gap (WDPI, 2008).

Participants of this study are two eighth grade teachers at RMSA. They were interviewed and observed to examine their lesson delivery, pedagogical methods, attitudes, and beliefs about innovative teaching practices. The results have the potential to provide vital insight into what is taught, how it’s delivered and assessed. Investigation of students’ learning based on NETS*S and the type of technology tools used (hardware, software) was also analyzed.

Rationale for the study

After providing various technology trainings to many district staff, I was disheartened to discover that many of the attendees did not possess sufficient technology literacy competencies to identify middle school projects enhanced with technology, initiate practical strategies for technology integration or provide general technology- rich lessons to assist students attaining ITL requirements. From veteran teachers to new teachers, countless of them had no idea how to turn on a laptop or navigate the internet or use Microsoft Power Point or Excel, and routinely participate in district mandated professional development trainings which require advanced technology literacy. Equally disturbing was the fact the many desired to engage in technological activities, but did know how to begin to conceptualize the idea of the use of technology tools and practice regularly.

Background of the Study

The night before, I tossed and turned all night, mind running like Forrest Gump when he started running, "just because he felt like it". When I finally got to sleep, it was 4:00 a.m. and wake up time was 6:00. Of course, I woke up at 7:00, poked a gigantic hole in my nylons, dropped one of my contacts down the drain, spilled coffee on my nicely pressed white, button- down shirt and ran out of the house, leaving my lunch on the counter. I was starting my healthy eating plan today. No fast food for the entire week! I scurried into the room throwing my coat on the floor to find the co-facilitator doing my part of the training. I was supposed to be the lead at my first training session, and here I find a person who was less trained than I, facilitating the SMART Board training.

As I looked out into the crowd of eager, unsuspecting, green, novice technology users, I thought about how a year ago, I was in the same position, looking at the facilitator dreaming of the day that I could operate a SMART Board with such proficiency, not thinking for a moment that these technology gurus did not know their task. When Mary turned around and saw me standing there, a wave of relief swept across her body and she wasted no time turning the remainder of the demonstration over to me. I introduced myself, explained to some degree my tardiness (haven't teachers heard every excuse in the book) and continued the session. As I went through the demonstration, looking out at all the eyes which depended on me for knowledge, I graduated to a higher level of personal responsibility. Not only did I seek to improve my ITL skills, but to also contribute in developing in-depth professional development activities as it related to eighth-grade ITL requirements.

Definition of Information Technology Literacy

Information Technology Literacy for this assessment is defined as "the ability of individuals to use information technology appropriately to access, manage, integrate and evaluate information, develop new understandings, and communicate with others to participate effectively in society (Ainley, Fraillon, & Harber, 2006). Technology integration as

Methodology

The study employed an action research case study approach to gain a deeper understanding of infusing technological and pedagogical innovations to curriculum instruction in a sample of classrooms at SJH. A Constructivist paradigm approach looked

at teaching and learning on how educators can teach students how to learn**.** Maslow's Hierarchy of Needs was referred to examine how students must have basic physical and physiological met for new learning to take place.

Examination of how technology inclusion supports curriculum, instruction and assessment practices using the technology standards and performance indicators for students will lead the study. The goal is to find out to what extent teachers are utilizing technology standards to guide their instructional practices which support technology integration into their classroom curriculum.

The use of qualitative information in the form of LoTi Digital Age Survey for Teachers in- depth conversational interviews will be used in addition to classroom observations utilizing the Looking for Technology Integration (LoFTI) tool. Specific and open-ended questions to teachers will be used to solicit experiences and pedagogical beliefs about the use of technological innovation to drive teaching practices.

Chapter Two: Review of Literature

History of Information and Technology in Education

The Wisconsin Department of Public Instruction (WDPI) has a long history of administering standardized assessments for measuring student achievement. Chalkboards, overhead projectors, radio, instructional TV, and microcomputers were innovations introduced to provide technological media to the classroom. Now it's about accessing information through a framework which presents a holistic view of 21st century teaching and learning that combines a discrete focus on 21st century student outcomes which includes a blending of specific skills, technology, content knowledge, expertise and

competencies, with innovative support systems to help students master the multi-dimensional abilities required of them in the 21st century (Partnership for 21 Century Skills, 2004).

Below is a brief history of technology use in education:

1900- 1920 Slate and chalk were the media of choice. In 1917 WHA, Wisconsin Public Radio's oldest station broadcasting out of UW-Madison, began broadcasting music education programs on the radio (Davidson, 2006).

1920- 1930 The division of the U.S. Department of Commerce began licensing commercial and educational stations and launched the beginning of classroom broadcasting to enhance education. In 1923, the National Educational Association (NEA) established the Division of Visual Instruction- the first courses to instruct teachers in the use of classroom films (Molenda & Cambre 2003).

1930-1940 The 1930's saw film and educational radio being used widespread in classrooms (Molenda & Cambre 2003).

1940- 1950 During the 1940's radio usage declined and educational film usage increased.

1950- 1960 In 1946, Coronet Instructional Films began producing short instructional films for teenagers (Prelinger, 1994). In 1957, the Russians set Sputnik in orbit and Americans began to focus curriculum on math and science. Teaching machines were introduced in 1958 (Powell, 2007).

1960- 1970 In 1968, The Children's Television Network Workshop produced "Sesame Street", which became one of the most innovative and effective educational programs for children (Barr, 2008).

1970- 1980 In the 1970's microcomputers made an appearance in the schools (Wallace & Giglierano, 1989). In 1985 92 % of secondary and 85 % of elementary schools had at least one computer ("Availability of Instructional Technologies," 1993).

1980- The Enhancing Education Through Technology program (EETT) is among the largest programs at the U.S. Department of Education. The EETT program, authorized by Title II, Part D, of the Elementary and Secondary Education Act of 1965 (ESEA), as amended by the No Child Left Behind Act of 2001 (NCLB). Technology tools and devices including desktop and laptop computers, handheld devices, cell phones, portable video players, and the Internet are commonplace among many schools (Yang, Bakia, & Mitchell, 2007).

1984 Apple Macintosh computers were introduced. The ration of computers to students in the United States is 1:92. (Educational Technology Infographics [ETI], 2014)

1988 Laptops are introduced and eventually utilized as teaching tools (ETI, 2014).

1998 ISTE establishes NETS; International Society for Technology Education. ISTE recognizes the influences technology has on education and develops National Education Technology Standards (NETS) for students, teachers, and administrators ("Timeline," 2012).

1999 Interactive whiteboards emerged as a high- tech upgrade of the chalkboard. It meshed with the computer with the ability for students to manipulate lessons digitally, in real time ("Visual History of Classroom Technology," 2014).

2004 Mark Zuckerberg, Dustin Moskovitz, Andrew McCollum, Eduardo Saverin, Chris Hughes started Facebook which became and is still a social media phenomenon ("Bio," 2017).

2010 Apple announces the iPad; a personal tablet with features including ePubs (eBooks), apps, and access to the Internet. Since the original iPad, Apple has impacted the field of educational technology by opening iTunesU and iBook Author, which curates current content and allows easy creation of interactive books and content ("Timeline," 2012).

Need for Information Technology Literacy

Most educators and parents now consider technology to be an integral part of providing a high-quality education (Ertmer, 2005). The 21st Century Workforce Commission National Alliance of Business maintains that the current and future health of America's 21st century economy depends directly on how broadly and deeply Americans reach a new level of literacy— '21st Century Literacy'—that includes strong academic skills, thinking, reasoning, teamwork skills, and proficiency in using technology (U.S. 21st Century Workforce Commission, 2000). Kids in classrooms today are far more comfortable with technology than are most of their parents and teachers as they are "plugged-in" kids; surfing the web, text-messaging friends, posting to blogs, and playing multi- user games (Baker et al., 2006). Today's students have often taught themselves

technical skills and digital literacy and can perform more than schools will currently allow. This holding back has been attributed to the lack of technical confidence among teachers, school staff, and administration (Woodbridge, 2003).

The Need for Pedagogical Transformation

Teachers' beliefs about their self-efficacy for integrating technology, their outcome expectations for integrating technology and their interest in using technology to support student learning influence their intentions for incorporating technology into their instructional practices (Niederhauser & Perkan, 2008). Integrating technology tools into the curricula is an aim that many teachers strive for but many of them are faced with barriers in the learning environment that affect the effective integration (Song, 2009). While first-order barriers hinder some teachers that include limited time, training, and support, others struggle to overcome second-order barriers including their own beliefs of how their students learn and how ITL can be used to facilitate learning (Lim & Khine, 2006).

In a nationwide survey of K-12 teachers, 60 % reported feeling inadequately prepared to use technology in classrooms and those, over 43 % express less confidence in their ability to harness technology effectively. (Greenwald, 2016, June 9). Furthermore, only 37 % of teachers expressed interest in learning basic computer skills while over 80 % expressed interest in learning how to integrate computer technology into *curricular areas*, suggesting that most current teachers have obtained (or at least perceive they have obtained) minimum levels of technical competency (Ertmer, 2005).

Teachers from schools in impoverished areas were found to be the least confident, while teacher from schools in high- income areas were more confident and even considered themselves “risk- takers” in trying new devices and programs (Cortez, 2016). Therefore, although technology offers the *potential* to enhance and improve the students' learning experience, there is disconnect between teacher perceptions of their technology competency to their actual technology skills. This disconnect causes too many teachers to be casual or even non-users of computers (Woodbridge, 2003).

In the past, SPS has used the enGague Online Assessment Profile Survey to measure the effective use of educational technology and profiled information regarding how teachers prioritized both 21st century skills and the importance of technology integration in various content areas. The scale ranged from awareness, to adoption, to exploration and finally to transformation. The enGauge framework describes six system-wide conditions that are essential for the effective use of technology. The essential conditions are (Davis, 2007): a.) Forward Thinking, b.) Shared Vision, c.) Effective Teaching and Learning Practice, d.) Educator Proficiency, e.) Digital-Age Equity, f.) Robust Access Anywhere, Anytime; Systems and Leadership.

Respondents’ average response ranged from 2.87 to 3.45 on a 5- point scale (Davis, 2007). Results of the survey categorized the respondents as either at the high end of the adoption level or strongly in the exploration level in the use of educational technology. The results also indicated that while some pockets of excellence exist, innovations in learning and teaching with technology has not proliferated beyond the adoption level to district-wide fruition (Davis, 2007).

Beginning with the 2014-15 school year, the School Culture, and Climate Survey (SCCS) was implemented in SPS to obtain feedback from school staff and students around what they think, do, and experience in their school. This survey replaced the enGague survey as it expanded its respondents' pool to include students and parents and it included more inquiries about school culture and climate.

School culture is defined as the practices and norms a school employs that are based on beliefs about what is and is not acceptable or expected while school climate is then the feeling of a school environment that results from the school cultural practices In an effort to provide data to schools that inform their plans in creating school climates that feel safe and welcoming to students, families, and staff, the district adopted the Essentials of School Culture and Climate (ESCC) Survey, which is modeled after the 5Essentials Survey created by the University of Chicago Consortium on School Research (CCSR) ("MPS," 2014). The 5Essentials is used in urban school districts across the country, including Chicago and Detroit public schools, and was created based on research that found that schools improve when they develop strengths in the following five areas, or essentials, which include: a.) Effective Leadership, b.) Involved Families, c.) Supportive Environment, d.) Collaborative Teachers, e.) Ambitious Instruction.

The most recent results of this survey for SJH was during the 2014-2015 school year. The responses reflect that the school environment encourages and nurture three of the 5Essentials from the survey; family involvement, leadership, and collaborative efforts.

Ninety- eight percent of teachers at SJH believe that parents support their efforts in the classroom but only 36 % believe they are partners with parents. Teachers feel as if they requested a conference with parent, they show up 70 % of the time. As for leadership, 87 % feel as their administration is effective and makes the school run smoothly, but 79 % feel as though professional development is not coordinated with their content area. Lastly, 87 % of teachers report feeling loyal to their school and nearly 90 % work collaboratively with their colleagues (UDISP, 2016). These results suggest that there is great opportunity to harness the positive atmosphere and provide professional development to increase pedagogical and content knowledge in using digital tools to increase student achievement.

Technology integration is a complex phenomenon that involves understanding teachers' motivations, perceptions, and beliefs about learning and technology (Woodbridge, 2003). Assessment of student technology use should be completed within the larger context of evaluating overall academic achievement. Technology cannot be treated as a single independent variable. How well students do not only gauge student achievement perform on standardized tests or use technology tools but also by students' ability to use higher-order thinking skills (Baker, Kelly, & Haber, 2006). One common thread throughout all the technology standards is a focus on student learning and that technology standards for students, teachers and administrators ought to be considered an important part of an overall assessment plan (Baker et al., 2006). To foster student success, technology assessment planners should examine all three sets of standards in the context of what needs to be measured (ISTE, 2000, p. 17).

FOR STUDENTS	FOR TEACHERS	FOR ADMINISTRATORS
Basic operations and concepts	Technology operations and concepts	Leadership and vision
Social, ethical, and human issues	Planning and designing learning environments and experience	Learning and teaching
Technology and productivity tools	Teaching, learning and the curriculum	Productivity and professional practice
Technology productivity tools	Assessment and evaluation	Support, management, and operations
Technology research tools	Productivity and professional practice	Assessment and evaluation
Technology problem-solving and decision making tools	Social, ethical, legal, and human issues	Social, ethical, and legal issues

Figure 2. International Society for Technology Education (ISTE) standards for students for students, teachers, and administrators.

The Next Generation Assessment Task Force convened in September 2008 to formulate Wisconsin's path forward in establishing internationally benchmarked standards working collectively with a balanced assessment system (Wisconsin Policy Research Institute [WPRI], 2007). Proficiency must not be an endpoint instructionally,

nor the only achievement goal for our students, as recognized also by ISTE's refreshed technology standards earlier this year. It seems fitting that state assessments standards also redefine its standards to adjust to changing demographics of citizens and workforce skills needed for 21st century markets.

Integrating technology in schools and classrooms is not so much about helping people to operate as it is about helping teachers integrate technology as a tool for learning (Mills & Tincher, 2003). For example, one key study finding of the Student Learning Through Wisconsin Libraries reveal that the information technology tools that school libraries provide transform the search, identification, access, retrieval, and information evaluation process as well as the format that students use to communicate data and information (Smith, 2006). Furthermore, more accessible information expands its value to an ITL environment, improving each student's ability to achieve 21st Century competencies.

Curriculum content, the instructional process, and authentic assessment must support technology inclusion, although technology integration in classrooms is more about teaching and learning than it is about technology (Mills & Tincher, 2003). The efforts of technology literacy implementation and assessment need to be examined as part of a multifaceted school reform effort rather than as an isolated entity (Glennan, Jr., Bodilly, Galegher, & Kerr, 2004). If schools have the vision to move beyond using information technology to reinforce old pedagogies, innovative teaching strategies and instructional interventions need to be addressed (Wong, Li, Choi, & Lee, 2008). This requires an emphasis on participative media, radical change in pedagogy enabled by

information technology, and recognition of the emergent capabilities of learners, including teacher learners. In reshaping classroom practices, students must be knowledge generators and active participants in their own learning (Wong et al., 2008).

Teachers through modeling technology use in the classroom, applying technology across the curriculum, applying technology to problem solving and decision making in authentic learning environments, and applying technology to facilitate collaboration and cooperation among learners can help facilitate the implementation of technology standards in their classroom (Mills & Tincher, 2003). Effective integration of technology is the result of many factors, but the most important factor is the teachers' competence and ability to shape instructional technology activities to meet students' needs (Gorder, 2008). Teachers know their content and pedagogy, but if teachers feel pressured to change their pedagogy to accommodate new technologies, they are more likely to resist adopting technology altogether (Ertmer, 2005). When teachers do become confident in their ability to use technology, they generally focus on teaching students first-level technology skills, which include how to work the technology, but many teachers ignore the second- level skills of knowledge integration and a deeper understanding of analyzing information (Gorder, 2008).

Technology Equity

According to the National Black Information Technology Leadership Organization (NBITLO) and the U.S. Bureau of Labor Statistics, blacks hold less than 8 percent of all information technology jobs in U.S., and fewer than 3 percent of IT leadership positions. Blacks and Hispanics are less likely to be in management, professional, and related

occupations—the highest paying major job category—than whites and Asians. In 2012, half (50 percent) of Asians worked in management, professional, and related occupations compared with 35 % of Whites, 24 % of Blacks, and 17 % of Hispanics ("US. DOL," 2012).

In 2012, 23 % of employed Black men and 22 % of employed Hispanic men worked in service occupations, whereas 15 % of employed Asian men and 14 % of employed White men worked in these occupations. Employed Black and Hispanic men also were more likely than White or Asian men to work in production, transportation, and material moving occupations. One quarter of employed Hispanic men 25 % worked in natural resources, construction, and maintenance occupations, a higher share than for White men 17 %, Black men 11 %, or Asian men 6 %. Information technology is both pivotal and pervasive in the US economy.

There is a cost of the US income gap on our economy. It is estimated that between 1998- 2008, the US Gross Domestic Product (GDP) lost between $310 billion to $525 billion due to the racial achievement gap and $400 billion to $670 billion due to the income achievement gap and $1.3 trillion to $2.3 trillion because of the international educational gap (McKinsey & Company, 2009). Because of under-utilizing such a large proportion (African American and Latino) of the country's human potential, the low-skilled labor market has decreased in the last decades as skilled technological and organizational changes in the workforce is in high demand. This implies that achievement gaps where communities of low-achieving local schools produce clusters of Americans largely unable to participate in the greater American economy due to a concentration of

low skills, high unemployment, or high incarceration rates (Broecke, Singh, & Swaim, 2016). The achievement gaps that currently exist in the United States between certain groups of students and others impose the economic equivalent of a "permanent national recession" on the nation (Amos, 2009).

Wisconsin has been labeled one of the worst states in the nation for black and brown children based on measures including poverty, single-parent households, and math proficiency (Becker, 2015). Students who live in poverty not only face academic hurdles, but they are more susceptible to cognitive and mental health stressors. Adverse childhood experiences can rewire a child's brain in a way that makes it harder to learn (Becker, 2016). Investing in disadvantaged young children is a rare public policy initiative that promotes fairness and social justice and at the same time promotes productivity in the economy and in society at large. These children are our future workforce, they're our future leaders and we need to be making sure that they get the best start possible.

One way to improve ITL knowledge is to use the technology at a high level (Ford & Whaley, 2003). For example, using the computer to play video games provides little growth in ITL knowledge unless you are developing new video games. Restricting use of the internet to e-mail, chat rooms, and entertainment websites does little to enhance one's ITL knowledge. However, activities such as developing one's own webpage, learning HTML, conducting web searches beyond key- words, and installing local area networks require higher-level ITL knowledge that prepares individuals for employment in the industry (Ford & Whaley, 2003). Higher-paying jobs in the industry are directly related to higher-knowledge jobs.

Researchers tend to compare rates of access to these technologies across individuals or schools based on race, sex, disability status, and other identity dimensions (Gorski, 2001). The "divide" refers to the difference in access rates among groups. The racial digital divide, for example, describes the difference in rates of access to computers and the internet, at home and school, between those racial groups with high rates of access (White people and Asian and Asian-American people) and those with lower rates of access (Black people and Latina(o) people) (Gorski, 2001). The Children's Partnership research found that, though many underserved communities are gaining access to the internet, many are not benefiting fully because of barriers they face related to content (Lazarus & Mora, 2000). Significant barriers including lack of local access to community information, literacy and language barriers and lack of cultural diversity affect large numbers of Americans stand between them and the benefits offered by utilizing on- line digital content (Lazarus & Mora, 2000).

Simply providing schools and communities with more computers and more, or faster, internet is a positive step forward, although it fails to address social, cultural, and political factors that will be in place with or without more machinery (Gorski, 2001). For example, research indicates that, while teachers in schools with a high percentage of white students and a low percentage of students on free or reduced lunch programs are more likely to use these technologies to engage students in creative and critical thinking activities. Teachers in schools with a high percentage of students of color and a high percentage of students on free or reduced lunch tend to use computers and the internet for a skills and drills approach to learning (Gorski, 2001). Additionally, the growing online

presence of African Americans and Latina(o)s is tempered by the growing number of white supremacy web sites and a more intense sense of fear and vulnerability among these groups (along with Native Americans) relate to the availability of personal information online (Gorski, 2001). A new understanding of the digital divide is needed--one that provides adequate context and begins with a dedication to equity and social justice throughout education.

Current Practices

The No Child Left Behind Act (NCLB) was signed into law in 2003. This law requires all states to establish a system of tests to measure student's achievement. It mandates tests in reading, math, and science for students in grades three through eight. The Technology Act of 2001, Title II, Part D of NCLB provides grants for states that meet specific requirements to integrate technology into the curriculum. One of the requirements is that the grant application must include a description addressing "how the State educational agency will ensure ongoing integration of technology into school curricula and instructional strategies in all schools in the State, so that technology will be fully integrated into the curricula and instruction of the schools" (Title II, Part D, 2413).

Because of these mandates, school leaders have been scurrying to provide teachers and students with adequate access to computers and the internet (Barron, 2003), attempting to reform curriculum and instructional practices which advocate rich authentic technological learning experiences and exploring ways to change negative pedagogical practices as it relates to technology and its uses (Becker, 2000). Despite these efforts, 15 % of 4th graders and 24 % of 8th graders in Wisconsin scored below the basic level of

math Lazarus & Lipper, (2003) and the state's nearly 2 % drop- out rate compared to Sunnyville Public Schools drop-out rate at 6 % has steadily increased over the past decade (Wisconsin Department of Public Instruction [WDPI], 2008).

Although the NCLB mandates have caused debates among politicians, educators and community interests, there is some value to its goal which is to teach all students. The current and future health of America's 21st century economy depends directly on how broadly and deeply Americans reach new levels of 21st Century Literacy that includes strong academic skills, thinking, reasoning, teamwork skills, and proficiency in using technology. In Wisconsin, we are missing the mark when nearly 75 % of our youth are not proficient in math (WDPI, Sunnyville School District Performance Report, 2008). We are not impacting those who have dropped out of the educational system. For our youth to thrive in a digital economy, these students, almost more than any other group, will need digital age proficiencies (U.S.21st Century Workforce Commission, 2000). It is important for the educational system to make parallel changes to fulfill its mission in society, namely the preparation of students for the world beyond the classroom (U.S.21st Century Workforce Commission, 2000). Therefore, the educational system must understand and embrace 21st century skills within the context of rigorous academic standards.

The use of technology to foster student learning has been identified by SPS in its characteristics of a high performing urban classroom. The Eighth-Grade Technology Literacy requirements were developed to foster continued digital competencies. One area in which we experience digital inequalities is in internet connections. SPS has identified

the need to reduce large capital expenditures for electrical and wiring infrastructure by pursuing wireless technology to cost effectively extend its network (Davis, J., 2007). Additionally, SPS acknowledges its need to continue to strive for equitable access to technology resources for all students and staff to reach a ratio of students to computers equal to 3:1. Although nearly all middle schools south of Wisconsin Avenue are equipped with wireless access, there are no wireless access points at SJH. Many teachers use district laptops and their own personal laptops as part of their daily instruction, but must deal with cumbersome electrical and wiring obstacles. Not only does this further hinder access to information, but it discourages teachers and students who have laptops from learning and exploring technology.

Wisconsin Teacher Standard #4 Wisconsin DPI, (2000) states that the teacher understands and uses a variety of instructional strategies, including the use of technology to encourage children's development of critical thinking, problem solving, and performance skills. Indeed, teachers are provided with a personal laptop in their classrooms, but many teachers utilize this tool simply for attendance and enrollment activities (Davis, 2007). For the 2009- 2010 school year, all 6- 12 teachers were mandated to utilize the Electronic Student Information System (eSIS) for report card and grade- book features. Although the implementation of this mandate increases how student demographic data is collected, many teachers have not bought into to this technology due to its limitations of providing data in which teachers can utilize to provide more need-specific data for instructional purposes. Furthermore, SPS notes that positive use of eSIS and a resulting increase in work being done by school staff is off hours Davis, (2007)

which spells out negative implications for teachers who consistently use this database service simply to keep up with mandated reporting activities. To perform this type of data report off school hours, teachers must install software to their personal computers to access the database and are subject to SPS Acceptable Use Policy (infringing on privacy). The help desk hours end when the teacher day ends and the practice proliferates beliefs that teachers should continue the practice of work without pay.

We have moved from active learning to interactive learning; from simulated learning modules to collaborative problem solving (Delialioglu & Yildirim, 2007). Education is amid technology revolutions and unfortunately, too many teachers and students are causalities of this virtual conflict (Cuban, Kirkpatrick, & Peck, 2001). Teachers are being mandated to provide technology instruction as part of their curricula without support structures and minimum technology competence Bakia, Gallagher, & Means (2009) while students are being left out of the playing field in their ability to have equal access to technology (ISTE, 2000). Both supporters and critics of school technology agree that software and hardware are used in limited, even simple ways, often sustaining rather than transforming prevailing instructional practices (Cuban, Kirkpatrick, & Peck, 2001). To transform pedagogical instructional practices which support teacher development and student use of technology, human infrastructure must accompany technology infrastructure as it is crucial in increasing opportunities for students, teachers, and administrators to learn and provide on- going support (Jones, Valdez, Nowakowski, & Rasmussen, 1995).

Impact of Technology on Teacher Beliefs and Instructional Practices

A considerable body of literature indicates U.S. public school teachers have not effectively used technology to enhance student learning at a level commensurate with claims of its potential despite massive financial investments for hardware, software, and networking (Niederhauser & Lindstrom, 2006). For example, while many teachers are using technology for numerous low-level tasks (word processing, Internet research), higher-level uses are still very much in the minority (Ertmer, 2005). Results of a survey conducted by Michigan Virtual University as part of a program to give every Michigan teacher a laptop computer indicated that while most teachers reported knowing how to get information from the web and send email, only a small percentage of the teachers knew how to use high-tech tools such as spreadsheets, presentation software, or digital imaging to enhance their lessons (Newman, 2002 & U.S. Department of Education, 2003). Results from U. S. DOE were similar. The computer-related activities in which teachers most often engaged their students included expressing themselves in writing, improving their computer skills, doing research using the internet, using computers as a free-time or reward activity, and doing practice drills (Ertmer, 2005). It is apparent that with the acceleration in the pace of technological innovation and its saturation in society, skills such as problem solving, synthesizing information and communicating via technology are essential for today's students (Barron, 2003).

This increased attention to technology inclusion in K-12 classrooms has led to some positive outcomes, such as the investment to provide most U.S. schools with internet access, the purchase of varying digital media resources; software, hardware, data

base management systems, personnel, and professional development sessions for teachers to facilitate best practices for using technology in classrooms (Baker et al., 2006). Some positive advancement includes:

a. Statistics available through Quality Education Data and the U.S. Department of Education point to continuing increases in technology expenditures. The Technology Purchasing Forecast predicts that school district's technology budgets for the 2004–2005 school year totaled $7.06 billion, including both E-rate and district spending (Callan, Finney, Kirst, Usdan, & Venezia, 2006).

b. Technology has a positive impact on teaching and learning when teachers and principals work together to plan how to focus technology use in the classroom on regular curriculum activities Cradler (1995) and is expected to grow.

c. More differentiation is apparent for some dimensions, especially instructional leadership, positive learning environment, building and management and community relations (Lazarus & Mora, 2000).

d. The nation's considerable investment in educational technology is resulting in greater increased uses of technology by teachers, both for instructional applications with students and for related professional activities, such as grade- books, attendance, and communication with colleagues (Feldman & Capobianco, 2007).

e. Along with increase in spending have come improvements in student and teacher access to technology, as well as calls for increased accountability (Baker et al., 2006).

In addition to the above- mentioned activities related to increased technology expenditures and usage, there have been increased innovations to support student learning. For example, New York City Schools piloted a small program in which individualized, technology- based learning takes the place of the old "let's all proceed together" approach. Each day, students in the School for One are given a unique lesson plan- a "daily playlist"- tailored to their learning style and rate of progress that includes a mix of virtual tutoring, in- class instruction and education video games. It's learning for the Xbox generation (Kluger, 2009). E- Reading, on- line shopping, energy conservation research and conducting business via the internet are trends which we currently face as future technology innovation in which students must be prepared.

The challenge facing America's schools is the empowerment of all children to function effectively in their future, a future marked increasingly with change, information growth, and evolving technologies (ISTE, 2000). One consideration is through ensuring that professional educators become technologically literate. Yet literate does not indicate merely an understanding of basic software packages such as word processing skills, spreadsheets, databases, and presentation software; literacy also includes the ability to integrate technologies within instructional environments with a focus upon the student-focused integration of instructional technologies into the learning environment (Crawford, 2006).

When professional educators focus upon the importance of the learner-focused learning environment and the appropriate and successful integration of technologies, opportunity towards overcoming the digital divide and lessening the gulf between the "haves" and the "have-nots" improve (Crawford, 2006). The needs of the student learner are emphasized and can be maximized when stated learning objectives are accomplished and varying components accompany these objectives- the instructional component, interactive activities, life experiences, and permanence of learning offer students individual and differentiated learning opportunities provide a powerful opportunity to expand classroom boundaries and allow students access to alternative viewpoints and experts through subject specific technology material (Ertmer, 2005).

Additionally, professional training opportunities, follow-up professional development and support sessions through both face-to-face and online formats, and numerous interactive sessions, the professional educator successfully integrates instructional technologies into the learning environment (Crawford, 2006). When integrated successfully, technology inclusion supports meeting all content area standards and helps create a learning environment in which complex, creative, problem-solving thinking can take place (Baker et al., 2006).

A stimulating method to conceptualize the needs of the learner is to liken student digital needs to Maslow's Hierarchy of Needs (Figure.3). Maslow's hierarchy focused upon the supporting influences of human behavior, specifically, a hierarchy of human needs supported aspects related to human motivation (Crawford, 2006). With the shift in

the needs of student- focused learning, The Distance Delivery Hierarchy of Needs (Figure.3) outlines needs within the online learning environment.

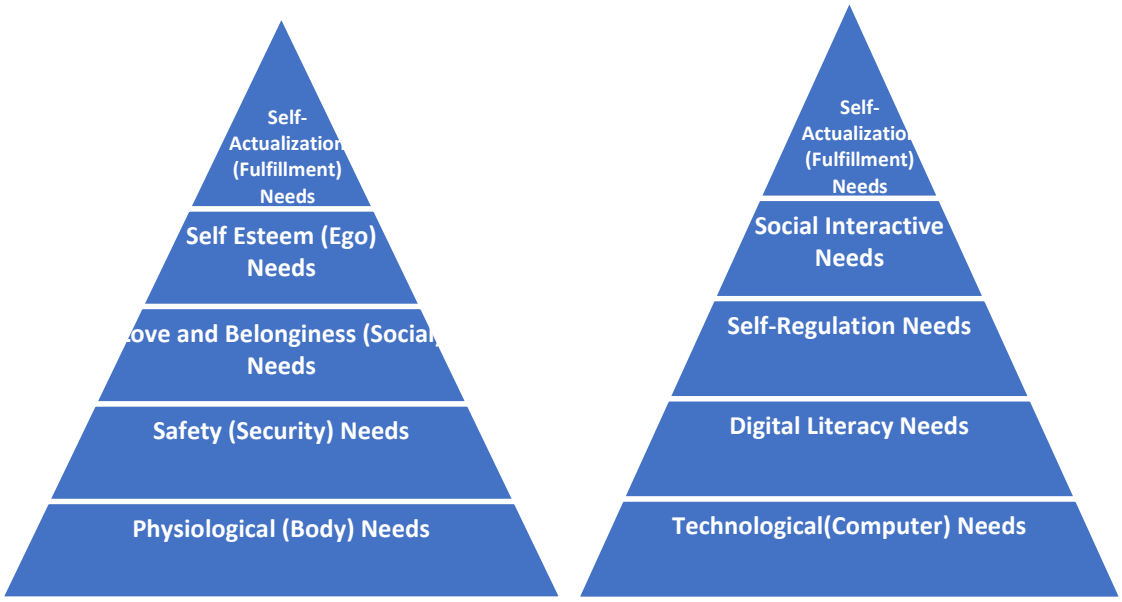

Figure 3. Maslow's Hierarchy of Needs vs. Digital Delivery Hierarchy of Needs.

With the dawning of the information age, the "haves" and the "have-nots" within the world of learning environments, as relates to information technology, are of primary concern. Digital equity within the society, as well as within the learning environment, will help support the needs of each person to address higher order thinking skills and hierarchy of needs through materials that enhance the learning experience, as focused upon learning objectives (Neuman, 1997). The focus upon digital equity within the learning environments, with the heart of the integration being the successful accomplishment of the stated learning objectives by the learners, achieves initial steps towards overcoming the digital divide (Crawford, 2006).

IISTE and the public at-large recognize the potential of technology to change education and improve student learning (ISTE, 2000). When involving students to construct their own learning with the use of technology, we allow them opportunity, with frequency, to meet not only state and local standards, but also national standards (Solvie & Kloek, 2007). Technology has become a powerful catalyst in promoting learning, communications, and life skills for economic survival in today's world. Through technology standards, ISTE is encouraging educational leaders to provide learning opportunities that produce technology capable students (ISTE, 2000) and continue to utilize strategies which overcome digital inequities.

The goal of teaching technology used in every field of daily life as well as in every stage of education, is to have individuals acquire the necessary skills in technology use. In this era, these skills are among the essentials for individuals to discover the world with the help of technology (Kurt, 2008). Educational technologies enable students to structure information from the primary sources. Besides keeping students' interest alive throughout the learning process, educational technologies also lead to continuous life-long learning. Moreover, educational technologies provide teachers with the opportunity to develop activities appropriate for most students while providing skill sets for individual learning styles (Kurt, 2008).

By using strategies to integrate technology across curriculum content, there is ongoing shift from teacher- based to student- centered instruction (Lockemy, 1993). Students sort out problems for themselves and demonstrate more reasoning and logic than in more formal situations. When students have an opportunity to think for themselves,

solve problems with collaborative peer groups and have access to a variety of tools with which to perform these tasks, they "own" their learning experiences and build confidence in their ability to interact positively in their learning and social environments (Kennedy, 2004). Learning becomes more student- centered as multidisciplinary, project-based instruction, peer tutoring, and individually paced instruction occur (Mills, 2003).

Teacher-Centered	**Learner-Centered**
Focus is on instructor	Focus is on both students and instructor
Focus is on language forms and structures (what the instructor knows about the language)	Focus is on language use in typical situations (how students will use the language)
Instructor talks; students listen	Instructor models; students interact with instructor and one another
Students work alone	Students work in pairs, in groups, or alone depending on the purpose of the activity
Instructor monitors and corrects every student utterance	Students talk without constant instructor monitoring; instructor provides feedback/correction when questions arise
Instructor answers students' questions about language	Students answer each other's questions, using instructor as an information resource
Instructor chooses topics	Students have some choice of topics
Instructor evaluates student learning	Students evaluate their own learning; instructor also evaluates
Classroom is quiet	Classroom is often noisy and busy

Figure 4. Teacher vs. Learner-Centered Instruction.

If we truly want reform in our classrooms, we need to walk the talk! As teachers see that using technology in the classroom instructionally is important and a life skill that

their school system believes in, the gatekeepers will begin open their doors to change. Teachers not only must believe that technology is a powerful change agent, but must also be shown consistency and support along their journey (Cuban, Kirkpatrick, & Peck, 2001).

Oversold? Underused?

Technology letdowns such as dying cell phone batteries or lost computer files can to lead to everything from pesky annoyances to computer rage, clinical depression, or worse. The invasion of the digital age is literally rewiring our brains, eroding skills once considered essential for a happy adult life. Gadgets were supposed to make our lives easier and save us time. Instead, we are more stressed and have less time than ever (Sullivan, 2010).

There is also research which suggests that use of technology decrease student engagement and motivation (Vaidhyanathan, 2011). It is perceived as an invitation to the students to be lazy, "not take notes may decrease the attention level and deprive students of the stimulus to learn an activity that is very important from a cognitive point of view". Vaidhyanathan further suggest that while using interactive tools can effectively improve teaching and students' response, problems with hardware placement, "political" assignments of the tool to certain teachers, parent perceptions of their student being excluded from using the technology and the pressure on teachers to proficiently utilize the tool causes the tool to be the focus rather than curriculum content. Only very few teachers seem to be ready to use electronic tools for remote cooperation teachers report

the difficulty of understanding how the potential of interactivity can be unleashed, which leaves them with a sense of inadequateness (Vaidhyanathan, 2011).

One of the biggest pitfalls is the introduction of educational technology without the planning and provision of suitable training (Cradler, 1995). Without such training, there should be no surprise if teachers will naturally use these technology tools like a chalkboard because they are familiar with the function and use of such devices. It is possible that some may use this technology as glorified "gadgets", though this occurs more often when the teacher is not supported with ongoing professional development for best practices using the tools and without having good lesson design (Ronnkvist, Dexter, & Anderson, 2000).

There are limitations of any tool and there are both positive and negative implications of any new initiative. The opinion is that technology will not replace teachers or content (Carlson & Gadio, 1999), but be used in the context of adding yet another resource with which to connect with all students. The use of these educational tools will motivate and engage students to seek opportunities to participate in their leaning experience, and not be used to replace teacher expertise. Good teachers cannot be replaced with technology, but good teaching can be enhanced using technology (Johnson, 2005).

Chapter Three: Methodology

The study will employ an action research case study approach to gain a deeper understanding of infusing technological and pedagogical innovations to curriculum instruction in a sample of classrooms at SJH. The study employed an action research case

study approach to gain a deeper understanding of infusing technological and pedagogical innovations to curriculum instruction in a sample of classrooms at SJH. A Constructivist paradigm approach looked at teaching and learning on how educators can teach students how to learn**.** Maslow's Hierarchy of Needs was referred to examine how students must have basic physical and physiological met for new learning to take place.

Examination of how technology inclusion supports curriculum, instruction and assessment practices using the technology standards and performance indicators for students will lead the study. The goal is to find out to what extent teachers are utilizing technology standards to guide their instructional practices which support technology integration into their classroom curriculum.

The use of qualitative information in the form of LoTi Digital Age Survey for Teachers in- depth conversational interviews will be used in addition to classroom observations utilizing the Looking for Technology Integration (LoFTI) tool. Specific and open-ended questions to teachers will be used to solicit experiences and pedagogical beliefs about the use of technological innovation to drive teaching practices.

Purpose of the study

The purpose of this research is to provide an avenue where ideas and views on beliefs and pedagogy in instructional practices are shared using innovative classroom practices to increase student learning. Critical issues with information and communications technology can help teachers facilitate adopting a more constructivist approach in the pedagogical process says Wong, Li, Tat-heung, & Lee (2008), thus, infusing technology into the curriculum resulting in a shift to student-centered

pedagogical practices. Critical issues as, what is taught (the curriculum), how curriculum is taught (the instruction), and the evaluation of what is taught (the assessment) is influenced by pedagogical beliefs of district goals, school leaders, teachers, and students. Beliefs about teaching and learning (and all beliefs for that matter) tend to be embedded within a larger, "loosely bounded" belief system, which is defined as "having represented within it, in some organized psychological but not necessarily logical form, each one of a person's countless beliefs about physical and social reality" (Ertmer, 2005).

Research Questions

To what extent do Social Studies teachers at Sunnyville Junior High (SJH) utilize technology standards to gage level of technology inclusion in their classrooms?

a. How do teachers perceive their competencies to technology integration?

b. How do teachers perceive their students' classroom usage of technology?

c. To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?

Hypothesis

Perceived Technology Integration skills of teachers solely, cannot predict the effective integration of technology in student products to address new learning (Nelson, 2006). Technology integrated lesson plans, the relationship between teachers' beliefs and their use of various strategies to integrate technology and a model that teachers can use to guide them through the necessary changes they will need to make to be successful in integrating new technology into their classroom (Nelson, 2006) offers the potential to

assist them in identifying and assessing Wisconsin's mandated student technology literacy standards. Continuity of professional development, time for both professional and curricular development activities (such as reviewing the software, exploring available resources, and creating new lessons) and technical, administrative, and pedagogical support for teachers can facilitate strategies to integrate technology in all content areas (Lim & Khine, 2006).

Methodology

Action Research Case Study

It enables the researcher to answer "how" and "why" type questions, while taking into consideration how a phenomenon is influenced by the context within which it is situated. It will enable the researcher to gather data from a variety of sources and to converge the data to illuminate the case (Baxter, 2008).

Constructivist Approach

Constructivists argue that human beings construct their own social realities in relation to one another. Reality is subjective and experiential; thus, this study looks at teaching and learning on how educators can teach students how to learn (Instructional design & learning theory, 1998).

Maslow's Hierarchy of Needs

Before students can consider making progress in school, they must meet basic needs outlined in Maslow's Hierarchy of needs. This research asserts that many barriers they face is trauma which influences their success in a learning environment (Applying Maslow's hierarchy of needs in our classrooms, n.d.).

Data Collection

LoTi Digital Age Survey for Teachers

An adapted survey of the LoTi Digital Age Survey for Professional Development and Technology Planning (Appendix A) was used to collect individual information from 6 social studies teachers at SJH to provide comparisons for gauging professional development needs. The survey is divided into sub sections as follows; a.) Digital Landscape, b.) Teacher Perceptions, c.) School Climate, d.) Use of Resources, e.) Standards- Based Learning, and f.) Teacher Statements. Surveys will be posted in our Moodle Teacher Resource page for those who'd like to complete it electronically and hard copies for those who'd rather use pen and paper. For those who complete the survey, they will receive a bite- sized Pay Day candy bar.

Lesson Observations

A semi-structured and participant observation will be conducted to allow for exploration of classroom practices utilizing the Looking for Technology Integration (LoFTI) tool. Some parts of the lesson observations and the sequence of events may be video-taped for further analysis. During observations, notes will be taken utilizing the Looking for Technology Integration (LoFTI) tool. My perception and the way teachers and students view the learning environment will undoubtedly contribute to the lesson observations. This study will use observation data collected from each participating teacher for two 48-minute class periods.

Teacher Interviews

The interviews (Appendix C) will be follow- ups to lesson observations. The structure of the interviews will be semi-structured, open-ended interview sessions to allow for insight to personal connections to technology. Notes will be taken for each interview and conducted at the convenience of the participant at the suggested location of their choice. Notes from the interviews will be transcribed and written into the results.

Data Sources

School Selection

All 8thgrade teachers in the district are required to determine their student's technology requirements, regardless of the type of school; rather K-8, middle school which normally has students in grades 6-8 or a 6-12 school. I chose a school where I could access participants regularly as there are several components of the study which requires multiple interactions with participants in a specified period.

Teacher Selection

I plan to recruit 8th grade teachers who work at SJH as they are easily accessible to my workplace. The unit of analysis for this study will be 8thgrade Social Studies teachers at an arts middle school. These teachers are responsible for determining whether students have met their technology literacy requirement. As the research focuses on teacher perceptions on if they can utilize technology standards to gauge student technology competencies, students will only be observed on their reactions to when/ if/ how teachers utilize technology in their instruction.

Participant demographics

Santiago is a 38-year-old African American female who teaches 8th grade Social Studies at SJH. She has been teaching for 15 years and has been working at the case school for 8 years. Santiago teaches part time at a university in Sunnyville County. She refers to her students as "scholars", is very active in her community and has high expectations for student achievement. She utilizes technology frequently for personal and professional use and describes her technology knowledge as proficient.

Michelle is a 35-year-old African American female. She has been a teacher for 8 years and at the case site for 5 years. By her own admission, Michelle is very competitive and loves a challenge. Before she began teaching at SJH, she taught science at another SPS middle school. She says that her experience as a science teacher was an excellent backdrop to her current teaching position as an 8th grade Social Studies teacher as she connects many science concepts into teaching Social Studies. She uses a project- based hands- on approach to her teaching practices. She reports that she has high expectations for her students and that failure is not an option.

Procedures

The selection criteria are: 8thgrade teachers who are responsible for determining student technology competencies who teach at SJH. I will select teachers who are willing to allow me to observe them and share their experiences of their thoughts, perceptions, and usage of technology in instruction. I will arrange a time to observe each teacher participant's classroom and confirm all times and dates a week before, 3 days before and

the day before. Teachers are very busy and many times things come up when teachers simply forget non- classroom commitments.

Study Timeline

January 2010	February 2010	March 2010	April 2010
Submit research application	Set up interviews and lesson observations	Gather data	Analyze data and write results

Figure 5. The timeline of study.

Significance to SPS

This study will be beneficial because of its suitability for uncovering the interaction of relevant contextual factors of the relationship between assessing technology literacy and teacher beliefs. Participation in this research study could contribute to a better understanding of teachers' perceptions and beliefs about their ability to utilize technology standards to determine students' technology competencies and have confidence in their ability to deliver technology rich instruction. Variables as a school/ classroom climate, socioeconomic conditions, student population, class size, student and teacher technology literacy are impossible to define in isolation so the interconnected relationships should be considered.

One or all these factors can affect how technology is utilized at SJH, by the teachers and students, thus, enabling capability to record the frequency and depth with which these factors contribute to students' ability to utilize technology tools for academic success, life skills and personal growth. These cases will help gain insight into relevant critical issues related to how teachers use technology standards to influence their teaching practices as related to technology integration

Data Analysis

The aim of data analysis in this research is to describe and explain the various relational patterns based on the technology standards collected from teacher LoTi Digital Age Survey for Teachers, classroom observations using Looking for Technology Integration (LoFTI) tool and teacher interviews (Appendix C). This study aims to measure the change towards more collaborative and self-directed inquiry-based learning for students, the more facilitative roles for teachers as well as greater connectedness of the classrooms and its students. Four indicators will be used to analyze data.

a**.** The technology standards and the indicators for each standard- will then be developed and linked with their subcategories. These categories will not constitute specific data of an individual, but are highly conceptual terms reduced from classroom observations as well as the spoken accounts of teachers and students. In this way, the data are reduced into the same set of categories that represent the voices of many people within the study (Wong, Li, Choi, & Lee, 2008). Using relational statements, the findings about each participant center on a relational pattern based on technology standards, including descriptive details. In this way, room for different information technology implementation strategies could emerge from the data, and finally to sort out the factors that contribute to successful information technology implementation in education within and between classrooms.

b. The pattern of interaction- it is possible to uncover the different ITL implementation strategies that have emerged from the classroom, and see how these different strategies relate to different learning outcomes and classroom practices. Based

on the understanding that effective use of Instructional Technology Literacy Practices must be construed in the pedagogical and organizational context, the analysis focuses on the impact of relevant contextual factors on teaching and learning, and how these factors interact with each other, particularly the relationship between technological innovations and pedagogical innovations (Wong et al., 2008).

c. Teaching & Learning-Two indicators, *ability* and *attitude* is evidence of positive student outcomes. It is an outcome variable that measures the evidence of significant changes in roles of teachers and students towards a student-centered approach in the classroom practices. Ability indicator measures whether students are independent in their learning, active in constructing knowledge, and whether they make use of collaborative work to facilitate learning (Proctor, Watson, & Finger, 2003). Attitude indicator measures whether students have courage to express ideas, whether they are motivated in learning, and whether they enjoy learning. Documenting instructional strategies of teachers will provide evidence for tracing changes in teaching and learning towards a student-centered approach.

d. Roles of information technology and technological innovations-In measuring the roles of information & technological innovations on teaching and learning, this study will use two indicators; an indicator measuring whether information technology integration transforms rather than supports or extends the curriculum (are 21st century skills being implemented) an indicator measuring the kinds of technological innovations used in classroom practices.

Procedures for Obtaining Informed Consent

Participants of this study will be given a Consent Letter to sign before participation in the research. The consent letter details a 1.) description of the study; 2.) participant's role in the study; 3.) assurance of confidentiality; 4.) observation sessions; 5.) a follow- up interview; 6.) participant's contact information.

Chapter Four: Data Presentation and Findings

In this chapter, the results of the LoTi Digital Age Survey for Teachers, lesson observations utilizing the Looking for Technology Integration (LoFTI) tool and follow-up interviews are presented. The survey data was used to help determine teachers' professional development priorities related to the ISTE Standards for Teachers and to provide information about professional development needs. The lesson observations utilizing the Looking for Technology Integration (LoFTI) tool allowed for exploration of classroom practices involving the dynamics surrounding the use of technology and teachers' relationship with it. Teacher interviews (Appendix C) were completed to report teacher perceptions and experiences with technology use.

Two fundamental goals drove the collection of the data and the subsequent data analysis. One goal was to examine if perceived technology integration skills of teachers influenced their ability to utilize technology standards to determine if students met their technology literacy requirements. The second goal was to examine if IT transforms or just supports/ extend learning to meet technology standards. These objectives were accomplished. The findings presented in this chapter demonstrate the potential for

merging pedagogical innovations and transformational leadership. The following guided prompts were used during the data collection process:

Research Questions: To what extent do Social Studies teachers at Sunnyville Junior High (SJH) utilize technology standards to gage level of technology inclusion in their classroom

a. How do teachers perceive their competencies to technology integration?

b. How do teachers perceive their students' classroom usage of technology?

c. To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?

Surveys- LoTi Digital Age Survey for Teachers (Appendix) was distributed to 6 Social Studies teachers at SJH, two of which were observed and interviewed for this study. The survey was posted in our Moodle Teacher Resource page for those wanted to complete it electronically and I provided hard copies for those who wanted to use pen and paper. The participants who completed a hard copy of the survey, I manually entered the data into the electronic copy. For those who completed the survey, they received a bite-sized Pay Day candy bar.

LoTi Digital Age Survey for Teachers data is divided into sub categories: a.) Digital Landscape, b.) Teacher Perceptions, c.) School Climate, d.) Use of Resources, e.) Standards- based Learning and f.) Teacher Statements.

To answer the question***, "How do teachers perceive their competencies to technology integration?"***, results indicated that despite obstacles with the digital landscape of their building, most teachers believe that they have the necessary

capabilities and skills to integrate digital resources successfully into their classroom instruction. Lack of digital access, time to learn the technology and lack of professional development were cited as hindrances although they believe that the use of digital resources can positively impact student learning and achievement.

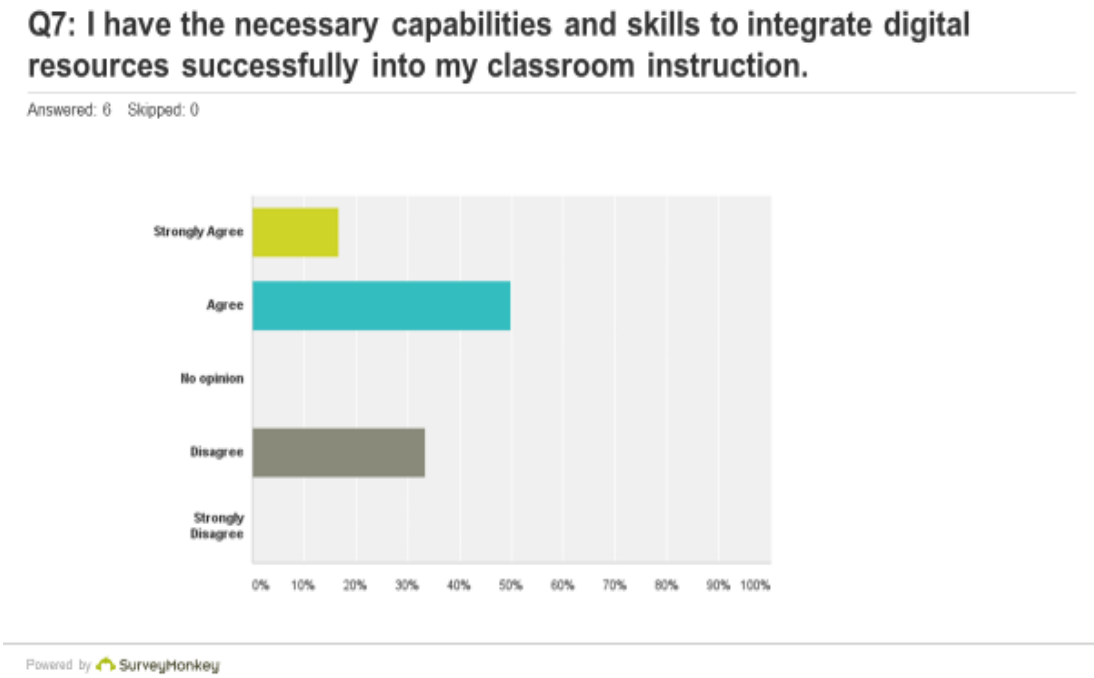

Figure 6. LoTi Digital Age Survey results for question 7- teacher perceptions

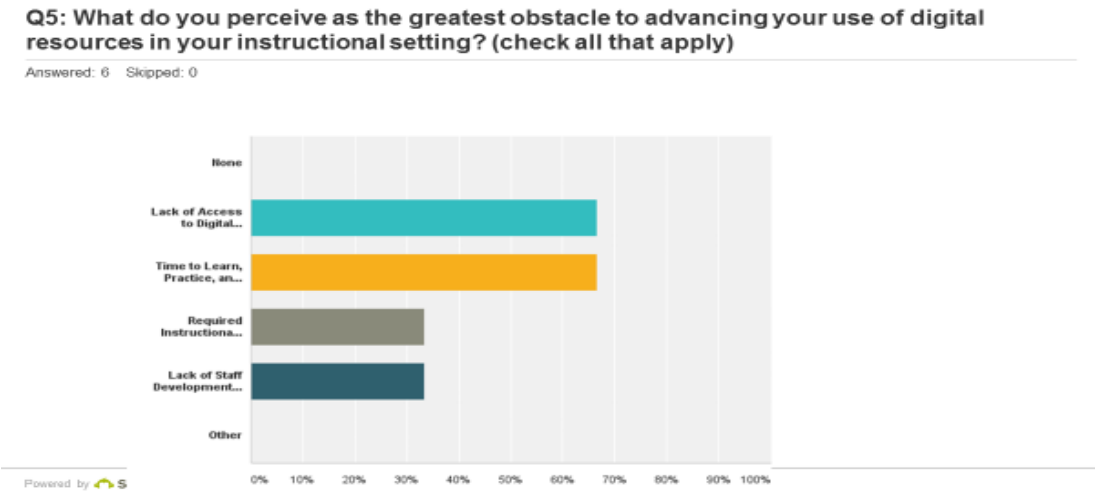

Figure 7. LoTi Digital Age Survey results for question 5- digital landscape

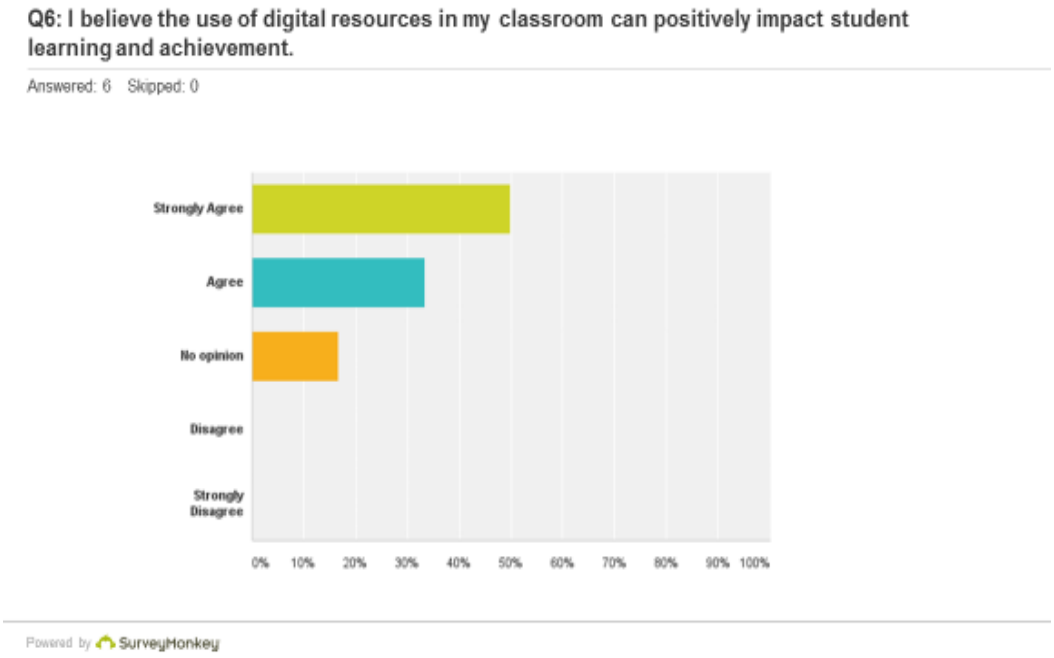

Figure 8. LoTi Digital Age Survey results for question 6- teacher perceptions

The data further indicates that teachers are unsure of where to go to when they need support for using digital resources in their classroom, (e.g., Teaching Channel, YouTube, Kahn Academy) or who (e.g., campus technology specialist, academic coach, grade level teacher, curriculum coordinator). This is contrary to Michelle's statements. She shared that she seeks out opportunities to access technology resources, thus having a capacity to locate support when needed, although not necessarily in the school or district where she teaches.

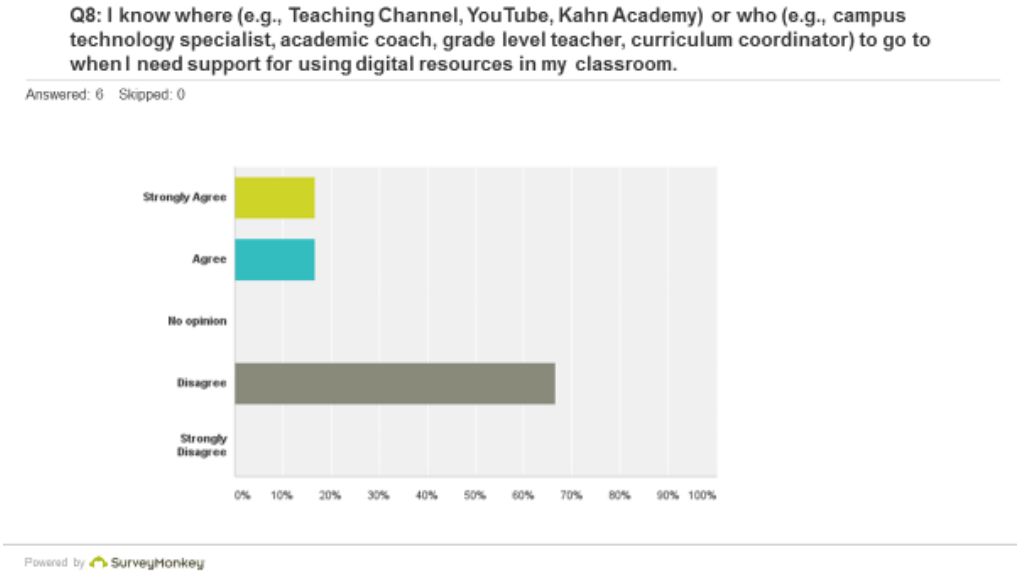

Figure 9. LoTi Digital Age Survey results for question 8- digital landscape

To answer the question, ***"How do teachers perceive their students' classroom usage of technology?"***, LoTi Digital Age Survey for Teachers data indicates that students rarely find innovative ways to use the school's digital tools (e.g., 1:1 mobile devices, digital media authoring tools) for inquiry- based learning opportunities because basically, there is limited access to these tools. The results also indicate that students are more engaged when digital media for is used for collaboration, publishing and research to tackle real world challenges within our community, which is one of Santiago's main uses of technology. When asked, if she felt if students were more engaged when technology is used. She explained, "Yes they are because ***they*** participate in gathering information and ***they*** make their ***own*** decisions deciding whether it is relevant."

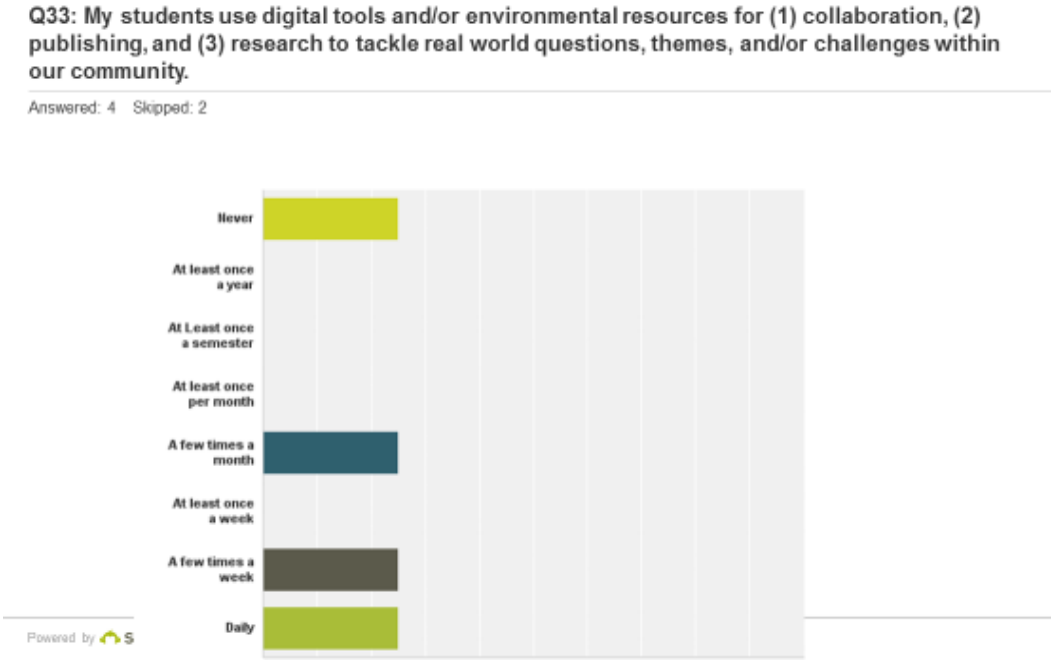

Figure 10. LoTi Digital Age Survey results for question 33-teacher statements

To answer the question, ***"To what extent does leadership in your school or district support your efforts in using*** technology standards ***to assess student technology literacy?"*** The results indicated that teachers do not engage in two- way communication with their school's administrators. In addition, there is no feedback on the integration of digital resources from school administrators.

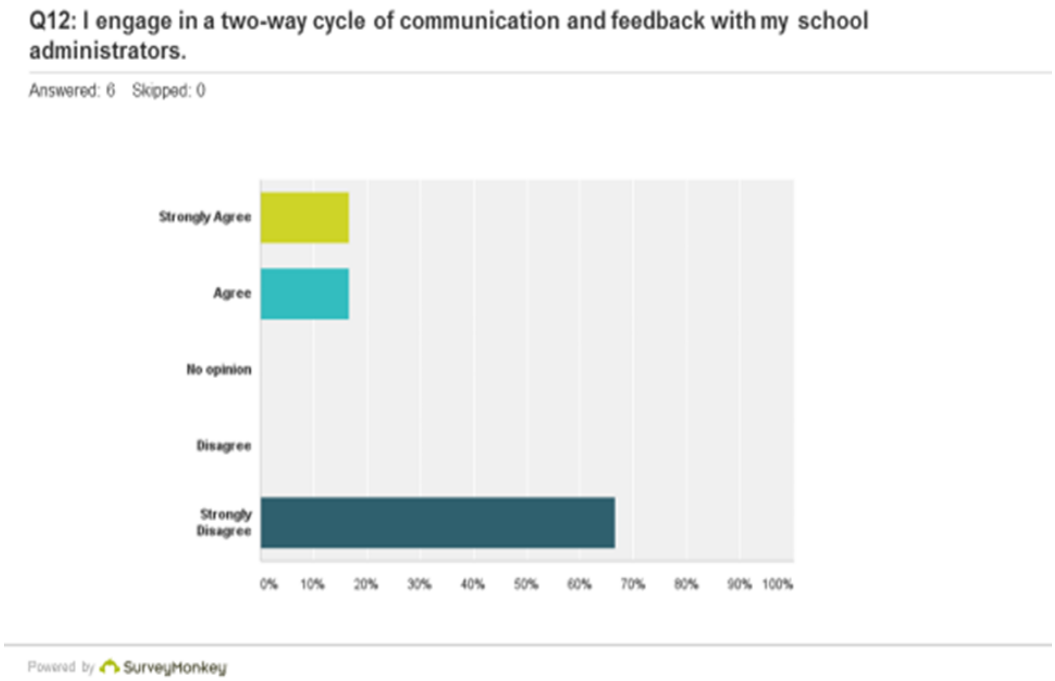

Figure 11. LoTi Digital Age Survey results for question 12- school climate

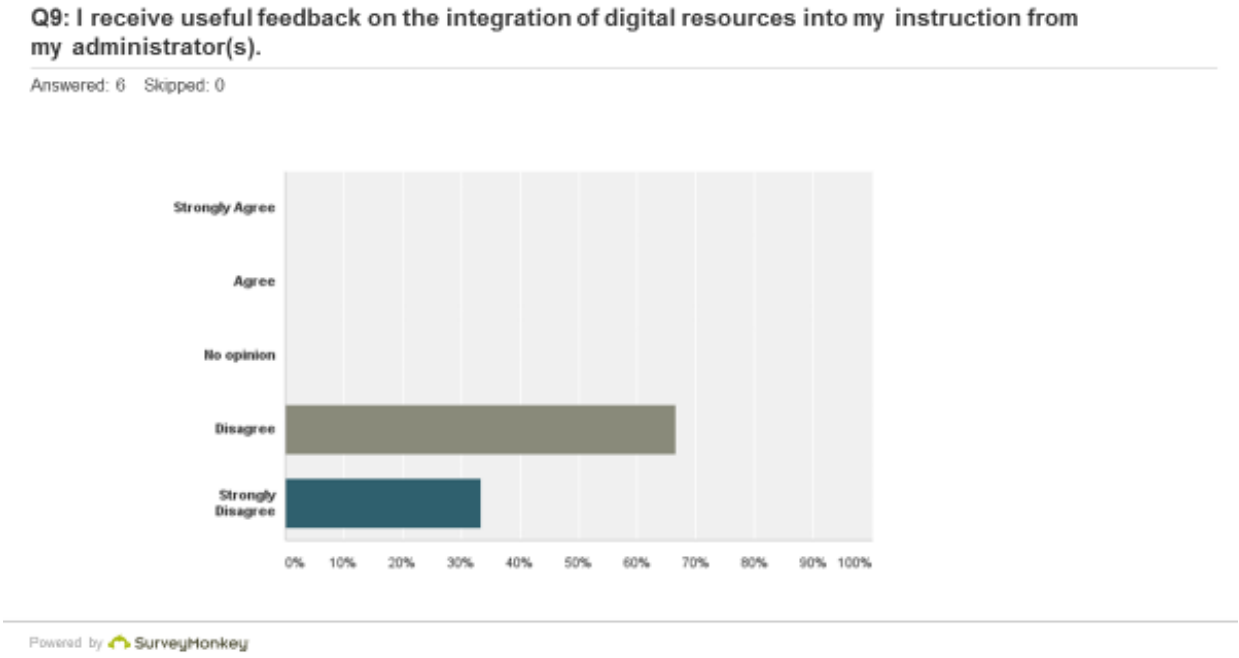

Figure 12. LoTi Digital Age Survey results for question 9- school climate

Lesson Observations

A semi-structured and participant observation utilizing the Looking for Technology Integration (LoFTI) tool was conducted to allow for exploration of classroom practices involving the dynamics surrounding the use of technology and the teachers' relationship with it. During the observations, I took notes utilizing the Looking for Technology Integration (LoFTI) tool. The observation data was collected from two 8thgrade Social Studies teachers for two 48- minute class periods. These observations occurred over the course of two weeks.

The Looking for Technology Integration (LoFTI) tool (Appendix B) was used to collect observation data. At times, I interacted with the students while they were using computers, asking clarifying questions related to functions performed by the students to gain an understanding of how they interpreted their work. The Looking for Technology Integration (LoFTI) tool was utilized to evaluate the results from the observations were evaluated (using the previously developed codes) and used to develop questions for the final interview.

Participants A and B: Personal Detail

Santiago is a 38-year-old African American female who teaches 8th grade Social Studies at SJH. She has been teaching for 15 years and has been working at the case school for 8 years. Santiago teaches part time at a university in Sunnyville County. She refers to her students as "scholars", is very active in her community and has high expectations for student achievement. She utilizes technology frequently for personal and professional use and describes her technology knowledge as proficient.

Michelle is a 35-year-old African American female. She has been a teacher for 8 years and at the case site for 5 years. By her own admission, Michelle is very competitive and loves a challenge. Before she began teaching at SJH, she taught science at another SPS middle school. She says that her experience as a science teacher was an excellent backdrop to her current teaching position as an 8th grade Social Studies teacher as she connects many science concepts into teaching Social Studies. She uses a project-based hands- on approach to her teaching practices. She reports that she has high expectations for her students and that failure is not an option.

Santiago's Observation Data

I arrived at the classroom during passing time as students were arriving and took a seat near the row of windows. As I looked around the classroom, the desks were arranged in quads with each named after a continent. Hanging from the ceiling were signs to indicate "centers", e.g., writing, map, technology, and comprehension. There was a library area with bean bags and pillows atop a shaggy rug. There were inspirational and procedural posters posted throughout the room.

As students entered the classroom they retrieved notebooks to copy information from the whiteboard. The classroom space was inviting, yet seemed cramped as there were 39 students in the class. During this time, the teacher spoke with a couple of students prior to them sitting in their seats, presumably regarding their missing work as I heard one of the students say, "but I did turn my work in!". As the students went to their seats, the teacher began discussing the Learning Intentions: "Today we will be examining

the Bill of Rights and what they mean to the American public". The Success Criteria read, "I know that I am successful when I am able to provide an example for each"

Teacher reminded students of their previous Learning Center rotations from the last class period. The "continents" moved to their perspective centers as teacher stationed herself in the technology center to facilitate the lesson. Teacher passed out a worksheet to each student in the technology group and instructed to navigate to a website. Students began recording information from the website on to their papers. After 15 minutes, the continents rotated and teacher repeated the lesson to another group. After two rotations, teacher quickly gathered students back to a who group and instructed them to record in their notebooks, their take-a-ways of the day. Teacher instructed students to copy their homework assignments in their student planner at which time the bell rang to indicate the end of class. One student from each continent collected notebooks from their group, placed them in the bin and were dismissed from the class.

Michelle's Observation Data

Michelle's initial observation took place from 11:35- 12:18 following the student lunch hour. I was already seated and present when the students arrived. As I observed the classroom, it appeared to be in managed chaos. There were student projects hanging all over the classroom; from the ceiling, on bulletin boards, a model of the statue of liberty in a corner and art supplies all over the classroom. Although the room was very messy, it felt as if it was a very busy room with projects in different stages of completion all around the classroom.

As students entered the classroom, teacher Michelle instructed them to sit at their assigned seats. I counted thirty-two students in the classroom. She then summoned students to pay attention as she reviewed the lesson's learning intentions and success criteria. The learning intentions were, "today we will be investigating Bill of Rights violations in the US". The success criteria stated, "I know I am successful when I can match a Bill of Right violation to its respective bill of right".

The teacher then recruited a student volunteer to pass out worksheets that they had worked on in pairs the day before. Students then took their positions either sitting/ lying on the floor while others sat/lied on desks. The teacher then turned on the projector to display a jeopardy- like activity where students had to read examples of a rights being violated and match it to one of the first ten amendments. What made this activity particularly odd was that the image was projected on the ceiling as there was no white space in the room. All students were engaged with their partner and other pairs of students looking and pointing to the ceiling, taking notes, and having discussions. The teacher used a yardstick to point out information from the images projected on the ceiling. I knew that observing how all students were engaged had done before Michelle's method of how she used the technology and the teacher did not go thru an explanation process about her use of the technology.

Teacher Interviews

I began the interview asking basic demographic information regarding length of their teaching careers, length of time teaching at SJH and levels of technology usage to deliver instruction. The interviews were specific open- ended questions which turned out

to be more of a conversation around participant's technology uses and their perceptions about their readiness to utilize these tools to assess mandated Technology Literacy requirements. The following guided prompts were used during observations utilizing the Looking for Technology Integration (LoFTI) tool:

Research Questions: To what extent do Social Studies teachers at Sunnyville Junior High (SJH) utilize technology standards to gage level of technology inclusion in their classrooms?

a. How do teachers perceive their competencies to technology integration?

b. How do teachers perceive their students' classroom usage of technology?

c. To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?

Interview data

a. How do teachers perceive their competencies to technology integration?

To familiarize myself with your background, briefly share your experiences about technology in your personal life.

Santiago stated: I use some form of technology every day from checking emails to social media.

Michelle stated: I use email and Facebook practically every day. I'm not very proud of how much I am on Facebook though. We also just had cameras installed at our house and we can see stuff from out cell phones.

How would you describe yourself as a technology user?

Santiago shared: I utilize technology frequently for personal and professional use so I would describe my technology knowledge as proficient.

Michelle added: I'm not the most knowledgeable person with using technology but I can get most of the things done that I want to.

Tell me about the kinds of technology that are available for you at home/school?

Santiago stated: At home I have just the regular technology, a fancy refrigerator with lots of bells and whistles and the same with the washer dryer. I have a desktop computer, fax machine printer. Here at school there's a computer lab, Smart Boards, printers, projectors, and overhead projectors. There could be more, but I'm not sure what.

Michelle shared: Like I said earlier, we have a home security that we can check on our phone, which is so hyped, to me. And so, you know with the girls, we should have a computer, a tablet and we all have iPhone. We also have an all- in- one printer. Here at school we have 2 computer labs, but one is only for ELA teachers, there are Smart Boards, but only for math teachers. Most teachers have 3 or 4 computers in our classroom, but a lot of times they don't work. We have projectors, there's one printer per grade level/ floor and most of us have overheard projectors.

What technology is available for day-to-day use in your classroom?

Santiago added: I use the overhead projector daily and my teacher computer for administrative duties like, attendance, Incident Referrals, and email. I do have 3 working desktops in my class, but we don't use them daily. TV and VCR.

Michelle stated: I use the overhead every day. Even though it may be considered "old school", I still love to use it. It's simple to operate and plus I have tons of lessons on

the film that is used with projectors. I love it too because it is so versatile; you can write on it or do a last-minute lesson or something. TV and VCR.

Think about how technology is used in your classroom. How would you describe the current use of technology in your classroom?

Santiago stated: We use it for word processing and group research. Additionally, I use the TV/VCR and overhead to introduce lesson via video, news articles and the like.

Michelle added: I have just started learning about how students can use their cell phones in class. Students use their on-line Social Studies books and group work.

What forms of technology do you use with your students?

Santiago shared: The overhead and occasionally the TV and VCR

Michelle stated: The overhead, TV, and VCR. Students work on group activities.

How often do you implement technology in your classroom?

Santiago added: Daily

Michelle stated: Everyday

Describe how you make decisions regarding what technology to use in your classroom?

Santiago shared: There are many variables that determine what technology to use; will a resource teacher support my special needs students? What is the difficulty level of the lesson? Which day of the week is it? Which technology works today?

Michelle added: If I'm introducing a new concept, I use technology to grab their interest; like a video from Discovery or Teacher tube. I use technology when I want

students to be creative, like the lesson you observed with students gathering information from the ceiling.

Describe a lesson/activity in which you used technology with your students.

Santiago stated: I know that many of my students are visual learners and utilizing graphic organizers are a great help. I shared a few examples of articles with reliable and non-reliable sources. I then had students to identify the different parts of the news as the headline, lead, and quotations to record the information into the graphic organizer so that they would have a visual representation of what they are reading. The graphic organizer became a guide for students to write their own fake stories to share with other classmates on our Student Learning Community (SLC).

Michelle shared: Once I did a review activity about landforms and bodies of water. I recruited a student volunteer to pass out worksheets that they had worked on in pairs the day before. Students then took their positions either sitting/ lying on the floor while others sat/lied on desks. I turned on the projector to display a jeopardy- like activity where students had to come up with questions about descriptions of different landforms. What made this activity particularly fun was that the image was projected on the ceiling because there was not white space in the classroom. All students were engaged with their partner and other pairs of students looking and pointing to the ceiling, taking notes, and having discussions. So, sometimes it's not about the type of technology used, but rather how it's used.

What does technology integration mean to you?

Santiago: Using technology as part of instruction.

Michelle: Incorporating technology in teaching practices.

Did you have any difficulty with technology integration in the classroom? Why?

Santiago stated: The first lesson that I ever taught, I used technology; an overhead projector. I had no problems then, but as technology became more sophisticated, it was a bit more challenging to plan lessons because I was learning the technology while I was using it to deliver instruction. I initially thought that I could simply peruse through information and seamlessly move through the lessons with ease. That was a lie.

Michelle added: I did have difficulty with technology integration when I stared to integrate it into my lessons. I came from a background in the private sector; Blue Cross, and I used technology often for presentations. I thought that I could just change my audience and things would go smoothly. I remember thinking, "I got this in the bag" and boy was I wrong. I miscalculated the time need for planning and that with students, I had to go through each single step. Lessons either were too short or took a lot more time that I had allotted. I also had problems with finding the right types of lessons to use technology with.

How do other teachers use technology with their students?

Santiago stated: From my observations, many teachers use technology in the same way that I do. We use it mostly as a replacement. For example, instead of writing using pen and paper, we do word processing on the computers. Instead of showing videos/ movies on TV/VCR we use the overhead projector. It's kind of embarrassing because I know that we could be a lot more with our technology, especially comparing the way we use technology compared to other schools or districts.

Michelle shared: I'd like to have access to the technology that other departments have that we don't have. The special education and math teachers have Smart Boards which I would love to use. But for the most part, it seems like we all use technology the same. In special education, for example, they have technology for students who are visually or hearing impaired and students who have difficulty with motor control.

What skills and knowledge do you find important to draw on in using technology in your classroom?

Santiago added: My main requirement would have to be gathering resources. I usually do a bulk of the research myself by locating websites on a topic and design activities and questions while students search within the sites to obtain information. For one the physical technology in the building is somewhat scarce. There's only one computer lab in the building and teachers must sign up so far in advance and when students finally do have access to the technology, they spend, in my opinion, too much time searching. So, planning is also a major component that is important to using technology in my class.

Michelle stated: I think that having research skills and planning are important to using technology because it is so much stuff on the WWW and students find it challenging to locate reliable resources. You must always have a plan B because the technology is not always reliable. (Broken computers, sites crashing and buffering problems can deter a work session).

What are your perceptions of how your teaching has changed using technology?

Santiago shared: I feel like my teaching has gotten better because I take more time to plan to use the technology. I also think that my students are getting a deeper understanding of what they are learning because they are more engaged in their work.

Michelle shared: I am more excited about teaching so my students get to benefit from that. Using technology has made me to design more complex lessons because the use of technology allows me to move to the higher levels of Blooms. They are excited too about what they are learning.

b. How do teachers perceive their students' classroom usage of technology?

Tell me about the kinds of technology that are available for your students to use.

Santiago stated: Well. There are the desktops that we have in here (the classroom), the overhead and that's about all.

Michelle stated: Desktops and overhead. We use the overhead in non- traditional ways.

In your opinion, what is the role of technology in students' learning?

Santiago shared: It should be imbedded in their assignments; like meshed and intertwined with the lesson.

Michelle stated: It should bring concepts alive. It should be a heartbeat to their learning. Ya know what I mean?

How important is technology to students' learning? Why do you think so?

Santiago added: Technology is very important to student learning because it the new normal. If students aren't using some type of technology throughout their learning, they are behind. It's also the only way to get some kids engaged.

Michelle shared: We must do better in making sure that our kids are able to keep up globally, so it is very important. I always tell my students that most jobs that they will fill have not yet been created which means they are gonna have learn about forecasting what the job market will look like in the future.

What is most important about having technology available for your students?

Santiago stated: So that they can learn to use technology for more than social media and to increase their capacity for learning.

Michelle shared: Students need to be able to compete globally, so they need to learn about the technology tools that are available to help them do just that.

What difference in learning do you think technology will make for your students?

Santiago stated: I hope that it creates a way for them to learn where they are engaged and able to retain what they have learned. It's not just the technology that is important, but how the technology influences the way they learn.

Michelle stated: My intentions for using technology is to increase their learning so that it is embedded deep and causes them to think more critically when they make decisions.

Do you feel that your students are more engaged when technology is used? Explain. What observations have you made that support your opinion?

Santiago shared: Yes, because students participate in gathering information from the Internet and making their own decisions deciding whether it is relevant or not. Technology activities helps students become engaged in the lesson and retain more information. I have observed that there was a time when students walked into the

classroom and saw a film projector set up, and they would get so hype; same is true of a projector.

Michelle stated: I think about when students are on their cell phones during instruction, how they are so engaged in their social media that they don't hear or respond to anything. The technology doesn't have to be fancy, it could be as simple as a TV or cell phone.

Is there anything that can be done at the policy level to help with the efforts of technology integration from a teacher's point of view?

Santiago shared: There needs to be equity and access for ALL students!

Michelle stated: I would like to see all my students utilizing technology that works! All teachers should be trained to use the technology. If there was one thing you could change or ask for with respect to technology and technology integration and your teaching, what would it be?

c. To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?

Think about how technology is used in your school. How would you describe the current use of technology in your school?

Santiago shared: Teachers use technology for word processing and some research.

Michelle stated: The Special Ed. Department has the best resources for technology. I think teachers use it mostly for typing papers and research.

What types of professional development activities have helped you learn to use available technology? How would you describe your technology training?

Santiago shared: Let me think. I really haven't had any professional development on using technology tools for students. We do have regular professional development about the student information system which is basically student attendance, Incident Referrals, and standardized testing data. I taught myself to use technology tools for students by exploring and playing around with those tools.

Michelle added: Most of my technology professional development is provided during summer months when I work for Marquette or UW- M's College Trio Programs. We do not have any technology professional development when we have professional development mandated by the district. There is some technology professional development that I may be interested in taking that is offered after school, but I am involved with a lot of after school activities here at school.

If there was one thing you could change or ask for with respect to technology and technology integration and your teaching, what would it be?

Santiago stated: I would like for some of my superiors who are mandating that we do this and that to model a lesson from the planning stage through assessment. They are often so very judgmental about what we are and are not doing, that I question if they know anything themselves. I would also like some time to explore the technology for more than 20 minute sessions. As much as I have worked and do work with technology, I know that more effective outcomes would be present if we had some time to only explore the resources the district has which is much. If we could devote as much time in technology training as we do for standardized testing, maybe we could get somewhere.

Michelle shared: I would like more time to learn the technology, like to play around with it. I am eager to learn new technologies for not only my students but for myself. I know I could make a greater impact with my students regarding engagement and learning if I could explore simply to see what is out there. I mean, come on, education is changing day- by- day and I don't feel like we are keeping up. I know that our district has tone of digital resources, but I have not been trained on any of it, except attendance and behavioral referrals. I feel like that we as educators are often marginalized like our professions don't mean anything.

Santiago's Interview Data

Santiago perception of her competencies to technology integration?

Santiago utilizes technology in her classroom somewhat frequently, mostly for student research projects. She does a bulk of the research by locating websites on a topic and the designs activities and questions while students search within the sites to obtain information for two reasons. For one the physical technology in the building is somewhat scarce. There's only one computer lab in the building and teachers must sign up so far in advance, and she doesn't always want to plan lessons around computer lab time rather than on the content. Additionally, with such large classes (35-40 students) there are often not enough operational computers in the lab which causes her to have then grouped 4,5or 6 students on one computer. She can simply "use the classroom computers" and plan daily lessons with more intent. She strategically provides the information and websites to "keep things moving" as students work rather slowly accessing and finding websites which are credible.

Santiago's perception of her students' classroom usage of technology?

Santiago encourages her students to focus more on organizing their research as it relates to the writing process and historical inquiry rather than focusing on the technology. "We are losing our kids to the technology age where students want information now, regardless if the information is credible or not. Students are simply accepting everything that they see and hear, without any regard for its authenticity."

Santiago also tells the story of a lesson she did with students. She knew that many of her students are visual learners and utilizes graphic organizers often. She shared a few examples of articles with reliable and non-reliable sources to the students. She then had them to identify the different parts of the news as the headline, lead, and quotations to record the information into the graphic organizer so that they had a visual representation of what they were reading. The graphic organizer becomes a guide for students to write their own fake stories to share with other classmates on the SLC.

To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?"

Santiago shared: I do not feel like I'm supported in any aspect of my professional responsibilities. It is so much drama occurring not only in our school, but also throughout the district. I get it, that we should assess student tech literacy skills, but our problem is bigger than if kids can send an email or do a Google search. There's a gigantic elephant in the room in which everyone is looking at through rose-colored glasses!

I now know of three teachers that have been assaulted in this school...two of who have been battered (according to MTEA definition). How many more of our staff will

have to be hurt! From what I'm hearing from other teachers and administrators this is an issue in the district. But I need to know what we are going to do here!

I recognize that much of our teaching staff are working very hard to assure that students are engaged and learning inside our classrooms where the students who routinely walk out of class and roam the school are supposed to be. Let's be frank; how does measuring the amount of trash in the hallway translate into assuring that our students are achieving? What it does translate into is that when students are roaming the building, they are not learning self- respect, respect of others or what they need to know to be promoted. If we are more concerned with how we look to others and not addressing the issue at hand, it seems to me that our mission and goal to assure that all children are safe and engaged in learning are but a rouse. If we are serious in addressing trash on the floor, then we must get serious about how this trash got on the floor in the first place.

These statements by Santiago support what the LoTi Digital Age Survey for Teachers data indicated about how the school climate does not support teacher attempts to include digital resources with instruction either by lack of access or two- way communication and feedback with school administrators. The LoTi Digital Age Survey for Teachers data also indicated that teachers feel that they are not listened to, represented, and feel as if they do not have a voice on campus.

I asked Santiago if was she aware of the mandate requiring SPS students to meet Technology Literacy requirements and that the ISTE NETS were to be used as indicators to determine their digital literacy. She said that she had "heard something about it", but not sure of how to go about it. Her response was as follows:

"I've known about this requirement for many years, although I wasn't sure if anyone "actually" gave kids grades for it. I was instructed in the beginning of the school year that all Social Studies teachers here at SJH were chosen to complete the assessment. To date, I have heard nothing else about the subject. My guess is that either the district or school leadership forgot or it will be included in one of the last- minute items to be simply checked off before students cross the stage. I have heard of the NETS for Students, Teachers and Administrators, but I have not seen them".

I then shared a copy of the Grade 8 Technology Literacy Requirement Record provided by SPS, which framed the part of the interview about her competencies in utilizing technology as part of her lesson delivery.

She believes that media literacy is important for her students because many have low reading skills, thus, adding extra hindrances in deciding what is true or not. In addition, "fake" news has influenced discord, miscommunications and violence which could have been thwarted has the news been verified.

"What I'm really excited about is that students are learning how to verify information, but most importantly, the collaboration and feedback that they receive from each other is valuable." She also admits that although collaboration within the classroom environment is important to creating inclusive, safe places for students to share without fear, but it also has the potential to be collaborative catapults shared with a global audience.

Michelle's Interview Data

Michelle's perception of her competencies to technology integration?

Michelle reported that she was basic in her technology knowledge although she was eager to learn more. She has committed this year to enhancing her technology professional practices by attending as many professional development sessions on the subject as possible. She taught at UW- Sunnyville this past summer in the TRIO and Pre-College program. That is where she was inspired to receive technology training as she was introduced to different modes of technology inclusion that she wanted to put into practice.

Michelle talked enthusiastically about her "new mission" to teaching. She went on to say that she had started a new innovative approach to teaching called the Flipped Classroom. A Flipped Classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions (Educause, 2012). She was introduced to this model during the summer and she was enthusiastic about trying this in her classroom.

Michelle began by assigning students Discovery Education videos rather than recording lectures herself as she was not yet ready to "put her voice on film" (she felt as if her voice sounded like nagging). She would post them on her class Moodle (SLC) along with instructions to design questions that they had about the subject. When students entered the classroom the next day, they already had some background knowledge and questions for their own inquiry. She then realized that she had more time for projects and could offer more individual assistance without feeling like she was getting pulled from

every direction. She utilized the Flipped Classroom model 3-5 times per week for nearly two months and had enlightening conversations with her students.

Michelle's perception of her students' classroom usage of technology?

At the end of the unit on Being a Citizen, she gave a comprehensive project. Students were asked to analyze a right and a responsibility of being a citizen and determine ways to positively impact their communities by adhering to those rights and responsibilities. The expectation was that since these students learned in the flipped model, that they would set a new standard for good results. In student groups, they presented their ideas to the class. After their presentations, the teacher asked some key conceptual questions such as:

a. Who or what are some community organizations you could contact to assist you in community engagement?

b. What are some solutions that could be implemented to solve a problem in your home or school community?

c. What have you learned to support democracy, the economy, and the law?

Michelle was surprised and disappointed to find that some of their responses made it seem that they did not inquire past the articles and lectures provided through the Moodle; that they did not master the essential concepts that all citizens should learn. She further determined that despite efforts to meet the needs of all students that she was still "pushing the kids through the curriculum whether they were ready to move on or not".

To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?

Michelle stated, "Well, I think that I only get help when I ask for it. As you know, I am somewhat of a go- getter and I can be very persistent in asking for what I want. I have been working summers at UW- Sunnyville or Marquette University as part of the Upward Bound program for several years because I am always seeking interesting things to do with my students; but also, I need money in the summertime. My school leadership has not really been helpful for me regarding the technology requirements. I have been getting most of my information about technology standards from colleagues who work at other schools or districts, so I get information on where different professional development sessions are from them. It would be nice to be able to get some assistance from people from my school rather than outside sources. I believe in community and we should be doing more to help each other and get our professional development from the "experts" who are here in the building".

I asked Michelle if was she aware of the mandate requiring SPS students to meet Technology Literacy requirements and that the ISTE NETS were to be used as indicators to determine their digital literacy. Michelle responded with a resounding "YES" that she had heard about technology standards for students and had already completed several projects that she had completed with her students to assess technology standards for her students.

Michelle states that teaching is her life and that she always wants to keep it fresh, thus her fascination with the flipped classroom. She realized that the times that her

students needed her most was when they got stuck on homework or work from school that they did outside of school which required individual help. She also considered that when students were absent, they would miss content and require some assistance to catch up. Additionally, she was trying to create a more student- centered classroom and realized the classroom was centered around her. She wanted to change her paradigm.

When I asked Michelle, what were her learning outcomes to using the Flipped Classroom, she responded:

"The main lesson that I learned that my role as an educator has to change to more of student centered and less teacher centered. It takes more time doing the "upfront" work as finding videos and media, designing questions and motivation to students to be more responsive in learning for themselves. Furthermore, I realize that this model has potential to be more student- led and that communication among students can be a dynamic session of learning through projects. My greatest appreciation of this model is that I am not afraid to try something new."

Findings

The findings for each research question are reviewed. The first research question was, how do teachers perceive their competencies to technology integration? The results show that teachers perceive that they do have competencies to effectively integrate technology in their instruction.

The second research question of this study was, how do teachers perceive their students' classroom usage of technology? The answer to this question is that teachers

perceived that their students used technology in their classroom for low-level activities as word processing and basic internet searches.

The third research question was, to what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy? The results indicate that leadership did not support teacher efforts to use technology standards to assess student technology literacy.

CHAPTER FIVE: Discussion

The findings from this action research case study are supported by much of the literature reviewed for this study that teacher attitudes towards technology inclusion is a key determinant of how and what extent they infuse technology into their instructional practices. Accountability, lack of support from local leadership and school climate are indicators of why teachers are delivering low level technology instruction (Cohen, J., 2014, February 21). Both Santiago and Michelle believe that have they had the necessary capabilities and skills to integrate digital resources successfully into their classroom instruction despite the lack of support from school leadership. Michelle stated, as the data indicates, that she has "committed this year to enhancing my technology professional practices by attending as many professional development sessions on the subject as possible" although there are significant obstacles which hinder advancing digital resources in her instructional settings. The participants attitude and abilities are outcome variable that measures the evidence of significant changes in their teaching roles and classroom practices which (Finger, Jamieson-Proctor, & Watson, 2003).

The participants of this study do possess some skills and competencies to utilize technology standards to assess the mandated Technology Literacy requirements at SJH, despite obstacles that hinder more comprehensive technology inclusion in their instruction. The extent to which they do deliver technology instruction to meet technology standards, are that they are still using technology for low- level tasks (word processing, web searches). Higher-level uses are still in the minority (Ertmer, 2005).

There is a correlation between teacher beliefs regarding using technology effectively and its actual usage, while simply believing in the technology does not guarantee its usage in the classroom (Shifflet, 2015). Santiago indicated this when she stated, "We are losing our kids to the technology age where students want information now, regardless if the information is credible or not. Students are simply accepting everything that they see and hear, without any regard for its authenticity." Shifting towards a student- centered approach to teaching and learning could be a strategy to connecting teacher beliefs to expanding effective technology usage.

The purpose of this study was to address the extent of Social Studies teachers at Sunnyville Junior High (SJH) utilize technology standards to gage level of technology inclusion in their classrooms. The following questions guided the analysis:

a. How do teachers perceive their competencies to technology integration?

b. How do teachers perceive their students' classroom usage of technology?

c. To what extent does leadership in your school or district support your efforts in using technology standards to assess student technology literacy?

Themes

The data presented from the LoTi Digital Age Survey for Teachers, classroom observations utilizing the Looking for Technology Integration (LoFTI) tool and teacher interviews (Appendix C) revealed several themes: lack of accountability, equity, and access, need for student- centered practices (mental health support), school climate challenges and need for sustained professional development and support.

Lack of Accountability

For the most part, teachers were not held to any standard to implement technology instruction in their classrooms. No one oversaw the process to assure that teacher were actually using standards to assess their student's technology literacy. Santiago stated:

> "I've known about this requirement for many years, although I wasn't sure if anyone "actually" gave kids grades for it. I was instructed in the beginning of the school year that all Social Studies teachers here at SJH were chosen to complete the assessment. To date, I have heard nothing else about the subject. My guess is that either the district or school leadership forgot or it will be included in one of the last- minute items to be simply checked off before students cross the stage. I have heard of the NETS for Students, Teachers and Administrators, but I have not seen them".

Furthermore, the Sunnyville Public Schools: Grade 8 Technology Literacy Requirement Record (Appendix D), only required that teachers circle if the students were technology literate in that area. Teachers were not required to provide evidence of what technology practices they used in the process of determining student's technology literacy.

Equity and Access

The results of this study and data from the review of literature, indicate that digital equity should be at the heart of the technology integration for it to be successful

(2006). It is not only recommended that there be "…2:1 digital access ratio of students to computer devices…" but the technology must be usable. Michelle stated: "I would like to see all my students utilizing technology that works", indicating that many times the technology is not functional.

The Achievement Gap in Sunnyville is a stark reminder of needed equity and access not only with technology use, but also in overall achievement. With low test scores, high incarceration and unemployment rates, this gap in achievement and equity and access, there is a cost of the US income gap on our economy. It is estimated that between 1998- 2008, the US Gross Domestic Product (GDP) lost between $310 billion to $525 billion due to the racial achievement gap and $400 billion to $670 billion due to the income achievement gap and $1.3 trillion to $2.3 trillion because of the international educational gap (McKinsey & Company, 2009).

Need for Student- Centered Practices (mental health support)

Within the achievement and income gaps lie a greater issue of why students are underachieving. What emerged in this research through reviewing data and conversations with the study participants about student achievement and the gaps was school absenteeism and truancy. Often, youth who are chronically absent from school often have untreated mental health conditions resulting from trauma. Additionally, students often don't know that they have trauma and if they do, there is not a direct line to access treatment. These conversations about absenteeism, mental health and trauma prompted me to remember an example of how neglecting these topics can effect student achievement.

Chloe Smith was a struggling student at an alternative school in SPS. She was over aged and under credit. Chloe had a very dysfunctional lifestyle as her mom had a debilitating medical condition and was unable to properly care for her as she was growing up. Her dad was in and out of jail so Chloe always lived with various relatives and family friends. She met James and began living with he and his family. James began to abuse her physically and mentally and soon after, she became pregnant with his child.

James was sentenced to two years in prison for battering an ex- girlfriend. When Chloe gave birth to a baby girl she and her child continued to live with his family. Chloe visited James in prison and attempted to maintain a relationship with him despite the mental abuse that he inflicted on her through phone calls, letters, and his family members. He even from prison, constantly threatened to kill her once he was released. Chloe then decided to better her life by completing her high school education and removing her and her child from his family's home.

Chloe's dad was released from prison and moved in with Chloe's mom. Chloe and her baby girl also moved back to mom's home with hopes of support from her mom and dad. Chloe tried her best to attend school regularly and do well as she was determined to complete high school. Chloe was often sad, depressed, unmotivated, and afraid that her child's father would one day fulfill his threats to kill her. She was unable to concentrate and make progress in completing her high school requirements.

James was released from prison and at first seemed rather transformed and willing to try and be a father to his daughter. Although Chloe missed a lot of school, she kept in communication with me to complete some of her school work which was accessible

online. Chloe informed me in mid- December that James had beat her and knocked out several of her teeth. She was too embarrassed to come to school until her teeth were fixed and vowed to return after the new- year. Chloe would never return to school. James broke into her home with her parents, shot her dad and shot and killed Chloe.

Looking at absences is important because, regardless of why they are missing school, students do not learn when they are not in class. Although one in five children and adolescents has symptoms of a mental health condition, only a quarter of these children have access to appropriate mental health services. Fifty- percent of children with a mental health diagnosis drop out of high school—the highest dropout rate of any disability group (SAMHSA, 2015).

The achievement gap disproportionally affects African-American and Hispanic children living in low-income communities. Unfortunately, health problems (including medical and mental health concerns) of disadvantaged children are not adequately treated.

School Climate Challenges

The data from this study indicate that school climate is an obstacle to teacher perceptions of their ability to provide student- centered practices in their instruction (Figure 8). The results of this study also indicate that school climate influences to what degree teachers feel valued and respected in their roles as educators at their cites (Figure 12). During the interview, both Santiago and Michelle indicated that they are not supported in their efforts to use innovative practices to optimize the ways in which they deliver technology instruction and lack two- way communication and feedback with

school administrators. Michelle stated that she gets professional development only when she seeks it for herself while Santiago was concerned with safety issues and the pervasive "drama" occurring in the building.

Conclusions

In general, low level technology uses tend to be associated with teacher-centered practices while high-level uses tend to be associated with student-centered, or constructivist, practices (Becker, 2000). The relationship between teachers' pedagogical beliefs and their technology practices suggest a disconnect, whereas teachers believe that simply because they are utilizing technology that they are using a constructivist approach to their practice. While teachers use technology to access and manipulate data, gather resources, and enhance instruction, teachers who support student-centered instruction fully understand that in the hands of their students, technology offers the potential to problem solve in a real-world context Lajoie (2000) and to construct knowledge through global interaction. In other words, teachers must hold a pedagogical view that technology inclusion not only has be used at high levels, but believe that technology is necessary for living and working in the 21stcentury.

Students need to be allowed choices about what they learn, how they learn it and can demonstrate mastery in the manner they choose. This is a scary feat for teacher-centered practices as it is considered normal practice. It is challenging for teachers to consider "giving up control" of their old pedagogical beliefs to trade them for more student-centered approaches, which are often associated with constructivist principles (Ness, D., & Lin, C., 2013). Teachers need time and practice using technology. Keep in

mind that our view of the world and personal experiences with it, helped to shape our pedagogy over a period. Moving to a more student- centered approach will also require time to explore and practice with the technology before teachers will embrace its necessity and usefulness.

Recommendations for Future Study

Accountability

It has been long understood the importance of evaluating teachers and helping them become the best they can be. In the past, administrators had devised innovative evaluation systems that measured teacher performance to be fair, consistent, and accurate. In the old days of collective bargaining, Wisconsin teachers were compensated based on seniority and the number of graduate level coursework a teacher completed. There was no room for extra pay for outstanding teachers. There was no way to financially penalize lesser teachers. Just about every teacher received an annual raise, whether they deserved it or not. A lot of so-called experts question whether teachers can be fairly evaluated under any given circumstances. They argue too many factors are beyond teachers' control, including parental encouragement and support (Gunn, S.,2013, August 8).

All that changed in the 2011-12 school year, when Act 10 became law. Wisconsin Act 10, also known as the Wisconsin Budget Repair Bill was legislation proposed by Republican Governor Scott Walker and passed by the Wisconsin Legislature to address a projected $3.6 billion budget deficit. The legislation primarily affected the following areas: collective bargaining, compensation, retirement, health insurance, and sick leave of public sector employees. Suddenly teachers' unions lost their power to block innovative

programs, leaving school boards the freedom to create teacher evaluation systems they deemed appropriate. (Wisconsin Act 10). In response, unions and other groups organized protests inside and around the state capitol. The bill was passed into law and became effective as of June 29, 2011 after several years of litigation.

Teacher Evaluation

The Wisconsin Educator Effectiveness System is a performance-based evaluation system designed to improve the education of all students in the state of Wisconsin by supporting guided, individualized, self-determined professional growth and development of educators (WIDPI, 2016). The goal is to provide clear, observable feedback to educators on their practice. This system for the first time provide clear and specific ways to improve from where educators are, to where they want to be. After Act 10, state lawmakers required that districts use the Educator Effectiveness System. Partly designed by teachers, it's an intensive, customized teacher evaluation process requiring educators to document their skills and accomplishments and their students' progress. Many teachers said they couldn't complete it, and many felt it was taking time from teaching and lesson planning, a UW-Madison survey found. The system has caused widespread confusion and concern over how evaluations would be used. Act 10's chief contribution to the continuing trend: a cloud of pessimism hanging over the much-changed profession.

The number of teachers in the Sunnyville metro region has declined by approximately 700 in the years following the implementation of the law, but the clear majority of this decline is attributable to a sizable drop in the teaching workforce in the Sunnyville Public Schools (Lueken, M., Flanders, W., & Szafir, C., 2016, June). There

has also been little change in the overall age or overall experience level of the teaching workforce. Many experienced teachers have become highly negative in their professions as bargaining rights have been stripped, teachers' pay more for health insurance, and the intentions for law makers to tie student test scores to merit increases (Umihoefer, D., & Hauer, S., 2016). Act 10 changed reduced take-home pay and job security and current teachers are warning potential teachers to pick a different line of work.

Equity and Access

A new understanding of the digital divide is needed--one that provides adequate context and begins with a dedication to equity and social justice throughout education. Digital equity within the society, as well as within the learning environment, will help support the needs of each person to address higher order thinking skills and hierarchy of needs through materials that enhance the learning experience, as focused upon learning objectives (Neuman, 1997). The focus upon digital equity within the learning environment, with the heart of the integration being the successful accomplishment of the stated learning objectives by the learners, achieves initial steps towards overcoming the digital divide (Crawford, 2006).

The achievement gap is so stark in Wisconsin because graduation rates are very high for white students and very low for black students. Almost 93 % of white students earn diplomas on time in Wisconsin, which ranks just behind white students in New Jersey (94 %) and Texas (93.4 %). But Wisconsin's graduation rate for black students is 64.1 %, which ranks 6th lowest among states. (Appendix E). The achievement gap in SPS is significant and a serious consequence of concern is that there are all sorts of ways to

thrust kids along. Students are graduating with a 3.0 GPA and a 14 on their ACT exam meaning that there is little chance that they will go to college and thus deter the cycle of low achievement and poverty.

In grade 10, the number of SPS students proficient or advanced in reading is 14 % while the state average is 38 %. In math 12 % are proficient or advanced in math while the state average is 44 %. African American males fall behind almost from their first day of school and the gap be-tween them and their peers widens as they get older. By the time, they get to middle school, they are three full grades behind middle income white females (Lightbourn, 2007).

Michelle shared, "the special education department has the best resources for technology". Educational equity in today's technological age requires more than access to hardware and software. Access must include meaningful content, educators who know how to use technology, and, perhaps most important, leaders who have vision related to the educational potential of technology and can implement that knowledge in schools. Although this research reveals that teachers believe in and possess the competencies to include technology in their instruction, there is lack in working computers, assistive technology for regular education classroom use and innovative urgency.

Student- Centered Teaching and Learning

Mental health supports for families and kids are stretched thin or are non-existent in many parts of our state. According to a recent Center for Disease Control and Prevention study, up to one in five Wisconsin students has a mental health challenge (Evers, T. 2016, September 15). Evers goes on to call for action to support teachers in

efforts to wholly support students. There is an impetus for policy reform to address the increasing need for children who face at least one identified form of adversity, and these numbers cut across demographic groups. Whether it's because mom lost her job, parents divorced, or other traumas, mental health, and trauma influence student achievement.

Substance Abuse and Mental Health Services Administration (SAMHSA) reports that one half to two thirds of children experience at least one traumatic event by age 16, although SAMHSA, (2015) reports that number intensifies when there is a concentrated population of economically disadvantaged children of color. Trauma is defined as a response to negative external events or series of events which goes beyond the child's ordinary coping skills. It manifests in various forms including experiences such as maltreatment, witnessing violence or threats of loved ones. (NCTSN, 2017). Traumatic experiences can impact brain development and behavior inside and outside of the classroom. The problem goes far beyond intentions and many of our kids suffer trauma for much of their school careers.

Many students, and our society have become desensitized to acts of violence that we see and experience on a day- to- day basis. From widely publicized killings of unarmed black men to the separation of families by mass immigration deportations, we have adjusted to looking at trauma as a normal, but unfortunate part of life for children. In schools, we focus on graduation rates and test scores and scratch our heads trying to figure out why XYZ interventions aren't working. We are focusing on standards and not having conversations about the emotional baggage that students carry around every day.

Instead of pondering the question, “what is wrong with you”, but rather, “what happened to you”, we can move towards a change in basic assumptions at the staff and organizational levels to re- focus holistic approaches to shaping organizational culture, practices, and policies to be sensitive to the experiences and needs of traumatized individuals (McInerney, M., & McKlindon, A., 2014). This student- centered approach transcends student’s ability to meet Common Core or technology requirements, but rather build systems, which support safety, emotional management, self-control, and conflict resolution. Our educational community must say aloud, “mental health is a key indicator to student success” and move towards providing support to the child, family, and community if we want to in any way “move from active learning to interactive learning; from simulated learning modules to collaborative problem solving” (Delialioglu & Yildirim, 2007). Increasing our repertoire of evidence-based treatments for children and families and knowing which type of treatment is optimal for different individuals or groups who have experienced trauma.

Teachers are also inflicted with school related trauma. Unfortunately, I know this all too well as over my teaching career, I have been assaulted by a student and received a four- month suspension for defending myself. I have had my car stolen from the school parking lot by a student and was reprimanded for not allowing the student into my classroom. I have seen many of my students, with whom I had built rapport with them and their families, die at the hands of violence and it is all but heartbreaking and draining. The LoTi Digital Age Survey for Professional Development and Technology Planning

Appendix A) reveals that school climate does not support teacher efforts to not only enthusiastically deliver lessons, but also hinders innovative practices.

Two thirds of respondents strongly disagreed that communication and feedback with school administrators took place at their school site. Sixty percent felt as if they were not listened to, represented, or had a voice on their school site. School climate is a promising school independent variable for measuring and positively influencing productivity and effectiveness in schools. Attention should therefore be paid to those things that make the implementation of educational innovation attainable. Trust, open communication, and collegiality promote effective feedback for creating an atmosphere conducive to change.

Organizations which are over- managed but under- led eventually lose any sense of spirit or purpose. School leaders have the power, authority, and position to impact the climate of the school, but many lack the feedback to improve. This research data indicate that school leaders ought to strive to understand that effective leadership behavior and teachers' perceptions of their behaviors influence how teacher operate in their classrooms and in the school community. In the complex and dynamic environment of schools, leaders must be able to correctly envision the needs of their teachers, empower them to share the vision, and enable them to create an effective school climate (Bolman & Deal, 1991).

School Climate

School climate is increasingly recognized as a school improvement strategy with the potential to increase school connectedness, academic achievement, pro- social

education (e.g. social emotional learning and character education) and high school graduation rates, while reducing bully victim bystander behavior (Cohen, 2014). There are some nuances about school climate which is not quite understood as; I) its connectedness to PBIS, ii.) How to measure and iii.) Who's accountable. School climate is a promising school independent variable for measuring and positively influencing productivity and effectiveness in schools, but little attention is given to it. Many are unsure what school climate means on a day- to- day basis.

So, what does school climate reform look like? What tasks/ challenges should be addressed? Are there standards? A recent survey conducted by the Character Education Partnership, the National Dropout Prevention Center, and the National School Climate Center Cohen (2014) revealed that 9 out of 10 educators reported a "strong" to a "very strong" need for detailed and practical school climate practice guidelines. Current educational policies and accountability systems tend to focus narrowly on student cognitive learning, while ignoring the importance of social learning, adult/ educator learning and professional learning communities. Clearly there is a critical need for more detailed school climate guidelines.

Professional Development and Support

Continuity of professional development, time for both professional and curricular development activities (such as reviewing the software, exploring available resources, and creating new lessons) and technical, administrative, and pedagogical support for teachers can facilitate strategies to integrate technology in all content areas (Lim & Khine, 2006). This research study revealed an urgent need for professional development

in the use of curriculum design utilizing digital tools and communication and support from leadership to teachers.

Nearly 70 % of respondents to the LoTi Digital Age Survey for Professional Development and Technology Planning (Appendix A) do not feel valued or supported. It's no wonder that teachers are not moving towards more higher-level technology inclusion practices such as developing one's own webpage, learning HTML and conducting web searches beyond key words Ford & Whaley (2003) as these are activities which lead to deeper cognitive understanding. There are no motivations or incentives for teachers to move past "replacement technology" to transformative technology. The Substitution Augmentation Modification Redefinition Model (SAMR) shows a progression that adopters of educational technology often follow as they progress through teaching and learning with technology where the "replacement" of computer technology is used to perform the same task as was done before the use of computers. (Schrock, K.,2013).

Replacement technology serves merely as a different means to the same instructional end whereas, transformative technology is used to transform the instructional method, the students' learning processes, and/or the actual subject matter. Technology is not merely a tool, but rather an instrument of mentality. Higher-paying jobs in the industry are directly related to higher-knowledge jobs. As leaders, we must transform the way we look at professional development to make teachers feel supported, and provide opportunities to reflect on their pedagogical practices.

Innovative Practices

To be transformative, innovative, and professional educators, we must pursue innovative practices. For example, at Carmen High Schools of Science & Technology, a charter school on the northwest part of Sunnyville, students can't advance unless they earn a C or better in their classes, and it takes about 15 % of seniors a fifth year to meet that goal. So maybe we should consider extending the way we look at high school programming by investigating data of a multiple years, as a cohort. Data from the Wisconsin Department of Public Instruction (WI DPI, 2016) supports that all students, regardless of race can benefit from extending high school past the traditional four- year calendar (Appendix F). Or maybe we could consider preparing students for high school earlier to ensure high school completion within 4 years.

Competency- Based Programming: A competency-based curriculum is designed to provide another pathway to high school graduation for students who have been unsuccessful in the traditional school setting and may not qualify for GED Option 2 (GEDO #2). Alternative programs or schools using this curriculum will be able to help students meet graduation requirements through either a combination of credits and competencies or competencies. Students, who have earned some credits in a subject, but not enough to meet the graduation requirement, will not have to repeat the content that they have earned credit(s) for, rather the credit(s) can be used to identify competencies being met.

Achievement Gap Reduction (AGR) Program: Wisconsin Act 53 and Act 71 created the Achievement Gap Reduction (AGR) Program under the new section of

Wisconsin Statute 118.44 (Achievement gap reduction (AGR) and student achievement guarantee in education (SAGE) program forms and reports [Report]. 2016). AGR is replacing the Student Achievement Guarantee in Education (SAGE) program. To receive funding, participating schools must implement one of three strategies, or a combination of these strategies to promote academic achievement in primary grade levels in efforts to close the achievement gap.

a. one-to-one tutoring provided by a licensed teacher;

b. instructional coaching for teachers provided by a licensed teacher; or

c. maintaining 18:1 or 30:2 classroom ratios and providing professional development on small group instruction.

A major functional difference between SAGE and AGR is that AGR allows schools to use funding for instructional coaching for teachers, provided by a licensed teacher, where SAGE focused mostly on smaller class sizes. Training of Trainers (ToT), a school- based instructional leadership model where "staff experts" attend trainings and in turn train their colleagues (Become a certified Microsoft Innovative Educator, 2015). Many educators in SPS are unaware of many of the many opportunities for professional development, as Michelle shared in our interview:

"It would be nice to be able to get some assistance from people from my school rather than out-side sources. I believe in community and we should be doing more to help each other and get our professional development from the "experts" who are here in the building".

What better way to build a district- level professional learning framework of support. Professional development is more than bringing in a speaker and then hoping something magical will happen; professional development needs to connect the work life of teachers to emerging innovative practices (Von Frank, 2004). Changing peoples' mind maps and having them reflect more profoundly on their pedagogical practices is a significant part of helping students learn better.

This research identifies school climate a major predictor in student achievement. The extent to which teachers felt valued and supported could make a strong case about how school climate and culture could influence pedagogical constructs to build capacity for teachers to utilize technology and digital tool at higher levels that what is current practice. Training of Trainers (ToT) model could be a great place to gather data about ways to bridge the gap between teachers and school leadership.

More research is needed to learn about what technology leaders are doing and should be doing to advance effective technology use in schools. It may prove beneficial for district leaders and building level administrators to become familiar with the International Society of Technology in Education (ISTE) standards for technology. ISTE standards include standards for students, teachers, and administrators. Becoming familiar with these standards could provide a model for effective technology staff development.

Policies should be developed to help establish consistent procedures across classrooms, schools, and districts to ensure accountability and sustainability. Policies can also help formalize roles and other partnerships, promote the use of data for ongoing improvement and evaluation, and ensure that professional development and training is

offered to all school personnel. We need mental health services in schools that address trauma, AODA and other issues, which impact student achievement that supports students, families, and communities. Universal prevention, early intervention and treatment ought to be available to students and their families as a systematic approach to healing the whole person.

Limitations Addendum

Although this research was carefully prepared, I am still aware of its limitations and shortcomings. First, I began this study in January 2010. I submitted my research application, set up interviews and lesson observations, gathered data and was in process of writing results. In December of 2010, life happened and I was forced to pause the study until 2016. When I initially began my research on the topic of teachers use of utilizing technology in their instruction, there was little research about teacher efficacy and how their pedagogy influenced their practice. Because of this lag of reporting my findings, there has been a plethora of research surrounding the topic. If I had reported my findings according to my anticipated timeline, this research could possibly have had a greater impact on the quality of technology instruction that our children receive. Its results could have provided a baseline about how teachers feel about technology to provide supports to move them along to more innovative teaching practices.

Act 10

One example of how the teaching landscape in Wisconsin has changed is with the Wisconsin Repair Bill, also known as Act 10. The Wisconsin law disbanded collective bargaining rights and has changed the outlook for teaching across the state. This law

outlawed public employee unions, and has had a huge impact on teacher salaries in school districts everywhere in Wisconsin. Before Act 10, teacher's unions could negotiate health care costs and teacher compensation. Now, school districts have control on how to compensate their teachers. One of the effects of Act 10 has been teacher recruiting battles among districts, and the struggle for districts to replace teachers who have been lured to other districts with higher pay and more benefits.

Educator Effectiveness

Another sweeping advancement in Wisconsin's education arena is the Educator Effectiveness System. Educator Effectiveness is a part of Wisconsin's ESEA flexibility waiver approved by the US Department of Education in 2012. It was implemented during the 2012-2013 school year as a pilot and implemented statewide during the 2014- 2015 school year (WIDPI, 2016). It was developed because a new evaluation model was needed in Wisconsin to more accurately identify and support teacher and principal effectiveness. It aims to measure effective teaching utilizing the Danielson's Framework for evaluation of teaching practice. Teachers tend to rate higher on the Danielson Framework to produce higher student outcomes. These results provide a strong case for the WI Educator Effectiveness model (Danielson, C., 2013).

There has been upswing in schools providing broadband access to more students in Wisconsin. Over 94% of school districts now meet the minimum connectivity goal of 100 kbps per student which is up from 76% in 2015. Ninety-five school districts have upgraded their internet access in 2016 leading to 246,285 students getting more

bandwidth. Furthermore, 85% of school districts report sufficient Wi-Fi in all their classrooms (EducationSuperHighway, 2017).

Equity and Access

Sunnyville Public Schools has been ramping up its innovative practices. For example, SPS has increased it digital access ratio of students to computer devices to less than 2:1 in all schools, compared to 3:1 in 2010 (Davis, 2007 & MPS, 2017). Schools are equipped with mobile wireless computer labs, whiteboards in nearly all classrooms and have expanded the use of assistive technology resources to more students. Additionally, the district has fostered partnerships with GE using school grants, increased the number of students enrolled in online classes and developed a telepresence through increasing offerings in Advanced Placement (AP) courses.

Although teachers and students are being exposed to more hardware and software in their classrooms, low- level usage is still widespread. As I reported earlier in the review of literature, supplying teachers with more technology does not increase technology competencies, "teachers must hold a pedagogical view that technology inclusion not only has be used at high levels, but believe that technology is necessary for living and working in the 21st century."

Another limitation to this study is how stakeholders look at questions and hypothesis in experimenting in urban school settings. This study looked at teachers experiences with including technology in their practices which limited this study to a single period (three months). Successful strategies in teaching must do more than implement a string of disconnected programs, (e.g., Positive Behavior Intervention &

Support (PBIS), Response to Intervention (RTI), Optimizing Success Through Problem Solving (OSPS)), but it must also demonstrate how these policies fare overall. Placing high stakes accountability (teacher evaluation, merit pay) on short run outcomes (test scores, skills, attitudes, knowledge), generate pressure to improve, say test scores without improving unobserved skills of students (Schanzenbach, D. W., 2012). What I hope this research has accomplished is an avenue to use exploration in experimentation to support teachers in constructing innovation in pedagogy and lesson design.

Common Core State Standards

The state-led effort to develop the Common Core State Standards was launched in 2009 by state leaders, including governors and state commissioners of education from 48 states, two territories and the District of Columbia, through their membership in the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO). State school chiefs and governors recognized the value of consistent, real-world learning goals and launched this effort to ensure all students, regardless of where they live, are graduating high school prepared for college, career, and life (http://www.corestandards.org/).

Wisconsin adopted Common Core standards in 2010 but school districts did not have to immediately adopt them. At the time SPS Superintendent supported the change to see how SPS compared to other districts (Bayatpour, A. J., 2012, September 29). What did happen was a drop in test scores across the nation. It wasn't so much that the students are doing worse, but the standards were raised and students needed to catch up.

The Common Core standards in Wisconsin apply to English, mathematics, and many other subjects, although state officials are working with other states to develop separate standards for science and social studies.

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APPENDIX A

LoTi Digital Age Survey for Teachers

LoTi Digital Age Survey: Digital Landscape

Select the response for each question below that best represents the digital landscape in your classroom.

1. How many years of teaching experience do you have in education?

    a. Less than Five Years

    b. Five to Nine Years

    c. Ten to Twenty Years

    d. More than Twenty Years

2. Which statement best describes your class- room's digital infrastructure?

    a. No access to digital resources

    b. Teacher workstation only

    c. Classroom laptop/mobile device station(s)

    d. Access to laptop/mobile device cart(s)

    e. One-to-one laptop/mobile devices

    f. BYOD (Bring Your Own Device)

    g. Other

3. Which model best describes your approach to blended or hybrid learning in the classroom? Blended learning models include Flipped Class- room, Rotation, Online Lab, Flex, Self-Blend, Supplemental, Face-to-Face Driver, and Online Driver.

    a. No Blended Learning Model

    b. Blended Learning using a Flipped Classroom Model

    c. Blended Learning using an Online Lab Model

    d. Blended Learning using a Flex Model

    e. Blended Learning using a Self-Blend Model

    f. Blended Learning using a Supplemental Model

    g. Blended Learning using a Face-to-Face Driver Model

h. Blended Learning using an Online Driver Model

4. From which source do you most frequently seek guidance, information, inspiration, and/or direction relating to your classroom use of digital resources in the classroom?

a. Students

b. Building Administrators

c. School/District Specialists (e.g., Media/Technology Specialist, Instructional Specialist)

d. Classroom Teachers (e.g., Other Colleagues, Mentors, Peer Coaches)

e. Specific websites (e.g., Teaching Channel, YouTube, Kahn Academy, Online Suscriptions)

f. Other (e.g., College Professor, Conference Presenter, Business/Community Member, Vendor)

5. What do you perceive as the greatest obstacle to advancing your use of digital resources in

your instructional setting ?

a. None

b. Lack of Access to Digital Resources

c. Time to Learn, Practice, and Plan

d. Required Instructional Priorities (e.g., Statewide Testing, New Textbook Adoptions)

e. Lack of Staff Development Opportunities

f. Other

LoTi Digital Age Survey: Teacher Perceptions

Select the response for each statement below that best represents your perceptions about the use of digital resources in your classroom.

6. I believe the use of digital resources in my classroom can positively impact student learning and achievement.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

7. I have the necessary capabilities and skills to integrate digital resources successfully into my classroom instruction.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

8. I know where (e.g., Teaching Channel, YouTube, Kahn Academy) or who (e.g., campus technology specialist, academic coach, grade level teacher, curriculum coordinator) to go to when I need support for using digital resources in my classroom.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

9. I receive useful feedback on the integration of digital resources into my instruction from my administrator(s).

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

10. I can maximize student learning best when I complement my whole group approach with learning stations/centers, cooperative grouping, and/or individualized instruction.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

LoTi Digital Age Survey: School Climate

Select the response for each statement below that best represents your perceptions about the educational climate at your school.

11. I am treated as a respected educational professional on my campus.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

12. I engage in a two-way cycle of communication and feedback with my school administrators.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

13. I feel that I am listened to, represented, and feel I have a voice on campus.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

14. I understand and support the shared vision for our school's use of digital resources along with other key stakeholders.

a. Strongly Agree

b. Agree

c. No opinion

d. Disagree

e. Strongly Disagree

LoTi Digital Age Survey: Use of Resources

Select the response for each question below that best represents how often digital and/or environmental resources are being used during instruction.

15. How often are your students using digital tools and/or environmental resources during the instructional day?

a. Never

b. At least once a year

c. At least once a month q At least once a week

d. At least once a day

e. Multiple times each day

16. How often are you (the teacher) using digital tools and/or environmental resources during the instructional day?

a. Never

b. At least once a year

c. At least once a month

d. At least once a week

e. At least once a day

f. Multiple times each day

LoTi Digital Age Survey: Standards-Based Learning

Select the response that best represents how often standards drive student learning experiences.

17. How often are your students involved in standards-based learning experiences during the instructional day?

a. Never

b. At least once a year

c. At least once a month q At least once a week

d. At least once a day

e. Multiple times each day

LoTi Digital Age Survey: Teacher Statements

Select the response that best represents how often the statement mirrors the instructional practices in your learning environment.

0- *Never* **1-** *At least once a year* **2-** *At Least once a semester*

3- *At least once per month* **4-** *A few times a month* **5-** *At least once a week*

6- *A few times a week* **7-** *Daily*

_____1. My students work together using digital tools and/or environmental resources that require them to analyze information and ask questions based on a teacher-provided prompt.

_____2. My students work alone or in groups to create traditional reports with web-based or multimedia presentations (e.g., Prezi, PowerPoint, Google Slides) that showcase information on topics that I assign in class.

_____3. I assign my students tasks that emphasize teacher-directed investigations with a known outcome (e.g., science experiments, mathematical problem solving, literary analysis) using the available digital tools and/or environmental resources.

_____4. I provide different formative and summative assessments that encourage students to demonstrate their content understanding in nontraditional ways.

_____5. My students use digital tools and/or environmental resources to participate in teacher-directed activities that require them to transfer their learning to a new situation.

_____6. My students use collaborative digital tools (e.g., Google Docs, social media, wikis) and/or environmental resources beyond the school building (e.g., community action groups, parents, elected officials) to create solutions for real world problems (e.g., bullying, health awareness, election apathy, global warming).

_____7. I promote, monitor, and model the ethical use of digital tools in my classroom (e.g., appropriate citing of resources, respecting copyright permissions).

_____8. I use digital tools to expand my communication opportunities with students, parents, and peers.

_____9. My students find innovative ways to use our school's advanced digital tools (e.g., 1:1 mobile devices, digital media authoring tools, probe ware with GPS systems) for inquiry-based learning opportunities that use social media.

_____10. I model and facilitate the effective use of current and emerging digital tools to support teaching and learning in my classroom.

0- *Never* **1-** *At least once a year* **2-** *At Least once a semester*

3- *At least once per month* **4-** *A few times a month* **5-** *At least once a week*

6- *A few times a week* **7-** *Daily*

_____11. I use digital tools to support my instruction (e.g., multimedia, online tutorials, online simulations, videos) so that students can better understand the content that I teach.

_____12. I alone use the classroom digital tools during instruction due to the amount of content that I must cover by the end of each marking period.

_____13. My students use a variety of digital tools that support the evolving nature of my grade level content and promote student academic success.

_____14. My students readily self-select the most appropriate digital tool to aid them in completing any given task.

_____15. I employ learner-centered strategies (e.g., communities of inquiry, learning contracts) to address the diverse needs of my students using developmentally-appropriate digital tools.

_____16. My students use digital tools and/or environmental resources to participate in problem-solving activities with others beyond the classroom.

_____17. My students use digital tools and/or environmental resources for (1) collaboration, (2) publishing, and (3) research to tackle real world questions, themes, and/or challenges within our community.

_____18. I model for my students the safe and legal use of digital tools while I am delivering content and/or confirming student understanding of pertinent concepts.

_____19. My students model the "correct and careful" use of digital tools (e.g., ethical usage, proper digital etiquette, protecting their personal information) and are aware of the consequences regarding their misuse.

_____20. I collaborate with others (e.g., students, faculty members, business experts) to explore creative applications of digital tools that improve student learning.

_____21. My students use digital tools and/or environmental resources to define real life problems and then find solutions that are grade level appropriate.

_____22. My students engage in standards-based applied learning projects that emphasize student investigations using digital tools.

_____23. I use student-centered performance assessments that involve students transferring what they have learned to a real- world context using the available digital tools and/or environmental resources.

0- *Never* **1**- *At least once a year* **2**- *At Least once a semester*

3- *At least once per month* **4**- *A few times a month* **5**- *At least once a week*

6- *A few times a week* **7**- *Daily*

_____24. My students' questions, interests, and readiness levels directly impact how I design learning activities that address the content standards.

_____25. My students use the classroom digital tools and/or environmental resources to engage in relevant, challenging, self-directed learning experiences that address the content standards.

_____26. My students complete online tasks that emphasize high level cognitive skills (e.g., Blooms—analyzing, evaluating, creating; Webb—strategic and extended thinking).

_____27. My students use digital tools and/or environmental resources to confirm their content understanding or to improve their basic math and literacy skills.

_____28. My students use digital tools and/or environmental resources to explore deeper content connections (e.g., analyzing data from surveys and experiments, making inferences from text passages) that require them to draw conclusions.

_____29. My students collaborate with me in setting both group and individual academic goals that provide opportunities for them to direct their own learning aligned to the content standards.

_____30. I promote global awareness in my classroom by providing students with digital opportunities to collaborate with others beyond the classroom.

_____31. My students apply their classroom content learning to real world situations within the local or global community using the digital tools at our disposal.

_____32. I reinforce specific content standards and confirm student learning using digital tools (e.g. discussion forums, digital student response system, wikis, blogs) and/or environmental resources (e.g., manipulatives, graphic organizers, dioramas).

_____33. My students self-select digital tools and/or environmental resources for higher-order thinking and personal inquiry related to project-based learning (PBL) experiences.

_____34. My students use all forms of the most advanced digital tools to pursue collaborative problem-solving opportunities of personal and/or social importance.

_____35. I use digital tools and resources to differentiate the content, process, and/or product of learning experiences.

_____36. I promote the effective use of digital tools on my campus and within my professional community.

_____37. I consider how my students will apply what they have learned in class to the world they live in when planning group projects.

APPENDIX B

Looking for Technology Integration (LoFTI)

Purpose: LoFTI is a tool to aid in the observation of technology integration into teaching and learning. The data gathered using this instrument should be helpful in building-level staff members as they plan and/or provide professional development in instructional technology.

1. Please enter the date and time:

   Date (mm/dd/yyyy):_____

   Time (hh:mm):_____

2. Observer Name:_____

3. Which school is being observed?_____

4. TeacherName:_____

5. Grade level:_____

6. What track is this class?

Special Education	Honors
Remedial	Advanced Placement
General Education	Other (please specify)

7. Is technology in use? □ Yes □ No
8. How many students are...

   In class_____?

9. Student Arrangement :

Tables, Centers, Pods
Circle or U
Cubicles
Rows
Other (please specify)

10. Learning Environment:

Auditorium
Cafeteria
Classroom
Gymnasium
Lab
Media Center
Multi-Purpose Room
Outside
Virtual Environment
Other (please specify)

11. Student Grouping:

Independent Work
Learning Center
Pairs
Small Groups
Whole Groups
Workshops
Other (please specify)

12. Instructional Collaborators :

Administrator
Assistant
Curriculum Specialist
Media Coordinator
Other Teacher
Outside Consultant
Special Education Teacher
Student
Technology Facilitator/Coach
Volunteer
None
Other (please specify)

13. Core Subject:

Arts	Physical Education
Career/Technical	Library/Media Skills
Computer/Technology Skills	Mathematics
English/Language Arts	Foreign Languages
English as a Second Language	Science
Guidance	Social Studies
Health	Other (please specify)

14. Teacher Activities:
(check only if technology is being used for…)

Activating prior knowledge	Providing feedback
Assessments	Questioning
Cues, questions, and advance organizers	Reinforcing/recognition
Demonstration	Scaffolding
Differentiated instruction	Setting objectives
Facilitation (guiding)	Summarizing
Lecture	Other (please specify)

15. Assessment Methods:
(check only if technology is being used)

Oral Response	Selected response
Product (e.g. project with rubric)	Written response
Performance (e.g. presentation, demonstration	Other (please specify

16.

	Teacher	Student
Problem Solving (e.g. graphing, decision support, design)		
Communication (e.g., document preparation, email, presentation, web development)		
Information Processing (e.g., data manipulation, writing, data tables)		
Research (e.g., collecting information or data)		
Personal Development (e.g., e-learning, time management, calendar)		
Group Productivity/Cooperative Learning (e.g., collaboration, planning, document sharing)		
Formative Assessment		
Summative Assessment		
Brainstorming		
Computer-assisted instruction		
Face to face classroom discussion		
Face to face group discussion		
Asynchronous discussion		
Drill and practice		
Generating and testing hypotheses		
Identifying similarities and differences		

Project-based activities
Recitation
Summarizing and note-taking
Problem Solving (e.g. graphing, decision support, design)
Communication (e.g., document preparation, email, presentation, web development)
Information Processing (e.g., data manipulation, writing, data tables)
Research (e.g., collecting information or data)
Personal Development (e.g., e-learning, time management, calendar)

17. Technology hardware is in use by

Assistive Technology
Audio (e.g., speakers, microphone)
Art/Music (e.g., drawing tablet, musical keyboard)
Imaging (e.g., camcorder, film or digital camera, document camera, scanner)
Display (e.g., digital projector, digital white board, television, TV-link, printer)

Media Storage / Retrieval (e.g., print material, DVD, VCR, external storage devices)
Math / Science / Technical (e.g., GPS, probe ware, calculator, video microscope)
Desktop computer
Laptop computer (including tablets)
Other (please specify)

18. Technology software is in use by…

Administrative (e.g., grading, record-keeping)
Assessment / Testing
Assistive (e.g., screen reader)
Computer-Assisted Instruction / Integrated Learning System
Thinking tools (e.g. visual organizer, simulation, modeling, problem-solving)
Hardware-Embedded (e.g. digital white board, GPS/GIS, digital interactive response system)
Multimedia (e.g., digital video editing)
Productivity Software (e.g., database, presentation, spreadsheet, word processing)
Programming or web scripting (e.g., JavaScript, PHP, Visual Basic)
Graphics / Publishing (e.g., page layout, drawing/painting, CAD, photo editing, web publishing)
Subject-specific software
Web Browser (e.g., MS Internet Explorer, Netscape, Firefox)
Web Applications
Course management software

(DyKnow, etc.)
Database systems
Discussion boards
Libraries, E-publications
Search engine
Video, voice, or real-time text conference
Web lobs, blogs
Web mail
Wiki
NC-Specific Web Resources
Learn NC
NC Wise Owl
SAS in School
Other (please specify

For the following items, please indicate the percentage of students in the classroom showing positive student engagement.

19. Student engagement is shown by…

Positive indicator of Engagement	*Circle your best estimate of the percentage of students showing each positive indicator of engagement*	*The opposite is Disaffection*
Sustained behavioral involvement	100 % 80 % 60 % 40 % 20 % 0 %	Tendency to give up easily in the face of challenges

Positive emotional tone—cheerful, calm, communicative	100 % 80 % 60 % 40 % 20 % 0 %	Negative emotional tone—boredom, depression, anxiety, anger, withdrawal, or rebellion
Selection of tasks at the border of their competencies	100 % 80 % 60 % 40 % 20 % 0 %	Selection of tasks well within their comfort zone
Initiation of action when given the opportunity	100 % 80 % 60 % 40 % 20 % 0 %	Passivity, lack of initiative
Exertion of effort and concentration	100 % 80 % 60 % 40 % 20 % 0 %	Laziness, distraction

OPTIONALADDITIONALITEMS

20. How was technology used in this classroom? (RAT framework; Hughes, et al., 2006; Adapted from Wilder Research's Technology Integration Observation Protocol, Maxfield, Huynh, &Mueller, 2011)

(CHECK ALL THAT APPLY and type a brief description in the corresponding text box)

□ Replacement. "Technology used to replace and in no way change established instructional practices, student learning processes, or content goals. The technology serves merely as a different means to the same instructional end. Most of the learning activities might be done as well or better without technology." (*Example*: Using an interactive whiteboard for the same purposes as a chalkboard)

□ Amplification. "Technology used to amplify current instructional practices, student learning, or content goals, oftentimes resulting in increased efficiency and productivity. The focus is effectiveness or streamlining, not fundamental change." (*Example*: Using a word processor rather than written materials for instructional preparation)

□ Transformation. "Technology used to transform the instructional method, the students' learning processes, and/or the actual subject matter. Technology is not merely a tool, but rather an instrument of mentality. The focus is fundamental change, redefining the possibilities of education. Most technology uses represent learning activities that could

not otherwise be easily done." (*Example*: Using Google drive or any cloud based applications for student collaboration on a project.).

APPENDIX C

Interview Protocol

1) To familiarize myself with your background, briefly share your experiences about technology in your personal life.

2) How would you describe yourself as a technology user?

3) Tell me about the kinds of technology that are available for you at home/school?

4) What technology is available for day-to-day use in your classroom?

5) Tell me about the kinds of technology that are available for your students to use.

6) Think about how technology is used in your classroom. How would you describe the current use of technology in your classroom?

7) What forms of technology do you use with your students?

8) How often do you implement technology in your classroom?

9) Describe how you make decisions regarding what technology to use in your classroom?

10) Describe a lesson/activity in which you used technology with your students.

11) What does technology integration mean to you?

12) What is most important about having technology available for your students?

13) Do you feel that your students are more engaged when technology is used? Explain. What observations have you made that support your opinion?

14) How do other teachers use technology with their students?

15) What skills and knowledge do you find important to draw on in using technology in your classroom?

16) What types of professional development activities have helped you learn to use available technology? How would you describe your technology training?

17) To what extent did your college coursework help you to integrate technology in your classroom?

18) What other types of learning experiences have helped you learn to use available technologies? Possible probes:

a. Where have you learned such technology (college courses, community classes, personal training with family and friends, self-taught)?

b. What technologies have you learned and from whom?

19) Do you feel you are adequately prepared to teach early childhood content using?

technology? Explain.

20) What additional training do you feel would be necessary to prepare you to use

technology to teach young children?

21) What are your perceptions of how your teaching has changed using technology?

22) Is there anything that can be done at the policy level to help with the efforts of technology integration from a teacher's point of view?

23) Can you think of anything that the policy makers might not be aware of but need to know about your situation as a teacher?

24) If there was one thing you could change or ask for with respect to technology and technology integration and your teaching, what would it be?

APPENDIX D

Sunnyville Public Schools: Grade 8 Technology Literacy Requirement Record Technology Standards

Teacher responsible for each standard should circle Literate of Not Literate, and place their initials and the date to the left of the rating box.

Student Rating Circle: Literate Or Not Literate	1. Basic operations and concepts a. Students demonstrate a sound understanding of the nature and operation of technology systems. (nature and operations)	1. Students recognize hardware and software components used to provide access to network resources and know how common peripherals (e.g., scanners, digital cameras, video projectors) are accessed, controlled, connected, and used effectively and efficiently. 2. Students know how to evaluate, select, and use appropriate technology tools and information resources to design, plan, develop, and communicate content information appropriately, addressing the target audience and providing accurate citations for sources. 3. Students know how to identify appropriate file formats for a variety of applications and apply utility programs to convert formats, as necessary, for effective use in Web, video, audio, graphic, presentation, word processing, database, publication, and spreadsheet applications. 4. Students continue touch typing techniques, increasing keyboarding facility, and improving accuracy, speed, and general efficiency in computer operation. 5. Students examine changes in hardware and software systems over time and identify how changes affect businesses, industry, government, education, and individual users.

Literate Not Literate	b1. Students are proficient in the use of technology. (information management)	Students identify strategies and procedures for efficient and effective management and maintenance of computer files in a variety of different media and formats on a hard drive and network.
Literate Not Literate	b2. Students are proficient in the use of technology. (terminology and problem solving)	Students know how to solve basic hardware, software, and network problems that occur during everyday use; protect computers, networks, and information from viruses, vandalism, and unauthorized use; and access online help and user documentation to solve common hardware, software, and network problems.
Literate Not Literate	2. Social, ethical, and human issues a. Students understand the ethical, cultural, and societal issues related to technology.	Students identify legal and ethical issues related to use of information and communication technology, recognize consequences of its misuse, and predict possible long-range effects of ethical and unethical use of technology on culture and society.
Literate Not Literate	b. Students practice responsible use of technology systems, information, and software.	Students discuss issues related to acceptable and responsible use of information and communication technology (e.g., privacy, security, copyright, file-sharing, plagiarism), analyze the consequences and costs of unethical use of information and computer technology (e.g., hacking, spamming, consumer fraud, virus setting, intrusion), and identify methods for addressing these risks.

Literate Not Literate	c. Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.	Students examine issues related to computer etiquette and discuss means for encouraging more effective use of technology to support effective communication, collaboration, personal productivity, lifelong learning, and assistance for individuals with disabilities.
Literate Not Literate	3. Technology productivity tools a. Students use technology tools to enhance learning, increase productivity, and promote creativity.	Students describe and apply common software features (e.g., spelling and grammar checkers, dictionary, thesaurus, editing options) to maximize accuracy in development of word processing documents; sorting, formulas, and chart generation in spreadsheets; and insertion of pictures, movies, sound, and charts in presentation software to enhance communication to an audience, promote productivity, and support creativity.
Literate Not Literate	b. Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.	Students describe how to use online environments or other collaborative tools to facilitate design and development of materials, models, publications, and presentations; and to apply utilities for editing pictures, images, and charts.
Literate Not Literate	4. Technology communications tools a. Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.	Students know how to use telecommunications tools such as e-mail, discussion groups, and online collaborative environments to exchange data collected and learn curricular concepts by communicating with peers, experts, and other audiences.

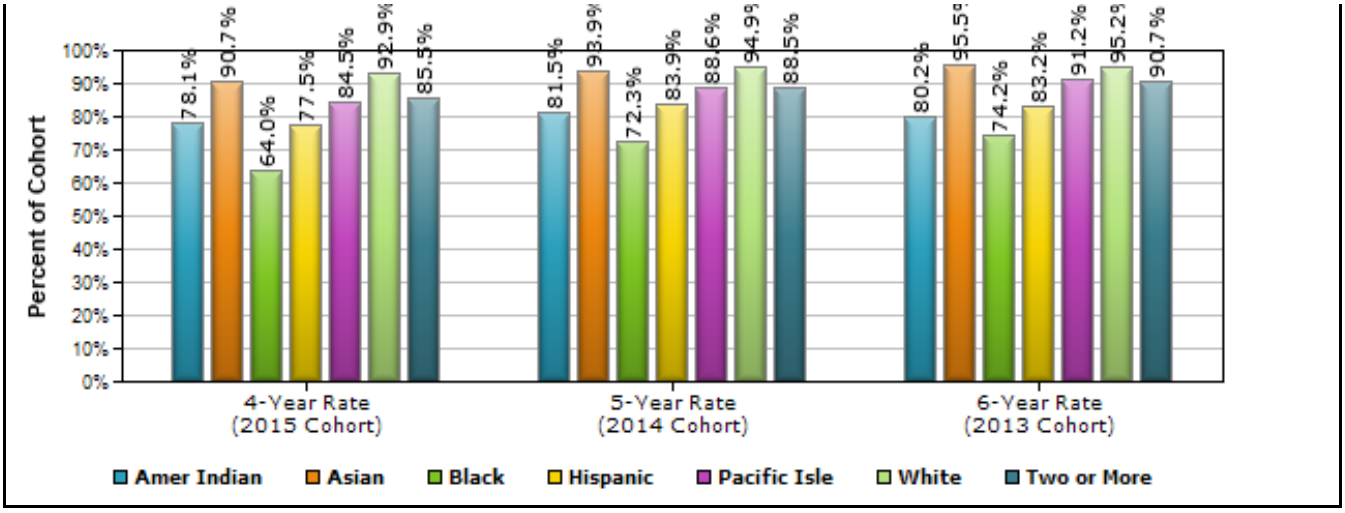
Literate Not Literate	b. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.	Students know how to use a variety of media and formats to design, develop, publish, and present products (e.g., presentations, newsletters, Web pages) that effectively communicate information and ideas about the curriculum to multiple audiences.
Literate Not Literate	5. Technology research tools a. Students use technology to locate, evaluate, and collect information from a variety of sources.	Students know how to conduct an advanced search using Boolean logic and other sophisticated search functions; and know how to evaluate information from a variety of sources for accuracy, bias, appropriateness, and comprehensiveness.
Literate Not Literate	b. Students use technology tools to process data and report results.	Students know how to identify and implement procedures for designing, creating, and populating a database; and in performing queries to process data and report results relevant to an assigned hypothesis or research question.
Literate Not Literate	c. Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.	Students know how to select and use information and communication technology tools and resources to collect and analyze information and report results on an assigned hypothesis or research question.

Literate Not Literate	6. Technology problem solving and decision-making tools a. Students use technology resources for solving problems and making informed decisions.	Students identify two or more types of information and communication technology tools or resources that can be used for informing and solving a specific problem and presenting results, or for identifying and presenting an informed rationale for a decision.
Literate Not Literate	b. Students employ technology in the development of strategies for solving problems in the real world.	Students describe the information and communication technology tools they might use to compare information from different sources, analyze findings, determine the need for additional information, and draw conclusions for addressing real-world problems.

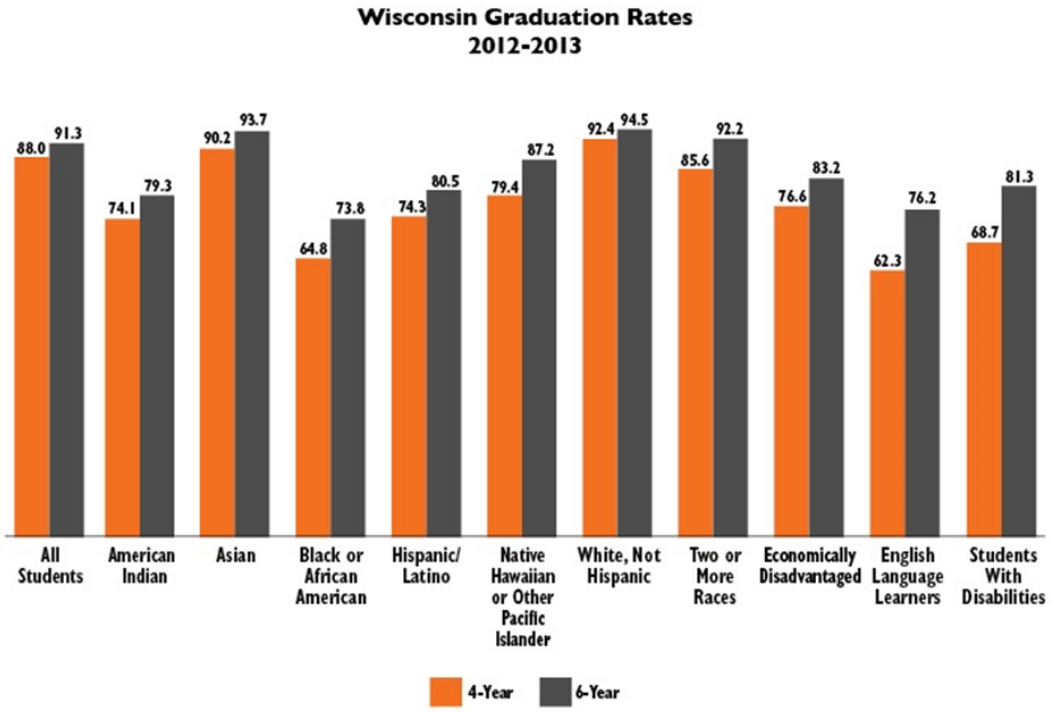
This folder can be used to include examples of student work that demonstrate these Technology Standards. Paper and electronic copies,
(CD's, DVD's, websites) act as evidence of Technology Literacy along with teacher observations and checklist.

APPENDIX E

Sunnyville High School Graduation Rate by Race/ Ethnicity



APPENDIX F


Wisconsin Graduation Rates
2012-2013
88.0
91.3
74.1
79.3
90.2
93.7
64.8
73.8
74.3
80.5
79.4
87.2
92.4
94.5
85.6
92.2
76.6
83.2
62.3
76.2
68.7
81.3
All Students
American Indian
Asian
Black or African American
Hispanic/ Latino
Native Hawaiian or Other Pacific Islander
White, Not Hispanic
Two or More Races
Economically Disadvantaged
English Language Learners
Students With Disabilities
4-Year
6-Year