

TEACHERS' INSTRUCTIONAL TECHNOLOGY INTEGRATION

by

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DEDICATION

This is dedicated to my loving husband Kimbel, my amazing children, Jozanne, Juston, Janelle, and Jurrand and in loving memory of my mother and father, Suzanne E. Nelson and Robert R. Nelson, MD.

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LIST OF ABBREVIATIONS

National Educational Technology Standards for Teachers	NETS*T
Instructional Technology Resource Teacher	ITRT
Universal Design for Learning.....	UDL

ABSTRACT

TEACHERS' INSTRUCTIONAL TECHNOLOGY INTEGRATION

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How do teachers perceive integrating technology into their lessons? Do they value technology? How do they understand that technology integration occurs? This dissertation describes the technology integration experiences, their technology competencies, beliefs about technology and learning, into lesson planning practices of eight teachers from kindergarten through twelfth grade. Their instructional practices as they relate to technology are discussed as examples of the influences to their practices and the success that they feel that they have had in planning and initiating technology-rich lessons.

My goal was to identify the processes that these teachers use and the support that they have in this process, which can then be shared with other teachers in professional development sessions designed to help teachers to explore and improve their writing of technology-rich lesson plans. Many school systems require that teachers have training in a variety of technologies in order to include them as part of the instructional practices. In

the process of researching and writing this dissertation, the author conducted qualitative study with eight teachers in Amberville County using personal interviews and surveys

This study revealed that the teachers who participated chose to integrate technology into their daily lesson plans in order to make learning engaging and relevant for their students. They used their prior knowledge of technologies as well as the training that they received through the County in order to write technology-rich lessons.

Understanding teacher perceptions of technology integration would be helpful in designing future professional learning experiences that promote technology-rich lesson planning.

CHAPTER ONE: INTRODUCTION

Teachers often find themselves struggling to write lesson plans that incorporate technology in a meaningful way. Some teachers do not attempt to use technology at all because they are not comfortable with their level of expertise and do not want to appear incompetent in front of their students. Others may feel simply using some form of technology defines them as a teacher who writes technology-rich lessons. As a result, some teachers require their students to use the technologies, but do not encourage them to think about why the technology is appropriate for a particular task. For the purposes of my study, I choose to use the definition provided by Swain (2006) where technology-rich lessons are those that integrate technology into lessons that are “active, intentional, reflective, conversational, complex, contextual, collaborative, constructive, and responsible.” As teachers integrate technology, they conscientiously connect the purpose of the lesson with the technology used in the lesson.

I conducted a qualitative study in which I examined the process that eight teachers go through when they write technology-rich lessons. My research questions were, “How do these teachers see the value of incorporating technology into their lesson plans?”, and “How do they integrate technology into their lesson plans?” My goal was to identify the processes that these teachers use and the support that they have in this process, which can

then be shared with other teachers in professional development sessions designed to help teachers to explore and improve their writing of technology-rich lesson plans.

As part of the preparation of students for a work environment full of technology, students are increasingly required to use tools to make the information age accessible to them. Recently, some teachers have become aware that through deeper learning, students can apply the skills of investigation and problem solving to their lives within the greater community. In a setting where multidisciplinary projects, cooperative learning groups, flexible scheduling, and authentic assessments are the primary form of instruction, technology is a valuable tool (Means & Olson, 1994). Teachers have the responsibility of laying the foundation for the development of these skills with their students, no matter what course they teach. Increasingly, students are expected to accomplish complex tasks as they obtain, organize, manipulate and display information, using technology. School systems have put supports in place to help teachers as they develop lessons using technology tools with which many teachers have little or no prior experience.

Teachers are left with the decisions of how to infuse individual learning, exploration, creativity, and collaboration into the daily lessons that they provide for their classes, using the available technologies to do so. Means and Olson (1994) concluded that technology “appears to provide an entry point to content areas and inquiries that might otherwise be inaccessible until much later in an academic career” (Means & Olson, 1994).

I believe that many teachers are not currently including technology in their lessons because they are not comfortable with using the available technology. As found

in their study evaluating instructor technology integration in community and technical colleges, Favero and Hinson (2007) report that teachers often do not feel that they have the “technology savvy” in order to effectively integrate technology. Eighty percent of the teachers and graduate assistants (n = 64) who participated in the action research case study done by Groves and Zemel (2000) reported that their personal comfort with technology as an important factor influencing use of instructional technologies in their teaching while 87% reported being influenced to use technologies when training is made available on how to use them. The National Educational Technology Standards for Teachers (NETS*T) were developed to provide teachers with a framework to encourage them to acquire the basic knowledge and skills to apply technology in the classroom (ISTE, 2008). The standards set a framework for technology integration as they help teachers to inspire creative environments for student learning, design technology-rich learning experiences, to model contemporary learning, promote a healthy, global attitude toward learning, and to continue to pursue professional development and growth. The standards help the teachers to avoid the guesswork of what they need to know. Teachers can read the standards and determine their strengths and make arrangements to address their weaknesses.

Through the background research that I have completed towards better understanding the benefits of technology-rich lessons, meaningful learning is demonstrated by the fact that the students individually and collaboratively have more autonomy and ownership of their learning; their learning focuses on high order thinking skills such as those required during the routine use of technology and the ease of

integration of the technology into their daily practices; and the products, projects, and investigations are “authentic” as they involve types of work that people engage in work settings (Bitter & Pierson, 2002);

Eteokleous, 2008; Glassett & Schrum, 2009; Hare, Ault, & Nileksela, 2009).

According to King, Goodson, and Rohani (1998), “higher order thinking skills include critical, logical, reflective, metacognitive, and creative thinking and are activated when individuals encounter unfamiliar problems, uncertainties, questions or dilemmas” (p. 1).

Lessons rich with technology offer students the opportunity to learn subject matter based in higher order thinking environments where they apply “procedural knowledge that also involve analysis and synthesis of two or more concepts” (King, Goodson, and Rohani, 1997). These lessons might require them to use programs to write clear and concise case reports, use a spreadsheet program to calculate the overhead costs for a design project, investigate opportunities for growth of a program using a web quest or analyze questions about the impact of old and new ideas. The technology is not the source of the higher order thinking, rather the tool used to exercise it.

In their study examining the effect of a technology-enriched classroom on student development of higher-order thinking skills and student attitudes towards computers by Hopson, Simms, and Knezek, (2001) the treatment groups were provided with one computer for every two students as a tool for learning. They were taught how to use spreadsheet, database, and word processing software and required to use the tools to take notes, produce assignments, and construct projects. The technology enriched classrooms were equipped with electronic resource materials, a scanner, a quick take camera, and

Hyperstudio software. The comparison groups were instructed in a traditional classroom setting using the district's prescribed curriculum, and their teachers were not trained in the use of technology and no computer-based teaching stations were available to them. Hopson and Knezek concluded that the creation of a technology-enriched classroom environment had a positive effect on student acquisition of higher-order thinking skills, the scores being generally higher for analysis and synthesis and significantly higher for evaluation.

The teachers reported student learning in the technology-enriched classrooms was more student-centered and less teacher/textbook driven. The students using higher order thinking skills actively manipulate information in a variety of contexts from a number of different resources in order to solve meaningful and relevant problems (Ramirez & Bell, 1994). Students involved in the Hopson and Knezek study used the computer as a "tool for problem solving and decision making." The students in their study had a more positive attitude toward motivation and creativity and that when provided with technology, the students are "more likely to take control of their learning, stay focused until the task is complete, and to pursue more obscure and hypothetical solutions to problems." (Hopson, Simms, and Knezek, (2001).

Topic and Purpose of My Study

My research originated from my experiences as a newly-hired classroom teacher interested in the processes that experienced teachers use in developing their lesson plans. Though many plans were available to me through a variety of sources, my interest was in learning how to develop my own lessons. I wanted to learn, from others, how to

incorporate technology into my lessons in a meaningful way. As I watched students who had access to technology, they appeared more engaged in the lesson and their learning than those without access. I was able to see that students were more attuned to the activities given to them when they were allowed to go to the computer lab. Students were comfortable with their cell phones in a way that most teachers were not.

Technology, it seemed, interested my students. The technologies that were being brought into my school were quickly being put to use by some teachers. Students were walking around school with scientific contraptions that piqued my students' interest. A teacher had acquired handheld accelerometers for use with their science classes; another had their students using a global positioning system in order to better understand plotting on the coordinate plane. The students were excitedly moving about the building, collecting and recording data. They were taking control of their learning and seemed to be enjoying the process. My colleagues, I determined, were trying a new type of instruction. I wanted to participate in this new type of instruction. I wanted to be one of the teachers who took advantage of the new technologies, as they arrived. Though I was anxious to make up reasons to use the technologies, I wanted to include them in a way that was meaningful to my students' learning. As a graduate student studying technology integration, I was aware that I would have to make some major changes in how I created lessons for my students, using technology. I wanted to improve my ability to be effective as a teacher and to be helpful to others as they made changes to their instructional practices, as well. I began reading about technology integration. I began with some history of technology and read books and articles outlining the timeline of how various technologies integrated into

American culture. I soon decided that I would like to have a better understanding of technology in the classroom.

The purpose of my study was to investigate how the participating teachers incorporate their technology competencies and their beliefs about technology and learning into their lesson planning practices. I believe that it is the responsibility of teachers to prepare students by providing first-hand experiences with technology, in school as part of their preparation for the employment arena, as they will be expected to be proficient in using various technologies in order to be effective employees. Classroom use of technologies is important as it provides the students with an opportunity to experience real world learning situations, often with the originators and practicing professionals.

CHAPTER TWO: CONCEPTUAL FRAMEWORK

American education has been forever impacted by the influx of a variety of technological resources available to classroom teachers. Technologies have not only adjusted how teachers teach, but also where and how students learn. According to information gathered through the Pew Charitable Trusts website, “in April, 2014, six in ten senior (59%) report using the internet. There has been a six percentage point year-over-year increase from the 53% of older adults who went online at a similar point in 2012.” Though these numbers indicate growth in their technology usage, older adults are still behind the population as a whole as 86% now go online. From 2000 - 2013, internet adoption of all adults has risen consistently.

As older adults slowly acquaint themselves with technology, their counterparts are in the classroom challenged with the task of presenting purposeful technology-rich lessons to students who have been born into an environment rich with a variety of technologies. In their study of technology integration in k-12 classrooms, Hechter and Vermette found that “school divisions and administrators are heavily investing in technologies intended to transform classrooms to fit within the digital age” and that “teachers are unclear on effective ways to integrate these technologies into their teaching” (Hechter and Vermette, 2013).

My goal was to understand the process and thinking of teachers as they create lessons that successfully integrate technology. While developing my conceptual

framework, I considered best practices for instruction and how technology-rich lessons fit in with these practices. I also looked at how technology-rich learning experiences influenced student learning. Technology integration into daily lessons requires the melding of several aspects of a teacher's experience including teacher self-efficacy, collaboration, and teaching philosophy.

When discussing the use of technology in lessons with students, scholars have used a large variety of terms including, but not limited to: *technology-rich lesson*; *technology-rich classroom*; *technology integration*; *computer-based learning*; *technology-enhanced lesson*; and *educational technology*. I have chosen to address the practice of integrating technology into daily lessons as technology-rich as this term best describes the practice of the integration as being both relevant and rich to the specific teaching goal. The term *technology-rich classroom* has often been used to describe a learning environment in which there is a large amount of technology (e.g., Dorman & Fraser, 2009).

As opposed to simply having technology in a classroom, Swain (2006) defined "technology rich learning environments" as the process of integrating technology into classrooms through lessons that have the following attributes: active, intentional, reflective, conversational, complex, contextual, collaborative, constructive, and responsible. These attributes, when coupled with available technologies, provide students with a student-led and learner-controlled environment where students can support each other's learning while simultaneously using high-order thinking skills such as analyzing or evaluating information or creating new representations of knowledge.

Though these characteristics may exist in an environment without technology, examples of the benefits of a technology-rich environment is one in which there is a generative learning environment where students can access the world wide web in order to participate in simulations that can manipulate learning concepts or access to databases that can be used to interpret information, make inferences, or predictions, allowing students to participate in learning and to generate knowledge by exploring and connecting concepts.

In some cases, simply providing access to online web sites may serve as triggers for student-led discussions about concepts. The technology opens the classroom doors and provides the students with ever-increasing opportunities to learn material contained outside of the walls of the school. In Swain's study (2006) involving 15 sections of elementary and secondary student preservice teachers, the teachers were provided with training in using various computer applications. Preservice teachers who completed the program were offered technologies to be used in their classrooms. Using a pretest and posttest, Swain found that, following the program, these preservice teachers created lessons in which the teachers wanted the students to have a “deeper understanding of the concept and how it related to various disciplines.” Often, the teachers created technology-rich lessons that allowed students to perform the same strategy (i.e. researching information) but in a better or more efficient manner.

Other lessons allowed students to perform tasks that they previously were not able to do at all. The teachers reported having the desire to have students function at a higher level and to make connections with other academic disciplines and real-world

applications (Swain, 2006). This higher level included the routine use of technology and the ease of integration of this technology into daily practices. The students began to “consider concepts from multiple perspectives.” Swain uses the Levels of Use dimension to examine the behaviors of individuals as they adopt new technologies as it provides insight into how the intended user is acting with respect to the innovation Swain (2006) found that the diverse technology-rich lessons that are created have commonalities which lead to a “greater emphasis on higher order thinking skills, cross-curricular activities, cooperative learning, researching and evaluation of material.’

A study by Glassett and Schrum (2009) examined a program they dubbed “MINTY”. As part of the program two hundred hours of training was provided over a two-year period along with a variety of classroom materials including: LCD projectors, computers, Interwrite™ boards, Smartboards™, digital cameras, and scanners. Using “inquiry based lesson and learning activities based on a constructivist learning model,” this study was undertaken to understand the experiences of educators who participated in the MINTY project and to determine the influence of the entire project on student learning. In their qualitative study, in which there was a nested experimental group (n = 344) and a matched control group, Glassett and Schrum examined student achievement over two years and they noticed that students “exhibited a tendency towards higher order thinking and learning as a result of cooperative and constructivist learning strategies” (Glassett & Schrum, 2009).

The focus of the teachers in the MINTY project was to effectively use strategies, not just the technologies that they integrated. The teachers indicated that “they felt much

more confident and comfortable in designing these cooperative lessons that created an environment for this increase in student participation in challenging tasks.” The teachers found that their students appeared to care more and were more engaged in the lessons. They felt that the students were also less likely to be disciplinary problems. The students participated in a true learning community in which they cooperated as they built on “each other’s work and worked as a team.” The teachers were provided with ongoing training and support as they integrated technologies into their daily lesson plans. Glassett and Schrum found that there is a “positive influence of technology integration” which includes “improved attitudes towards teaching and learning, increased student achievement and conceptual understanding” (2009, p. 148).

In their study examining the effects of a technology rich classroom environment including differences in pedagogy and student engagement; and use of technology in terms of classroom management, pedagogy, and student engagement, Hare, Ault, and Nileksela (2009) found that including technology in a classroom, training teachers how to use the technology, and providing support for technology use may change many aspects of learning. The study provided evidence that in classrooms where technology use is occurring more often, students are “more likely to be engaged in individual or group projects and they are less likely to be engaged in whole class activities where the entire class is paying attention to the teacher or another student.”

The study also found that there were differences between the level of Bloom’s taxonomy where the non-technology rich classrooms were likely to be engaged in Receipt of Knowledge (lower level tasks) and the technology rich classrooms were more

likely engaged in Applied Procedural tasks. Students in technology-rich classrooms were more likely to be engaged in higher level cognitive abilities such as Knowledge Representation and Knowledge Construction.

Through technology-rich learning experiences, students receive constant feedback on their learning that “allows learners to construct their knowledge, to produce real world products and services, perform in some way, organize peer conferences, create artistic works and so on” (Trinidad & Albon, 2002). The student receives ongoing assessment and feedback. Currently, the field of education is extremely sensitive to the global technological economy and the internet has provided a technological environment in which students can be exposed to an ever-increasing classroom, with no bounds.

Technology Implementation Strategies

Glassett and Schrum (2009) described teachers creating instruction using “intense technology implementation strategies” in their study of teacher beliefs and student achievement in a technology-rich classroom environment. They found that teaching and technology, combined, influenced student learning, resulting in higher scores on criterion referenced tests. Their program, dubbed MINTY for the study, was designed to help teachers learn how to “incorporate inquiry based lessons and learning activities based on a constructivist learning model” in order to integrate technology into their curricula. Including 200 hours of training over two years and program specialists to visit teachers and students, the MINTY program supplied a variety of electronic materials. The mission of MINTY was to “support educators as they integrate technology into inquiry-based, student-centered, interdisciplinary, collaborative teaching practices that result in higher

levels of student performance.” Technology integration, they concluded, increased student achievement and conceptual understanding.

Through their responses to semi-structured interviews, a focus group, and open-ended questions as part of the online survey, the teachers reported that they found that the students “exhibited a tendency towards higher order thinking and learning”. The students did the work of “higher level questioning and thinking” during their learning. They were reported as being better behaved “due to the motivating forces of technology and constructivist practices.” The students were reportedly “more often engaged” and supportive of each other.

Collaboration and Instructional Support

Technology integration is often a new process for teachers. They need support if they are to successfully integrate technology into their daily lessons. Teachers also need to know how they can be most effective in including technologies into their lessons. The International Society for Technology in Education has developed standards designed to help educators “as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community.” Some school systems provide a support person whose expertise is in technology-rich lesson planning, an instructional technology resource teacher (ITRT). This ITRT meets with teachers and provides support as they learn to convert and create lessons that integrate technology.

Teachers may find themselves being observed by administrators who are looking to see proof of their effective use of technology. The possibility that they might be asked

about lessons that have been done that utilize the technology may make some teachers feel pressured into using technology-rich lessons as part of their regular instructional practices even though they may not be fully prepared to do so. Instructional technology is “used to designate the process of teaching and learning through the purposeful use of strategies and communication media” (Ely, 2008). Because the instruction uses technology in a purposeful way and as a tool to support learning, collaboration, and enthusiasm, I can call the lessons technology-rich. When selecting the technology used to teach a specific curricular goal, the teacher must be sure that the technology selected enhances the learning.

Administrators may consider how and why teachers make the instructional decisions that they do as they make decisions about organizing their schools. Administrators can look at their teachers’ needs to determine what type of training is necessary in order to support their students’ use of technology. Sharing the stories of the teachers in my study has begun the dialogue that defines the process of creating technology-rich lesson plans and pairs voice with action. Thinking about what is done, how it is done, who it is done with, and why it is done might help teachers to better recognize the process that they use in effectively creating technology-rich lessons. When teachers are communicating with each other and other professionals within their learning communities, waste of time and energy can be reduced and increased collaboration can be initiated. Time can be better spent educating students and effectively preparing them to enter the global, technological workforce.

As presented in his paper written for the January, 2000 School of Technology Leadership Conference of the Council of Chief State School Officers in Washington, D.C., Henry Jay Becker of the University of California, Irvine found that others feel that integrating technology into their lessons will distract from the timeline within which information must be disseminated to their students and that using technology would impede this timeline (Becker, 2000). As teachers become more confident in their technology integration and through the support of individuals placed in the learning environment they will feel more confident that technology will not impede the timeline and might even support learning in a more timely fashion.

My own experience as a teacher supports this claim. Three years ago I wrote a lesson plan for my geometry students. As a special education teacher, I wanted to create a lesson that would engage my students in learning vocabulary and would not expose the individual weaknesses of some of my students. Each of my students could comfortably use a digital camera, and each pair of students could use their collective knowledge and experience to benefit from the lesson. I created the lesson in an effort to encourage them to quickly learn and apply the basic concepts and vocabulary that they would need to be comfortable using during my geometry course. Because the students love using the cameras, they quickly began this lesson. Student involvement and engagement was not a problem that I had to address. Many of the vocabulary terms that they needed to learn had been presented to them through past coursework and life experiences.

The digital cameras offered students an opportunity to join the geometry class, on the first day, and feel relatively confident that they were doing well. I used the digital

cameras for the students to collect images because geometry is a visual math in which students need to understand shapes and their relationships to each other. The digital camera lesson that I wrote is a technology-rich lesson because it involves technology in a manner that enhances learning. Through their photos, the students could talk about shapes and their relationships to each other. The technology served as a tool to support learning, collaboration, and enthusiasm. As I think back on my digital camera lesson plan, I wonder how many other teachers have had a similar experience. I was interested to see how others perceive the barriers and supports provided to them as they engage in writing technology-rich lessons.

Twenty-first Century Skills.

I am interested in studying the process that teachers use, when supported by an expert, in integrating technology into their lessons. I am also interested in how they feel about working with experts in learning how to integrate this technology. The Partnership for 21st Century Skills is a national organization that “advocates for 21st century readiness for every student.” As teachers are asked to integrate skills into their courses, the Partnership for 21st Century Skills provides a framework that “describes the skills, knowledge, and expertise students must master to succeed in work and life.” Among others, skills included in the framework include the ability to apply technology effectively. The organization encourages the use of technology as a “tool to research, organize, evaluate, and communicate information.” Founded in 2002 by the U.S. Department of Education and several organizations, this organization has as its mission, to “serve as a catalyst to position 21st century readiness at the center of US K-12

education". As outlined in their mission statement, the Partnership for 21st Century Skills, through collaborative relationships among education, businesses, community and governmental leaders, seeks to ensure that all students are in classroom environments that include critical thinking and problem solving; communication, collaboration; and creativity and innovation (Partnership for Twenty-first Century Skills, 2014). Along with its partners, educators establish standards and objectives to serve as guidelines in preparing students with 21st century learning skills and include technology tools. I will use the rubric provided by this organization to evaluate the effectiveness of the classroom teachers' technology integration because I am interested in understanding the effective use of technology in lessons, not just *any* integration.

Teacher Efficacy and Technology Rich Lesson Planning

A teacher's self-efficacy about technology may impact her willingness to integrate technology into lessons. Berman et al. have defined teacher efficacy as the extent to which the teacher believes he or she has the capacity to affect student performance (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137). In their study, they found that teachers' efficacy had a strong effect on their willingness to continue innovative projects funded by the federal government. They suggested that staff development strategies aimed at teachers and their environments might improve efficacy. Self-efficacy has also been defined by Guskey and Passaro (1994, p. 639) as the teacher's belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated. Their work is significant in determining that a teacher's efficacy is both personal and external.

Levin and Wadmany (2008) found that teachers need to become more comfortable and informed about the technology available for use in the classroom in order to create lessons that incorporate the technology into their learning. A significant factor in technology integration among teachers is their self-efficacy for technology integration. Lack of confidence for teaching with technology was an important factor influencing the levels of computer use by student teachers in a study conducted by Albion (1996). A teacher who believes in his/her ability to be successful in using technology in instruction will set higher goals and be motivated to work harder to achieve them. Individuals choose to select tasks at which they feel they are competent.

In a study designed to investigate perceived factors or barriers affecting teachers' technology use in Taiwan, researchers (Chen, 2004; Chen & Reimer, 2009; Hsu, 2003; and Wang, 2004) investigated how teachers' beliefs influence their practice. The purpose of their study was to "investigate whether the teachers' pedagogical beliefs align with their practices regarding technology integration and to explore the reasons for any inconsistency between teacher beliefs and their practices." Their findings indicate that teachers' beliefs play an important role in the decisions that they make regarding integration of technology into the classroom.

Past experiences influence a teacher's willingness to use technology. According to Bandura (1997), self-efficacy is situationally specific and develops from a subject's appraisal of past experience with the task or with activities similar to it. Bandura posited that the foundation for human motivation and accomplishment is self-efficacy beliefs. Unless the desired outcome can be produced, there is little incentive to act or persevere

despite difficulties or challenges. Integrating technology into pre-existing lessons or creating lessons that are technology-rich may be difficult for many teachers who have not entered the educational environment with a strong technology background. Chen, Hsu and Wang argue that policymakers “must know how teachers’ beliefs influence” [their] practices regarding technology integration.

When technology is available and teachers have been given the opportunity to become comfortable with its use, teachers include lessons that involve technology (Spotts, Bowman, and Mertz, 1997). A study on the teacher adoption of technology by Zhao and Cziko (2001) emphasized the role that a teacher’s beliefs play in determining technology use with their students towards helping them to achieve high level goals. They found that when some teachers were provided with technology and training, they still did not use the technology. They concluded that the teacher must believe that the technology is more effective in maintaining a higher-level goal than what was previously used, that it will not disturb the goals, and that she has the ability to effectively use the technology. Higher order thinking, self-paced learning, and a collaborative and cooperative learning experience are benefits that the student has through the use of instructional technology. Zhao and Cziko found that teachers will only employ technology-rich lessons that achieve these goals when they have the resources and ability to use the technology effectively.

Research done by Sandholtz, Rinstaff, and Dwyer (1997), found that in order for teachers to engage in the practice of writing lessons that are rich with technology, they must believe that technology can be integrated in a way that is helpful to student learning.

They must also have the skills necessary to be effective lesson planners. When using the services provided by an ITRT, the teacher must be confident that she will improve classroom planning practices. Glassett and Schrum (2009) found that teachers are key to any meaningful changes. Bitter and Pierson (2002) view technology as an agent of change. They found that appropriate use of technology provides a more interesting and enriched learning environment. They suggest that teachers should carefully match the appropriate use of technology with the content in order to maximize the student learning potential. Teachers have a variety of technology competencies that can be utilized in their classrooms. Depending on a teacher's belief that an ITRT can help her to more effectively integrate technology into the classroom and her competencies to do so, technology integration can be facilitated and can improve her pedagogy.

Teacher's self-efficacy about technology usage can strongly impact "how well they motivate themselves and persevere in the face of adversities." (Pajares, 2002) Teachers must overcome their fears and concerns about their ability to function sufficiently enough to take the lead for in-class instruction on the proper use and application of technology to their lesson plans.

Self-efficacy is a social and personal construct. In some learning environments, the culture of the school may support teachers' avoidance of technology integration. A school culture may develop a sense of "collective efficacy that demonstrates a shared belief in its capability to attain goals and accomplish desired tasks" (Pajares, p. 5). Because individuals select tasks about which they feel confident and competent and tend to avoid those in which they do not, teachers' self-efficacy about creating and following

technology-rich lessons is most likely directly related to their assessment of their individual technology aptitude. To some degree, they assess their technology aptitude based on their previous performance. Based on the level of mastery that they feel an individual develops a belief about their capability to successfully engage in similar and subsequent tasks. Success with one type of technology application may provide the confidence necessary to attempt another type of technology application in the classroom.

The Learning Environment

Teachers are charged with the responsibility of designing and managing their classrooms in such a way as to provide a comfortable and effective learning environment. They must also support learning through engaging lesson plans that expand student learning and information retention possibilities. In his paper, *Toward a Meta-Theory of Problem Solving*, Dave Jonassen summarized, “different learning outcomes require different instructional conditions” (Jonassen, 2009). His current research interests include the development of problem-based learning environments. These learning environments are rich with technologies designed to increase meaningful learning. The technologies of these environments support students as they construct new knowledge, based on their experiences in those environments. A technology-rich lesson is one in which the choice of tool, be it hardware or software, is deliberate and is designed to increase the effectiveness of the lesson.

Using technology-rich lessons provide students with opportunities to experience knowledge through a variety of multimedia resources. Using technology in the classroom allows students to do this experiential learning at their own pace and through

their individual thought processes. Experiential learning allows the students to experiment, reflect on their experiences, and research their findings before performing exercises. In the active learning paradigm, the instructor serves as a designer of learning environments in which the student is an active participant in their learning experience. From the point of view of Bitter and Pierson (2002), technology is an agent of change and appropriate use of technologies can make learning for students more interesting and enriching and prepare them for the demands of the workplace. The experiential learning environment encourages students to actively process course materials beyond the conceptual discussions, using them in a real-world context. (Smith, 2001) In these real-world learning environments, the students construct new knowledge out of their experiences through accommodation and assimilation, as theorized by Jean Piaget's constructivist theory (Piaget, 1952).

Constructivist learning environments provide opportunities to use a scientific approach to learning, one that emphasizes observation and experience. Ernst von Glasersfeld (2007) defined radical constructivism as “an unconventional approach to the problem of knowledge and knowing. It starts from the assumption that knowledge, no matter how it is defined, is in the heads of persons, and that the thinking subject has no alternative but to construct what he or she knows on the basis of his or her own experience” (Glasersfeld, p. 1). Through a constructivist approach, students can extend their lecture-based learning to practical applications or discover a concept through exploration. Constructivist learning is associated with pedagogical approaches that encourage active learning and learning by doing. Technology-rich lessons can provide an

unconventional approach to learning that allows students to construct meaning from the classroom experience. The students use the materials of experts to create their own works. They also are able to explore through resources outside of the classroom. As they create published materials, the students are able to take alternate roles as authors and critics of their learning experiences. Technology-rich lessons also provide opportunities for students to demonstrate learning in a variety of formats. Technology integration oftentimes bridges the gap between teachers' knowledge and students' learning.

Purposeful Learning

Some technology-rich lessons require students to create products that demonstrate their ability to create products in a published format. Lessons that encourage students to create published materials that include technology to support the publishing process; design, encode, assemble, publish, and revise (Norton and Wiburg, 1998) provide opportunities for students to learn how to use different types of technology to produce desired products (i.e. charts and graphs, pamphlets, posters, power point presentations). Producing published materials offers students an opportunity to experience learning in the context of experts. This learning supports their entry into the workforce with learning experiences that mirror the real world, making them valuable to their new employers. The technology used in technology-rich lessons is used to enhance learning, where educational tools are used in a design that maximizes the potential of all applications. The goal is to provide lessons that help students to construct their own knowledge through inquiry-based learning. In order for teachers to be effective in the use of technology as part of their instructional practices, they must have the confidence that

their ability with the various types of technology available is sufficient for the purpose of guiding instruction and correcting any problems that arise during instruction.

As discussed through Bitner and Bitner's eight keys to success in integrating technology into the classroom teachers need to overcome their anxiety about technology integration in order to successfully use technology in lessons. (Bitner and Bitner, p. 96) They need to have confidence that they are capable of designing lessons that use technology. Depending on their background knowledge about technologies and their past experiences in working with students in learning experiences that involve technology, a teacher's technology use is influenced. The teacher's self-efficacy about technology use informs her instructional practices. Insecurity about her effectiveness may keep her from including technology in a lesson.

Teachers must integrate effective application of technology in their lesson plans in order for their students to successfully compete in a job force that requires that they be able to conduct research, organize and evaluate information, and to communicate information. Standards have been established to serve as guidelines for teachers as they try to accomplish this goal. The teachers must believe that they are capable of effectively writing lessons that use technology effectively and that the skills that they are helping their students to develop are helpful and necessary. I was interested to see how teachers communicated and worked with the experts who are in their schools as they created lessons that integrate technology. Since the goal of integrating technology is somewhat new to many teachers, they often need support in creating a new, unique learning environment. These environments offer students opportunities to learn by doing through

real-world learning environments. Since the students construct knowledge out of their experiences and observations, these constructivist environments offer them practical ways to learn through exploration.

As I talked with the participant teachers about the process used to effectively integrate technology into student learning, I heard stories about the opportunities provided to students. I expected to hear about the efforts that they took to overcome their insecurities and the importance that the ITRT played in supporting that and I did. As discussed in the numerous studies read in preparation for this study, I wanted to hear how the teachers' self-efficacy for technology integration influenced their practice.

There is a large body of research about the benefits of technology integration in the classroom. There is also an equally large body of research about teacher technology self-efficacy. Researchers have catalogued benefits of bringing technologies into the classroom and placing them into the hands of students, making learning active and contextual. Student-led learning is hailed as providing a collaborative, conversational and constructive learning environment. However, there is a lack of research on how teachers believe students can learn through technology-rich lessons and the steps that they take in developing and introducing those lessons to their students. There is a lack of research into how the classroom teacher combines her self-efficacy about technology integration, collaboration with colleagues, instructional philosophy, and implementation strategies in an effort to bring technology-rich learning into the classroom on a regular basis. Therefore, an investigation into why and how the teachers that I studied integrated technology into their classrooms was worthwhile.

CHAPTER THREE: METHODS

In this section the research methods are described in detail. Participant characteristics, the overall research design, data collection strategies, instrumentation, and data analysis procedures are discussed. I sought to learn about the decisions that are made during the technology integration process and how teachers perceive that process. The study employs both quantitative and qualitative research methodologies as I examine the design decisions of teachers as they integrate technology into lessons and their feelings about the support they are provided to do so.

For my study of classroom teachers, I thought portraiture to be an appropriate research method because I wanted to do a qualitative study of teachers' attitudes about writing technology-rich lessons so that I might capture the experiences that frame their decisions. These decisions may be products of several aspects of the teachers' daily lives, including environment, collegial relationships, intrinsic and extrinsic motivators, technical support (ITRT), and administrative influence (both positive and negative). The portrait creates a narrative that reveals "the dynamic interaction of values, personality, structure, and history" (Davis, J. H., & Lawrence-Lightfoot, S., 1997). Many of the studies done on teachers' attitudes about technology integration focus on what tools are being used rather than how the tools are being used and why they were chosen. I wanted

to expand the understanding about teachers and technology by researching their decision making process.

The study took place in Amberville County. The Amberville County school system is focused on encouraging teachers to infuse components of technology with staff development and curriculum design. Amberville seemed to be a good site for me because the study looked at how teachers integrated technologies into their daily lesson plans. The study also investigates the aspects to technology integration into the classroom and the degrees of integration, addressing the goodness in the integration, not simply the volume type of integration. As I approached the research from the perspective of a portraitist, I sought to “document and illuminate the complexity and detail” of the teachers’ unique experiences, a process described by Davis and Lawrence-Lightfoot (1997).

Research Questions

When I began this study, I believed that many teachers begin their technology integration into lessons through the support of an ITRT. The initial focus was to be on investigating the integration practices through interviews and observations of classroom teachers and their ITRT. I believed that though a teacher may be influenced by her colleagues, the administrators, or students, the major influence on their integration practices will usually be the ITRT. I asked each of the teachers that I interviewed about their working relationship with an ITRT and how it influenced their experience of working with technology.

I sought to answer several questions about teachers and technology use. As part of my research, I wanted to investigate how teachers perceive integrating technology into

their lessons. I believed it important to know if the teachers value technology as part of their instructional practices. Also, my study seeks to understand how classroom teachers understand that technology integration occurs.

Originally, I sought to answer questions about classroom teachers' practices while using the services of an Instructional Technology Resource Teacher (ITRT). The participants in my study do not regularly use an ITRT in order to integrate technology into their lessons. It turned out that the study participants reported that they do not use the ITRT support in order to write their daily, technology-rich lessons, so questions related to ITRT support were no longer necessary as part of my study.

During the interviews, and much to my surprise, I discovered that the teachers in my study do not regularly seek support from the school-based ITRT. Instead, the teachers used their own background knowledge and their own research as their most significant technology-rich integration tools. I found that there was not a need for me to meet with ITRTs in order to discuss the instructional design practices of the teachers with whom I had talked because all of them expressed that their use of an ITRT was not necessary for the types of technology that they integrated into their classrooms. As I spoke with the participants they described their technology usage as that which can be accomplished using the skill set that they already have through personal use and based on the training achieved through basic professional development classes offered through the County. As a result, all questions about the support given to teachers by the ITRT no longer needed to be part of my study. I sought to answer several questions about teachers and technology use, including:

1. How do these teachers perceive integrating technology into their lessons? Do they value technology? How do they understand that technology integration occurs?
2. How do they integrate technology into their lessons?
3. How does their perception of the influence of technology on student learning change? What causes this change?

Research Design

I chose to use a qualitative methodology for this study since my research questions were focused on understanding the design decisions that teacher participants used and why they chose to use them, and on the background experiences and exposures through in-house professional development courses that supported their decisions.

Site Selection

Amberville is the pseudonym I chose for my research site. There are seventeen elementary, seven middle, and five high schools in Amberville County with a total of approximately 10,500 elementary, 5,500 middle school, and 7,800 high school students. Approximately 3.8% of the County's budget was spent on technology during the 2010 fiscal year. The student to teacher ratio is 25:1. More than half of the teachers hold a Master's Degree or Doctorate. The average number of years of teaching experience in the County is eleven years.

The goal of education in Amberville County is "to prepare all students to excel in a dynamic global society [by] providing a premier education of world class distinction in

a positive, collaborative environment with high levels of community engagement. All organizational structures support the primary purpose of preparing students to be responsible and productive citizens” (Amberville County Schools Mission Statement, 2008). In addition, the Amberville County’s Technology Plan “strives to enhance instruction in the Amberville County Schools by infusing components of technology with staff development and curriculum design, building construction, and equipment acquisition” (Amberville County Schools Technology Plan, 2003).

I originally chose to work in Amberville County because of the instructional technology resource teachers (ITRTs) that are placed in schools to support teachers in developing and teaching technology-rich lessons. However, the ITRTs only provided the initial contact that I had with the teachers who eventually became participants in my study.

Participant Selection

At the high and middle school levels, each school has a dedicated ITRT. The smaller elementary schools share an ITRT between two schools. Based on an invitation from the Director of the Instructional Technology Resource Department, I attended a County-wide meeting of ITRTs and personally invited the instructional technology resource teachers to send me an email with names of teachers who might be willing to participate in my study. I was invited to speak at a County meeting attended by all ITRTs. I made a brief presentation about my research and asked for their support. Because I had been told that the County data shows that each ITRT works with approximately 10-12 teachers per year I expected to be able to get several valuable referrals. At the time, I felt

that I needed to speak with both the classroom teacher and her supporting ITRT. I had asked the Director to provide names of ITRTs who have consistently been successful in supporting teachers to design technology-rich lessons.

What I found was that few of the ITRTs responded to my request. Of the thirty-two ITRTs, I received emails from nine ITRTs with thirty-nine names and email addresses of teachers to contact. When I met with the County ITRTs at their meeting I told them that I wanted them to refer teachers who effectively integrated technology within their daily lesson plans. The teacher participants have a variety of technology backgrounds and training.

I sent emails to all of the teachers referred by the ITRTs. See Appendix F for a copy of the email. For three weeks, I communicated back and forth with ten potential participants. I was surprised to find that only a small percentage of the thirty-nine referred to me were interested in participating in the study after I introduced myself and explained the nature of the study. Overall, the teachers were concerned about the time commitment. They also expressed concern about the exposure to outsiders.

I tried to reassure the potential participants with information about confidentiality, but became less aggressive when told that many of the teachers in the County have larger class sizes than they want and that between their daily lesson planning responsibilities many are taking on additional pressures including post-graduate classes and extra-curricular activities. Several of the teachers, when contacted, indicated that they had not worked closely with the ITRT on lesson planning, but had used the support to learn unfamiliar technologies such as how to use the SMARTboard or software

ranging from Word to Excel. One teacher indicated that she did not want to become part of the “politics” of the County. Try as I might, the existing culture of a County undergoing change and reformation under new leadership determined to force teachers to integrate new teaching methodologies created a climate that made teachers less responsive to my request for participation than I had imagined.

The participants self-selected to participate in the study and scheduled a time and location of their choice for our initial face to face contact. If a participant indicated that they are more comfortable talking at the local library or at a coffee shop, I agreed to meet with them there. I met one teacher at a local fast food restaurant, one at the local library, two at their homes, and the rest at their school either in the morning before school or in the afternoon after school.

I was seeking six to eight teachers, so I was not disappointed when I reached eight teacher participants. I was pleased to have commitments from teachers at a variety of age levels and currently teaching grades K-12 in Amberville County school system to interview for the study. The participants are teaching in a public school located in a large, Eastern suburban area. All of the teachers admitted to attending the required professional development programs designed within the County for its teachers, but all admitted that they needed to return to their base schools and to investigate the technologies on their own in order to be prepared to use them in their classes. None had fully utilized ITRTs in the past, to create technology-rich lessons. I was unable to find a teacher who was utilizing the services of an ITRT for the first time. I wanted to begin my interviewing as soon as possible, so I took advantage of the teachers who responded positively to my

email hoping that this sampling would provide rich data for me to analyze and discuss as I learned the process that teachers use to do technology-rich lesson planning.

Once a teacher had agreed to participate, I emailed her a survey designed to collect general background information and to determine her self-efficacy about technology integration. Because I only had eight total participants who agreed to work with me, I did not have a group from which to select individuals. I used all teachers who responded positively to my email and completed the surveys.

I asked them to complete the Perceptions of Computers and Technology Survey to establish where they stand in terms of instructional technology integration and their perception of their NETS*T competencies. I assigned a pseudonym to the teacher participants in this study. See Table 1 for demographic data collected on the teachers from their surveys.

I originally chose eight teachers to participate in this study. I wanted to work with a small group of participants because I wanted to be able to manage the intensive interviews and deep analysis that I planned to complete. Because I was not using inferential statistics to generalize from my findings, I did not require a large sampling. Instead, I planned to use an in-depth study of a small group of teachers in order to collect information into a study of their technology integration experiences.

The eight teachers who agreed to participate in my study were suggested by Instructional Technology Resource Teachers within the County. Originally, twelve teachers were contacted as that is how many teachers were recommended. The teachers who did not participate did so for one or more of the following reasons:

1. they felt that participation would take too much personal time
2. they did not feel comfortable with sharing information that might be linked to them
3. they were not willing to share information about instructional practices but did not give reasoning behind the decision.

I did not select participants based on their age, race, socioeconomic status, or any other group membership, since I was not interested in testing a hypothesis about the effects of group membership on instructional technology integration. My goal was to have a heterogeneous group of participants with varying degrees of comfort with technology use and integration in order to minimize bias.

I contacted some of the teachers who ended up being involved with this study through suggestions provided by ITRTs. Some of the participants contacted me because they had heard that I was interested in interviewing teachers about their experiences as a teacher who was integrating technology into their daily lesson plans.

Table 1 represents the eight participants included in the study. Their similarities lay in the fact that they all work in the same public school system. All stayed in the study. Four of the participants had been colleagues of mine. While I was initially concerned that the relationships might negatively impact the data collected, I do not feel that it has harmed the information. I believe that the previous relationship helped in data collection because of the trust and comfort that our previous connections gave us.

Table 1

Demographic Profile of Participants and Technology Access

Participant	Grade Level	Years of Teaching	Avg. No. of Students	No. of Computers in Classroom	Years of Computers in Classroom	Access to Computer Lab	Hours with Students in Lab
Bob	High School	8	27	0	0	YES	0
Delores	Kindergarten	24	21	2	2	YES	1.5
Bryan	High School	15	15	20	7	NO	0
Patsy	Fifth Grade	14	26	14	10	YES	once a month
Nancy	High School	9	24	1	9	YES	less than one
Marcia	Fifth Grade	15	23	12	10	YES	less than one
Marly	High School	6	23	30	6	YES	1 hour
Courtney	High School	12	27	27	8	YES	2 hours

Bryan. I have worked at the same school with Bryan. As a special education teacher, I was the mentor to a collaborative partner working with Bryan. Through this mentor relationship, I was able to get to know him better. We often talked about the differences in classroom experiences as a special education teacher and how it compares with the general education environment. Bryan and I talked in the company of my mentor on many occasions following my observations as part of the mentoring program. Bryan and I have also sat and talked about my research goals as he is also in a Doctorate program and plans to complete his work soon.

Courtney. I have worked at the same school with Courtney. She does not teach the same population of students as I do, but often shares her ideas about instructional practices. She has been very supportive of my goal to complete my research study. Courtney volunteered to be a participant in my study in order to support my goal to finish

the Dissertation and because she believes that a study involving technology integration will add valuable information to the body of knowledge most closely related to classroom teachers.

Bob. Bob is the husband of a friend of mine. When I discussed my research, he offered to be included. His wife has earned her PhD, so he is aware of the potential difficulty associated with getting participants in a study. I had not previously spoken with Bob about my philosophies associated to technology integration.

Marly. I worked at the same school with Marly for several years. We shared an interest in the learning needs of students with special needs and mathematics. Marly indicated an interest in supporting my research as a participant. Marly was what I would consider to be the closest friend of all the participants. I kept our conversations about my study intentionally limited so that Marly would be more comfortable during her interview.

Nancy. Nancy and I worked together for two years. We collaborated in an instructional setting where we taught students with specific learning disabilities included in a learning environment with general education students. She and I often discussed her teaching practices and background. Since her teaching experience with students with learning disabilities was limited, she and I often spoke about strategies used in this learning population. At the time that we worked together Nancy did not use much technology. We talked about a desire to include more. Nancy was anxious to share a lesson that she successfully developed with her current collaborative partner.

Delores. I met Delores through an email that I sent her when she was recommended by her school's ITRT. She indicated that she was honored to be invited to participate in my study and congratulated me on my research approval. Delores uses technology regularly, more as a native than most teachers who I have met. As a kindergarten teacher, Delores enjoyed student enthusiasm and lack of concern that they may not do something well. Delores appreciated the opportunity to talk about her class and the success she had in integrating technology.

Patsy. Patsy was recommended to me by one of the ITRTs following my meeting to introduce my research study to them during one of their regularly-scheduled meetings. I was told that she regularly uses technology with her fifth grade class. She was very enthusiastic about talking with me and sharing information about her technology integration. She told me that she had learned very much from the professional development classes offered after school through her ITRT.

Marcia. Marcia was referred to me as an exceptional teacher and phenomenal technology integration practitioner. Her ITRT indicated that Marcia was so effective and creative with the technology that she had been asked to teach other teachers through in house professional development courses. Marcia had declined, not wanting to bring too much attention to herself. The anonymity promised for the study was reassuring to Marcia. She openly shared her ideas and artifacts towards the goal of helping me with my study.

Informed Consent

Teacher participants were told that they are participating in a study concerning the decisions that they make as they integrate technology into their lessons with the support of an instructional technology resource teacher. They were also informed that once they agreed to participate, they will complete a 10-minute survey about their current instructional technology usage.

There are no benefits to the participant other than to further research in instructional technology. I told all participants that the data in this study is confidential. In order to guarantee the participants confidentiality, a pseudonym has been assigned to all materials that are completed. I explained that in audio-taped interviews, all field notes and memos contain the pseudonym which will be used to log and maintain records of the interviews. I guaranteed that all tapes and notes would be maintained in a locked file drawer when not being used by me.

It was also important that the participants understand that their participation is voluntary, and that they could withdraw from the study at any time and for any reason without penalty or loss of benefits to which they are otherwise entitled.

Data Collection

According to Creswell (2005), when collecting data from interviews, it is important to establish guidelines and set the procedure for recording data. When designing qualitative research, according to Mason (2002), the researcher might choose

to integrate different methods in the research design in order to explore different parts of a process or phenomenon. Data were collected from each of the eight participants through a survey and one face-to-face interview to solicit perspectives on successful technology integration into classroom teachers' lesson plans. It was anticipated that the surveys and interviews would help discover the teachers' perceptions of successful technology integration.

I used questionnaires, open-ended interviews, field notes and journaling, follow-up interviews, and member checks as my data collection tools. Data collection included a questionnaire and interview for each participant, and my personal field notes and journaling that reflected on my experiences as I went about data collection. During the interviews, the teacher participants were asked questions about their lesson planning practices as they relate to technology integration, while the survey questions gathered broader, quantitative information about technology usage. Responses to the Perceptions of Computers and Technology Survey were used in order to gather demographic data and to determine the teacher participants' attitudes about technology integration, ascertain their perceived preparation for technology integration, and to gather information to cross-check and verify responses to the interview questions.

The teachers were emailed a survey (see discussion below) to complete prior to our first interview meeting. This survey was attached to an email message and completed by participants on their own. It was returned either through email or at the time of the initial interview meeting. The interviews were conducted face-to-face and were recorded

using a digital recording device and later transcribed into a Microsoft Word document. See Appendix E for a copy of the interview transcripts.

Before participating in an interview, each participant was given an informed consent form to complete (Appendix C). This form included acknowledgement of the nature of the study, potential risks, and the means by which identity will be kept confidential. Through email, participants had received the Perceptions of Computers and Technology Survey to complete on their own (Appendix D).

Survey: Perceptions of Computers and Technology

The survey instrument for the study included a 5 point Likert-type scale survey, from strongly agree to strongly disagree, comprising 54 items; and eight Likert-type questions about the extent to which their acquired computer skills were from selected sources, from not at all to entirely. This survey is a modification of one developed by Hogarty and Kromrey (2000). Their purpose was to design an instrument that “fostered a better understanding of how educators and students use technology in the classroom” and explores the related areas of teachers’ level of comfort, experience with, and attitudes towards computers. This survey was given to participating teachers in order to measure their technology use in four broad domains: (1) integration, (2) teacher preparation, confidence, and comfort for computer use, (3) technical and general school support, and (4) attitudes toward computer use.

The survey consists of the introduction that explains the purpose and importance of the survey and the fact that the responses will be kept confidential as well as that their participation is voluntary. Also contained within the introduction are questions designed

to complete a basic profile of the participant including the number of students in the classes, number of computers in the classroom, number of years using computers, access to a computer lab, and number of hours in the lab each week.

The first part of the survey consists of instructions for the participants; 9 items designed to explore the participants' confidence and comfort using computers; 7 items designed to explore the participants' perception of the general support provided in their respective school; and 14 check list items about the types of software used and the frequency used to complete school related activities. I feel that having the participants answer these questions provides an understanding about which software the teacher participants use on a regular basis and the variety of software that are used within their classrooms, quantifying that usage.

The second part of the survey is designed to gather information about the participants' integration of computers into the classroom. Twelve items using a 5 point Likert-type scale are about the teaching modes in which computers may be used and how often they are used, from not at all to every day. The participant may also indicate that an item does not apply by selecting "NA".

The final section of the survey is composed of twenty statements that address the participants' general attitudes towards computer use using a 5 point Likert-type scale from strongly agree to strongly disagree. In this section, statements such as, "I avoid the computer whenever possible" and "Computers diminish my role as a teacher" are asked for the participant to indicate their attitude.

Interviews

The interview protocol included an introduction of the study to the participants, questions that were to be asked, and space to annotate the responses of participants (Creswell, 2005). The qualitative interview allowed me to ask a series of general, unstructured questions to the classroom teachers and to record responses that were later transcribed and entered into a computer file for analysis (Creswell, 2005). I relied on portraiture as a framework, and on my teaching experiences, in order to develop a protocol (Davis, J. H., & Lawrence-Lightfoot, S., 1997). Through portraiture I expected to develop a description of an individual in the context of that person's experiences and considering their emotional, physical, and situational being.

Information obtained from this qualitative case study was used to better understand what the teachers are doing as they write technology-rich lesson plans for their classrooms, and the design decisions that teachers feel are successful in effective technology integration. The interview protocol included an introduction of the study to the participants, questions that were to be asked, and space to annotate the responses of participants (Creswell, 2005). The qualitative interview allowed me to ask a series of general, unstructured questions to the classroom teachers and to record responses that were later transcribed and entered into a computer file for analysis (Creswell, 2005). I relied on portraiture as a framework, and on my teaching experiences, in order to develop a protocol (Davis, J. H., & Lawrence-Lightfoot, S., 1997). Through portraiture I expected to develop a description of an individual in the context of that person's experiences and considering their emotional, physical, and situational being.

Information obtained from this qualitative case study was used to better understand what the teachers are doing as they write technology-rich lesson plans for their classrooms, and the design decisions that teachers feel are successful in effective technology integration

Data Analysis

My study looked at how teachers perceive their technology integration into their classrooms and how it relates to their technology training, experiences, beliefs and preparation for use. I believed that the best approach to understanding technology integration with my participants was to use a form of case study and narrative inquiry. Listening to the participants as they talked about their daily experiences and learning about their perception of their lesson planning practices allowed me to look at the connections between their backgrounds, beliefs, personal experiences, and technological background in their technology integration practices.

Initially, I read the surveys completed by the teacher participants. I created nodes in NVivo with the survey data. These nodes represent etic categories that express perceptions of technology integration from a broader; more generalized perspective because the survey did not allow for open-ended answering of questions. I would not have access to the NVivo software for long, so I was concerned about the time that it took to input the survey data.

I attempted to transcribe the interviews as soon as possible. I listened to each audio at least two times before transcribing them. I transcribed the interviews verbatim. This process was extremely time-consuming and required that I play them back several

times in order to be accurate with the words and intonation of the participants. Once I had completed a transcription, I replayed the audio while reading the document in order to check the accuracy of the transcription.

In addition to having the verbatim transcription of my interviews with each participant, I had notes that I had written and recorded on my smartphone. Once all of the surveys and interviews had been completed, I used the data to develop emic categories that would represent the thinking of my study participants of Amberville County.

NVivo 10 Software. As the surveys were received from the participants their answers were entered into a qualitative computer program, NVivo 10. NVivo was used to analyze collected survey data and to organize and analyze the information obtained through my interview questions. NVivo is a product of Qualitative Solutions Research Melbourne Australia. NVivo was designed to accommodate the variety of methodologies and goals found in qualitative research. This program allows for storing and coding.

The computer software program allowed me to open a raw data record, select the words or phrases retrieved from open-ended interview questions and surveys, and place the data in the free node section of the program (NVivo 10 Getting Started Guide, 2009). The interview data selected was stored under the coded phrases, which linked to the full record that was preserved within the computer software program (NVivo 10 Getting Started Guide, 2009). Using the NVivo software, I coded the data into the following five categories and created five free nodes (etic categories):

- a. Teacher preparation for computer use
- b. Confidence and comfort using computers

- c. General school support
- d. Integration of computers into the classroom
- e. Attitudes toward computer use

As I sought to answer three basic questions about teachers and technology use and the survey information had been uploaded to NVivo, I gathered the individual participant's responses to survey questions in the categories/free nodes identified above. Responses in the node identified as teacher preparation for computer use provide insight into the participants' perception of technology integration because their preparation for integrating technology into their daily practices is indicative of their beliefs about what background they feel is necessary in order to be prepared for instruction. During the interviews, teachers expanded my understanding about why they took various professional development classes and the preparation that they had to work with technology in and outside of the classroom. Additionally, the participants' responses to survey questions about integrating technology/computers into their classrooms supported my gathering information about the research question seeking to answer how they understand technology integration occurs and how they integrate technology into their classrooms. The survey answers covered a broad range of technology integration options where the participants could simply go through a list of technologies and check their frequency of use.

In NVivo10, I stored the information that I had gathered through the surveys and through interviewing. I uploaded transcribed interviews into the NVivo software so that I could take advantage of the ability to highlight information and relate/reference it to

survey information. NVivo allowed me to separate and highlight information so that when I started to analyze this data, I could use the program to keep records about how the participants responded to specific survey questions designed to answer research questions. When appropriate, I created a subsection or note that supported my development of a clear analysis of the data with reference to my research questions. This allowed me to build a conceptual map for data retrieved from surveys.

As I reread and listened to the interviews, I sought to identify emic categories. The categories were derived from the participants' interviews, but were consistent with the information gathered in each of the survey-based categories. The teachers consistently referred to characteristics of good lesson plans including the following six themes (emic categories):

- a. Engaging the learners
- b. Student choice
- c. Enhancing student learning
- d. Meeting the lesson goals
- e. Depth of integrating the technology
- f. Assessing student learning

I created a chart with the results of my beginning analysis, which I printed and posted on my wall. In NVivo 10, it is possible to create a chart to provide better insight into the data. For this study, the chart was used in order to develop a narrative passage to convey the findings of the analysis.

The chart comprised all of the data that was collected, sorted and color coded by major theme: comfort and confidence using technology, general school support, types of software used, types of integration, and attitudes towards computer use. I found that the color coding by theme helped me to see how participants responded and reacted, across the themes. The column labels are the eight participant pseudonyms, the rows contain a long list of questions, broken down by theme. I posted the chart on a wall and referred to it as I typed my reactions and interpretations of the data.

As I worked with the data, I developed a stronger understanding of the themes, multiple perspectives from individuals, and interconnecting themes. NVivo 10 eased the process of coding in this study because it allowed for an efficient and organized approach for my coding of data. My access to NVivo was limited to a calendar year, so all of the information that I input into the software had to be analyzed and completed prior to the loss of my access.

Field notes, Journals, and Memos. Following each interview, I sat in my car and wrote notes about the experience. These notes included my first impressions of the school, the teacher participant, her classroom and anything further that might inform my research. In combination with the information gathered through the surveys and interviews, these immediate impressions and observations were eventually used in order to write clear portraits of the participants.

Occasionally, I spoke directly into my cell phone, making a voice recording of impressions and ideas that I got during my drive. After I had gotten home or when I stopped at a point along my way home, I sometimes had information that I wanted to

write down in terms of things that I might need to call or email a teacher participant about. For instance, I had to contact Marly to verify that the understanding that I had about the school's limited access to the internet was true. I wanted to be sure that the entire school was limited and that she had not been limited, in isolation. As it turned out, the entire school was, in fact, limited in their internet access in response to some problems that they had with students and the internet.

As I listened to my voice recordings and read notes taken following interviews, I noticed that many of the participants referred to their use of and availability of time, but their references were in different contexts. I am aware that time is a limiting factor in all aspects of life, but I realized that time is an ongoing concern for technology integration because it impacts the teachers' preparation for integration, the limited time working with technology negatively impacts her confidence in using new technologies, the amount of support offered through the school is limited and the time allowed for the teachers' access to various technologies impacts when and how they choose to integrate technologies into their lesson planning. Writing a memo about this helped me to begin to think about technology integration into lesson plans as a focus of several different aspects of the teacher participants' classroom teaching experience. For me, putting the relationships into a graphic helped as I tried to understand what the teacher participants had shared with me. Writing notes about the survey results helped me to create a graphical representation of the aspects of the participants' lives that impact their technology integration practices.

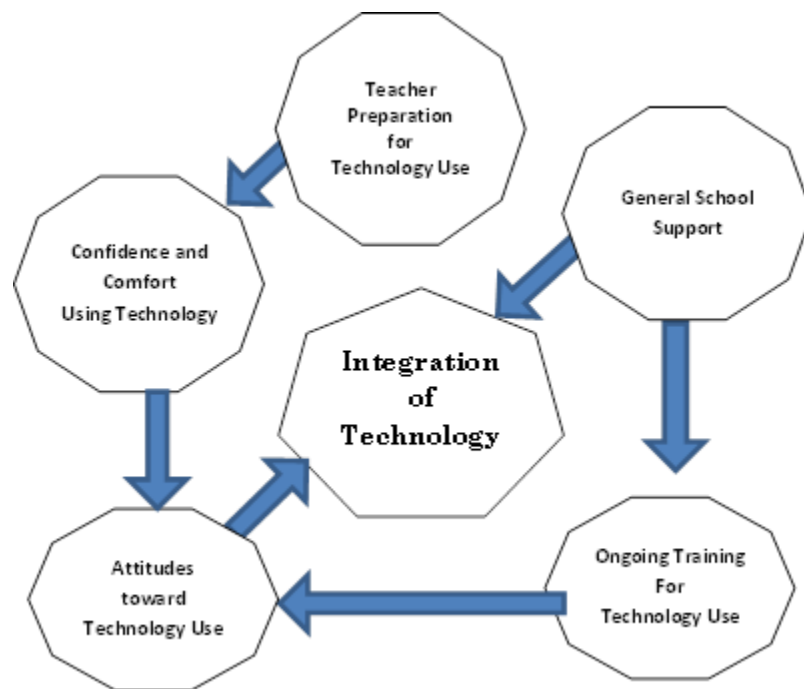


Figure 1. Influences Impacting Technology Integration Practices

Validity

In this section, I will discuss the main threats to validity in my study, bias and reactivity, and the main strategies I used to deal with these, member checks and triangulation. My studies in instructional technology and my experiences with ITRTs caused me to originally frame my study as one that would look at technology-rich lesson plan integration and the interaction of the ITRT and classroom teacher. My initial belief that teachers who do not use the direct support provided through ITRTs would not create technology-rich plans was faulty. It was after I interviewed several teachers who have been identified by their ITRTs as writing technology-rich lessons independently that I

realized that many teachers are capable of meeting this task without direct interaction with an ITRT.

In Amberville, my role as researcher was independent of that of teacher, colleague, and friend. As the study participants completed the surveys in their own time and space, my role as researcher was well-defined and removed. As a colleague, some of my participants had discussed their lesson writing practices including technology. All of the study participants, though, accepted the redefined role as my interview questions allowed them to share their experiences with more depth. I was often surprised with the increased information I gathered regarding technology-rich lessons and the teachers reflections on their benefit.

All of the participants were aware that their participation benefitted me as a researcher working on her Dissertation. I believe that this made them both accessible and supportive.

Bias. In my goal to limit researcher's bias during the data collection and analysis of the study I sought information that countered as well as confirmed my assumptions. Maxwell (1996, p. 93) advised that I identify and analyze discrepant data and negative cases in an attempt to falsify a proposed conclusion. In doing this, I looked for alternative interpretations of my observations. When reporting the data, I include the exact words of the participants prior to providing my interpretations of their comments. At the onset of the study I believed that the wealth of technology-rich lesson writing would be done with an ITRT and classroom teacher working closely together. Within a few interviews and following my recording of the survey responses, I asked myself how I might be wrong in

my understanding of technology integration. I realized that I had to change the focus of the study and put an emphasis on the classroom teacher.

The challenge to overcome bias was intense as I continued the work with collecting survey and interview data. My original research design was to select teachers identified by their support ITRT as teachers who integrated technologies into their lessons. I planned to interview them, their support ITRT, and to observe the teamwork between them because my original theory was that classroom teachers integrate technologies as a result of their teacher-mentor relationship. Teachers who did not use the support provided by an ITRT would be compared to those who did. My theory was that rich technology integration occurred as a result of the ITRT support, that technology lessons without direct input from the ITRT was missing technology-richness. However, what I found was that teachers across the study were able to write technology-rich lessons without direct supervision of the ITRT. My original conceptual framework stated that ITRTs were a necessary component of the technology integration process in Amberville County. As I analyzed the data provided through the participants' survey responses interviews, I wondered if this might be wrong. I soon realized that I must change my theory about the importance of the ITRT in the technology integration process of my participants.

My original research design was to have the ITRTs in Amberville County recommend teachers for the teacher-participant representatives of the study so that I would be selecting from a pool of technology using teachers in the County. Any teachers who had not been recommended would then have to be evaluated for the quality of their

technology-rich lesson planning practices. My original theory was that classroom teachers regularly use ITRTs in the process of writing technology-rich lessons and that teachers who did not use ITRTs were missing a critical aspect of technology integration. However, as I looked at each portrait case and compared their practices to other portrait cases, I realized that the teachers used a similar process that was more based on their previous experience with technology and the technologies available and accessible for use within their schools.

All of the participants used familiar technologies with which they had previous experience and training. Three of the participants used technologies with which they received training through professional development opportunities or colleagues. When I asked the participants if they sought technology integration support or advice their comments ranged from “I am very possessive about my plans and I like to work it out by myself” to “I look at resources in the book and I make my own lessons plans.” The follow up questions regarding the technology lesson plans confirm that the participants did not seek technology-rich lesson plans from ITRTs.

This made me reexamine my existing theory that a technology lesson required the support of an ITRT. I listened again to the interviews and listened closely to the reasoning that the participants gave for including technology in their lessons and the types of technologies that they used with their students. Marly’s discussion about being unplugged at her school and the limitations that are caused by the state of not being allowed to use any technologies not vetted by the school administration on a lesson-by-lesson basis served to help me understand that Marly was attempting to use technology in

a way that is not a part of the Amberville ITRT support program. Marly designed her lessons specifically to meet the needs of her Biology students, using resources that she had researched and found helpful in meeting her curricular goals. These lessons targeted the skills that Marly sought to develop in her Biology students. The technology that Marly had chosen was a rich use of technology specific to a learning goal.

I understand that teachers do not need ITRTs in order to develop technology-rich lessons. The need for the ITRT and professional development opportunities designed to teach how to use technologies depends on the individual teacher, her background knowledge, and her willingness to investigate and research technology-rich opportunities. However, if teachers need technology ideas developed to meet individual objectives within their course, an ITRT may be helpful in getting them started. The ITRT might also be able to pull together several practicing teachers' technology-rich lesson plan ideas and share them with a broad number of teachers throughout the County.

All of my participant teachers indicated that they felt that they had received adequate training in order to be efficient in their classrooms, either before entering the school system or through the training that was provided as the professional development program within Amberville County and their school through the ITRT. Their comments ranged from, "I am very possessive about my plans and I like to work it out myself" to "I sent out an email with the gifted teacher last week and then I sent out an email to the math specialist and to the ITRT because of a unit that I am getting ready to do that I may need support from them to pull it all together." The teacher who admits being possessive feels confident that she has adequate training in order to complete a technology-rich

lesson while the other teacher admits that she may need additional support in order to accurately work with her technology-rich lesson idea. Upon further investigation, I found that both teachers completed their technology-rich lessons without having another person present to support them. Some teachers admit that they have close relationships with the ITRT and do not want to see any of them lose their jobs. The teacher participants attend training sessions provided by the ITRT and get ideas of how to integrate technology into their daily lessons, but none of the teacher participants in my study discussed needing support to write and carry out their technology-rich lessons. Teachers enter the school system with a variety of backgrounds in technology integration. The responses on the survey and interview questions confirmed that these teachers do not regularly seek the support of an ITRT in order to write their technology-rich lessons. The participants did not interpret attending regularly scheduled information sessions provided by ITRTs as needing their support.

This made me reevaluate my theory that lessons written without the direct support of an ITRT would not be technology-rich. I read back through my interviews and went through the survey information gathered in NVivo 10. I realized that my theory would have to be changed. Bob's interview had a significant impact on my decision to make a change. Bob talked with me before our formal interview began. He spoke about the need to reach the students in ways that are relevant to them. He explained how he enjoyed "fiddling" with the technologies. Bob taught Biology to on-level general education students, students with specific learning disabilities, and to students enrolled in honor Biology. As we talked about his purposeful selection of the technology tool and his

instructional goals and methodologies, I concluded that his lessons fit the definition of technology-rich. Bob was successful at integrating the technology in a rich format without the support of the school's ITRT.

I now see that some teachers are able to integrate technology in a rich way without the direct support of an ITRT. Depending on the goal of the lesson, the technology support needed may be sufficient within the confines of the individual teacher's training, experience, and expertise. It is important to mention, however, that ITRTs in Amberville County provide large-scale, cross-curricular trainings within the schools and throughout the year. ITRTs regularly poll teachers in their schools to determine their instructional technology needs. The conclusions that I made about the participants in my study not needing the support of ITRTs for the technology-rich lessons that they share with me during my study is valid because they have been adequately trained to use the technologies that were used in the lessons that we discussed.

Reactivity. As a teacher working in Amberville County, I have an insider's understanding of its structure as related to technology integration. Though the participants were from different schools, they all have access to similar technologies. I know that my being the researcher had some influence on the teachers. I had to be careful to allow the participants to present their interpretations of their technology integration practices. I tried to avoid leading questions throughout the personal interviews. I was careful to avoid responses that indicated my opinion, one way or the other, of their technology integration. I asked teachers to describe any lessons that they feel are technology-rich. I know, however, that my being there had some influence on

the teachers. Several teachers told me that being interviewed made them more aware of their technology integration practices. At the end of the interview with Bryan, he told me that he missed being in the traditional classroom where he taught a variety of students and was able to differentiate their instruction with and without the use of technology.

The survey taken before the interview and the interview questions made teachers aware of my focus on technology-rich lesson integration and may have affected the teacher's choice of lessons that they chose to talk about. One of the teachers was so proud of her technology-rich lesson that she had parts of it ready to pull up on the SMARTboard at the touch of a button. She excitedly talked me through the specifics of the lesson. She admitted that she had never shared the lessons with another teacher because she wasn't sure how it would be taken. Following the interview, though, she considered sharing with others so that their students could participate and learn through her technology-rich lesson, "after all, I've put all of this work into it, anyway." Because I was not able to do observations of participants as they led technology-rich lessons, I was not able to verify their perceptions. As we talked during the interview or as part of a follow up discussion, I was able to hear the participants as they eagerly discussed their technology-rich lesson planning process. Bob, for instance, does not see himself as a person who writes technology-rich lessons though he shared that his lessons come alive through the use of videos, sound bites, and personal stories that make them more emotional and engaging for his students. He believes that technology, "makes things more exciting" for his students.

Member checks. Maxwell (1996) describes the systematic feedback from participants in a study as member checks. Through member checks, I sought to improve the accuracy of my interpretation of what participants said. I used this tool during follow-up meetings, emails, and phone conversations in order to assure that I accurately recorded and interpreted the participants' words.

Triangulation. I used surveys, verbatim-transcribed interviews, member checks, and descriptive notes about varied teacher artifacts as a way of triangulating my data. As a strategy used to “reduce the risk of chance associations and of systematic biases due to a specific method” it provides a better assessment of any generalities that are developed (Maxwell, 1996). For my study, I used the initial contact with a school ITRT in Amberville County and her identification of the participant as one who regularly uses technology-rich lesson as a triangulation strategy and to help avoid vulnerability of the self-report bias. My goal is to present the participants' experience with technology-rich lesson planning and integration to the best of my ability. I was like I was doing a written documentary about the technology-rich lesson process so that other teachers can appreciate the process the study participants used.

CHAPTER FOUR: PORTRAITS

Introduction to the Portraits

This section is comprised of portraits of teachers who regularly integrate technology into their daily lesson plans and an analysis of their experiences. The portraits seek to tell each teacher's story in a real-life context, within the context of our research relationships, and the context of my own interpretation of their communicated experiences. The participants completed a survey instrument prior to the face-to-face interview. The survey questions provide a point of reference for the participants' attitudes about technology integration. The interview questions provide an opportunity for the participants to offer free response answers to questions about their technology integration practices. I have avoided theoretical analysis within the stories. I recognize that the portrait is somewhat a version of analysis in that my telling of their stories is done in a way that presents what I believe is most relevant.

Bryan. I first met Bryan when he joined the school as a new Biology teacher. When I met him, I was impressed with his attitude about learning and his willingness to do whatever he could to help students learn. I appreciated his positive attitude about working with students with learning disabilities and the possibility that they might require instruction in more unique and varied ways than their general education counterparts. Bryan is unusual in that he expects his students to require support as they traverse the

often difficult Biology curriculum. He also eagerly meshed with his collaborative partner and began writing lesson plans with her that integrated best practice techniques for learners with specific learning disabilities.

As a pastor, Bryan makes approaching him comfortable. He smiles and nods as he talks, indicating his acceptance of our opinions. He also demonstrates good listening as he accurately paraphrases conversations, a skill he must have developed as a pastor of his own church.

When Bryan first called me I thought he was calling to order one of my special cakes that I frequently made for him and my colleagues when we worked together. I hadn't begun my interviews yet and hadn't yet contacted him to tell him that I had gotten approved to do my research in the County where he works. He had heard from one of his colleagues that I had been approved and was told to expect my call. I hadn't fully prepared for the actuality of beginning the interview phase of my research. It had taken so long to get to this point. I guess I was sitting, enjoying the moment and hoping that the interviews would go more smoothly than the approval to conduct research in the County had gone.

I had told Bryan, several years back that I intended to interview him, emphasizing his love of my baking and desire to continue to eat the various cakes that I concocted. I wanted to work with Bryan on this project because he was a compassionate and patient person who willingly offered his support to his students. He also openly discussed the projects that he worked on with his students, providing insight and advice based on the project success or failure.

Bryan officially committed to the project when I answered his call and made an appointment to see him during a teacher workday at his school. He offered to be a participant because he wanted to support my continued journey towards my PhD. I would be able to interview him during his workday, if I could get leave approved from my school. My administrator supported my leave with great enthusiasm.

Bryan and I met once in his classroom, late in January. He smiled as I entered his classroom, rising and approaching me with his hand extended in a friendly gesture. He motioned that I should take a seat next to his desk, which was piled with computers and papers.

Bryan's classroom, like all in the lovely, old building, is framed by glass-paned doors made of mahogany hiding many columns of bookshelves tucked carefully behind. The desks were neatly spaced within the room, with slightly damaged tape that indicated within where each leg of every desk should be placed. Noticing my attention to the tape, Bryan indicated that he put the tape down to make organizing the room more comfortable for the students. This way, each would know where to put his/her desk, at the end of each class period. I was impressed to see that Bryan had done this because I remember him being somewhat more disorganized in his classroom appearance in the past. One of my other colleagues would often go into his room to order his desks and make the room ready for the following day. Now, Bryan's students were putting the classroom back in order.

Bryan had three or four laptops opened on his desk. They were all on, running different levels of software. He was working on grades, I believe. There were several

piles of student papers on his desk, some waiting to be entered. For a moment, we chatted about our lives. It took me back to when we worked together as we laughed about the demands both of our extra-curricular interests had on our chosen career as teachers; me with my post-graduate studies and him with his studies and ministry.

I chuckled as Bryan talked about the computers on his desk and how he often wielded several of them in order to monitor the progress or lack thereof for his students. They complete most of their course requirements using laptops from the rolling cart that Bryan houses in his classroom. The presence of the computer cart was the antithesis of the warmed age and antiquity of the mahogany floors and cabinets of Bryan's classroom as the cart is made of metal with a plethora of wires and lights creeping out and sprawling to the boundaries of the room.

Data from Survey Responses for Bryan. Through responses to the survey questions, I learned that Bryan is 51 years old and has been teaching high school for fifteen years. He has twenty computers in his classroom and uses them to teach his 15 students. Bryan has used computers in the classroom with his students for seven years. Most of Bryan's preparation for using technology came as part of his undergraduate coursework and a variety of in-service courses and workshops. I also learned that Bryan uses online tutorials and books. He represented himself as an individual who is very interested in learning how to use various technologies and as someone who is comfortable using technologies independently with his students. Bryan's responses to the survey help me to depict him as a person who values technology and feels confident integrating it into his daily lessons. The survey also helped me to establish an

understanding of how Bryan perceives he has grown and changed in his technology integration.

Interviewing Bryan. Bryan was the first of my friends that I interviewed, and it was a little difficult for me to shift into the interview from our catching up with one another. My interview with Bryan was not different than my interviews with the others who I had not met before beginning this project, because he knew what my goals were in working on this project. I remember thinking how fortunate I was to have someone close to me who was willing to support my research efforts: I know what it is like to be working on grades on a teacher workday and to have an interruption. I also remember thinking that the interview with Bryan would not produce very much innovative technology usage, since his students do most of their work on the computers. As I listened to Bryan answer my questions, I slowly relaxed into a mode of learning. I was learning about Bryan in a way that I had never experienced him. He was talking about his thoughts and purposes – his “feelings” about teaching and learning.

Bryan thinks the most important part of a lesson plan is the material being covered, the content. He has gotten support from his colleagues. As a Biology teacher, he finds that students often struggle with the transition from middle to high school. So, Bryan builds more repetition into his lessons. He tries to offer the students multiple “touches” of content, at least five times, five different ways over the course of a lesson. Bryan has his students “see it, read it, they write it, they talk about it in groups, and then possibly present it.” The students are always assessed over it. As Bryan writes his lesson plans, he is aware that his students need to touch the material five times.

Bryan had his students learn about cells first by building them. They learned more about cells because they could actually see and touch them. From there, the students learned about the specific operations of part of the cell and how the parts work together to form a larger unit. His cell unit is good because he communicates what part of the unit is important and what the students are expected to learn. A good lesson, according to Bryan is one in which the students have learned the information that was conveyed to them. The students walk away from a good lesson with comprehension.

Bryan feels that technology in the classroom is being pushed by “the evolution of smart phones and the availability of computer operated devices.” Since students have access to technologies outside of the classroom, a variety of technologies have “become a piece of common knowledge” to them. Since we, as teachers, take what students already know and apply it to something new, technology is forcing us to “take and utilize hardware and software in general use” and bring it into the lessons within the classroom.

Bryan says that all of his lessons use technology. When asked about one of his good ones that use technology he had to think a bit about one to share. He finally decided on one in which his students were tasked with making a video in which they showed ten things that a student is not supposed to do in a lab environment. The students enjoyed using the flip cameras to do their projects, even though a few of the students went overboard with their representations. Bryan believes that the videos helped the students to remember the rules of the lab because they were doing a project to represent what they were not to do rather than what they were supposed to do. Bryan even found

opportunities to tell the students “you are not supposed to do that.” The lesson sticks to the students.

The technology used with the “What Not to do Lab” in Bryan’s class was critical to their lesson. They were able to use the flip cameras to take the video, they edited the video, added music, and cut the video in order to fine tune their message. Students in other classes were assigned to make a poster of the lab rules, but Bryan’s students enjoyed presenting their technology-rich products.

Bryan appreciates that the administration in his school supports the use of technology because he is tech savvy and likes to work with the students in formats that support their learning. The school has enough flip cameras available for each of the students to shoot the videos representing their list of things not to do in the lab. There are also computers available on which the students can upload their projects, editing and adding music and sound effects. Bryan didn’t know his students well at the time that they worked on their “What not to do in the lab” projects, but watching them work on their projects and the outcome of the products quickly helped him to understand their individuality.

Marcia. Marcia is forty years old and has been teaching for about fifteen years. Fourteen of those years, she has been teaching mathematics alone or in combination with other subjects. Her school's administration recognizes Marcia's strength and has decided to step outside of the box and let Marcia be a Geometry teacher – teaching all of the fifth graders at her school. With her Bachelor's degree in Early Childhood/Elementary Education, Marcia has almost completed her Master's in Math Education. We both laughed as I observed that she had found her niche.

I had hoped that Marcia would be willing to join me as a participant on this project because I had been told by an instructional technology resource teacher that she was an exceptional teacher who had a phenomenal understanding and amazing applications of technology integrated into her teaching. I imagined that this teacher would make interviewing simpler and less complicated. I was sure that she would tell me something earth-shattering and valuable to my project.

Marcia officially came into the project when she answered my email inviting her to contact me about a project that I was beginning on technology integration. I had gotten her name and email information from an instructional technology resource teacher who had worked with Marcia and found her not only to be an amazing practitioner of technology integration, but a potential leader.

Following several email conversations and Marcia's receipt and acceptance of the Informed Consent, Marcia agreed to meet with me, at her school. She indicated that she teaches the same lesson, three times a day. This surprised me since I thought that elementary school teachers teach all of the subjects. I learned that Marcia's desire to

teach Geometry to all of the students was recognized as valuable, since many teachers found the curriculum demanding.

Scheduling with Marcia had to fall between the teaching commitments and those of professional development. She wasn't surprised that her name had come to me from an instructional technology resource teacher because this teacher had suggested to her that she conduct professional development classes so that other teachers can learn from her experience and creative approaches to teaching Geometry and getting students engaged in learning.

Data from Survey Responses for Marcia. Through responses to the survey questions, I learned that Marcia is 40 years old and has been teaching elementary school for fifteen years. She has twelve computers in her classroom and uses them to teach her 23 students. Marcia has used computer in the classroom for about ten years. All of Marcia's preparation for using technology came as part of in-service courses and workshops. Marcia also indicated that she does some of the learning independently. Marcia represents herself as an individual who has received adequate support to learn the basics of technology and its integration into the classroom. She is very interested in learning how to use various technologies and is someone who is comfortable using technologies independently with her students. Marcia's responses to the survey help me to present her as a person who values technology and feels confident integrating it into her daily lessons. The survey also helped me to establish an understanding of how Marcia perceives she has grown and changed in her technology integration practices.

Interviewing Marcia. Marcia was the second of my interviews for data collection purposes. I interviewed her about a week after my meeting with Bryan. I felt very comfortable with interviewing her because Marcia teaches Geometry. In hindsight, it really didn't matter much that Marcia was a Geometry teacher. What her teaching assignment did was made an otherwise awkward situation a little less so. We were meeting on the common ground of Geometry.

Marcia is unusual in that she loves working with the technology and often contacts the school's instructional technology resource teacher in order to get support as she develops new lessons, but she does not like to teach professional development lessons to her colleagues, or any other teachers, for that matter. She indicated that she loves working with the students, sharing with them her love of Geometry and technology. But, she is not comfortable with the more difficult student – other classroom teachers.

Marcia and I met in a workroom located deep in the recesses of her school. As she opened the door for us to enter, she looked in both directions as though we were on a secret mission and might be followed by the enemy. She indicated her hesitance to having a colleague see us together and ask for an explanation of who I was and why I was talking with her so long. She didn't want any of her colleagues to think that she thought her teaching methods better than theirs or that she was something special. She wasn't integrating technology to stand out – she was integrating technology to help her students to learn more and to enjoy learning.

Phineas and Ferb became the immediate subject of conversation, as Marcia had just begun teaching her students about classifying angles using this popular Disney

television show. She utilized the SMARTboard and its properties to create interactive lessons with hyperlinks to sound and video to engage students from the onset of the lesson through the familiar theme song being played as the children get their introduction to the topic for the day.

Instantly, I watched as Marcia was transformed from a paranoid secret spy looking over her shoulder as she went about on a secret mission to a smiling, light-hearted lover of learning. She talked, effortlessly, about the Phineas and Ferb lesson. Unfortunately, I was unfamiliar with the show. Marcia, not daunted by my ignorance, walked me into her classroom, juiced up the projector, connected the SMARTboard, and began to introduce her lesson to me.

Marcia's classroom was designed for learning. She had desks clustered so that students could comfortably collaborate with one another. She indicated that students who moved at a quicker pace would be given a differentiated lesson in which they began working with the tools to measure angles. She moved about the room with finesse as she discussed, by name, the success of the day's lesson. She talked about how the students' sharing of prior knowledge proved valuable to one another. She discussed how comfortably the students made their way to the SMARTboard to manipulate the objects, demonstrating knowledge mastery. She laughed as she talked about the students taking a few notes, notes being necessary tools of learning, but that actually sorting the angles was the purpose of the day.

Marcia talked about how important she feels that the students need to get up and move during a lesson. She shared her belief that the SMARTboard helps students using

multiple modalities. There is sound, movement, and visual stimuli. Her students love it and pay attention throughout the lesson, says Marcia. She giggled a bit as she told me that she didn't know what she'd do if the SMARTboard was taken away.

I asked Marcia if she started writing new lessons for technology or if she transformed existing ones. She answered that she takes some of the old lessons and rebuilds them, enhancing them, "they're just better now." She summed up the merging of the old lessons with the new:

We still use the actual manipulatives. So, we still use pattern blocks and that kind of stuff -- for them to actually kinda use with their hands. So it's a good in between from them actually holding the blocks to moving the blocks on the SMARTboard and moving the pictures and that kind of thing. So, I think it is a good transition for them.

Marcia enjoys using technology with her students because they have lots of energy and working on the SMARTboard focuses their learning energy. When asked what she believes is the most important part of a lesson plan Marcia found it to be a hard question. She began by replying that it is the main lesson. She was "thinking about the introduction, and the practice. She finally concluded that it is "the meat". Marcia is very interested in knowing that her students are learning what the lesson intends and that their learning is differentiated.

The lesson that Marcia shared with me is one that she does with her Geometry students using the SMARTboard. Though the lesson is about Geometry, a mathematics course, the students do journaling. Using the drag and drop feature of the SMARTboard, Marcia is able to have her students complete a sorting activity that quickly assesses their prior knowledge. Some of the students continue to sort angles while the others who

demonstrated mastery of classification of angles were “working with protractors to measure angles for their exact measurement.”

Marcia feels that the fact that the students can “get up and move” makes it a good lesson. The “physical activity during the lesson” keeps the students engaged. They are listening to sounds, moving about, and writing their notes while also doing examples. Marcia referred to the fact that all modalities are used in the Disney-based lesson that she enjoys teaching so much. Marcia uses the SMARTboard on all of her lessons, at some point. She likes that the students enjoy touching the screen and making things happen. Her lessons include themed pictures and sounds, and the students seem to enjoy initiating them as they correctly answer challenges and move things about.

When asked about how the SMARTboard has changed the flow of her lessons, Marcia replied that she thinks her lessons flow a lot better. She says that they flow because she has “thought them out” better. She has thought through how she wants to do everything and how it relates to the Virginia Standards of Learning. Marcia is glad that as she is teaching, she does not have to stop and think, “what am I doing next” or look at her lesson plans, because it is already right there for her in her SMARTboard file.

Taking a lesson and making it a SMARTboard lesson is how Marcia has kept her older lessons in her instructional plan. She refers to these lessons as “enhanced... lessons that she did before, but are just better now.” They are better, she is convinced, because they are SMARTboard lessons. Marcia still has her students use the manipulatives that she has used with students in the past, because she likes them to experience their learning

with their hands, in three dimensions. She commented that it is good for the students to transition from the SMARTboard to the manipulatives that they hold in their hands.

Patsy. Patsy was recommended to me, no doubt, because of her forthrightness. She came highly recommended for the project because she regularly uses technology in her lessons and takes advantage of the classroom management resources provided through SMARTboard.

By the time that I had contacted Patsy, she had already spoken with an instructional technology resource teacher about my project. Patsy knew that she was recommended for the study because of the qualities that she has in terms of courageously addressing the issue of technology integration.

Patsy is a 49-year-old elementary school teacher who teaches Social Studies and Science. She has a Bachelor's degree in Psychology with a certificate to teach. She has Master's of Education and enjoys the science of teaching. She agreed to talk with me about her technology integration and also offered to let me, and others come into her classroom, if the need be. She has had a variety of teaching situations, in those 14 years, including teaching all of the fifth grade subjects, kindergarten and third grades. She likes teaching Social Studies and enjoys writing lesson plans. Patsy was open and honest, as we discussed her technology integration. I looked forward to my interview with Patsy because I expected to learn about how technology integration occurs for her.

Data from Survey Responses for Patsy. Through responses to the survey questions, I learned that Patsy is 49 years old and has been teaching elementary school for fourteen years. She has fourteen computers in her classroom and uses them to teach

her 26 students. Patsy has used computer in the classroom for about ten years and uses them with her class in the lab about once a month. Patsy's preparation for using technology came as a collection of undergraduate coursework, inservice courses and workshops, and to a great extent through independent learning and distance learning on her own. Patsy represents herself as an individual who has received adequate support to learn the basics of technology and its integration into the classroom. She is very interested in learning how to use various technologies and is someone who is comfortable using technologies independently with her students. Patsy's responses to the survey help me to present her as a person who values technology and feels confident integrating it into her daily lessons. Patsy receives more than sufficient administrative support for integrating technology into the classroom. The survey also helped me to establish an understanding of how Patsy perceives she has grown and changed in her technology integration practices.

Interviewing Patsy. On the morning of her interview, Patsy met me in the front office of her school. She had already spoken with her principal about the interview. She wanted to be sure that he would not be uncomfortable with her talking with me. I was surprised that she had taken that initiative, but soon learned that this was important to her and a major part of her professionalism. She wanted to do what was best for the school and wanted the principal to know it. I met with Patsy early in the morning, in her classroom, before her students had arrived for the day. I began my introduction by providing Patsy with a Danish and coffee. I figured that she deserved it, since she had agreed to let me arrive so early in the morning on a school day. Though she seemed to

appreciate the gesture, she didn't eat the Danish, but got straight to the pair of chairs that she had prepared for us and sat down, smiling.

The room was full of students' work. As I walked through the hallway towards her room, there were sea creatures hanging from the ceiling. The walls had been covered with blue paper so as to give the feeling that I was walking underwater. The projects' media ranged from paper maché to hand-sewn fabrics, foam, and other textured materials. The students (and their parents) had fully committed themselves to creating the creatures as was evident to the accuracy and intrigue contained in most of the projects that dangled above my head. I asked about the creatures and Patsy indicated that the students love making the projects and do so at home. It was obvious to me that many of the projects had the support of parents, as the likenesses of the creatures were very well captured. She talked about loving what she does and how she eagerly and regularly arrives to work early to begin her day.

I thanked Patsy and began asking questions designed to make each of us more comfortable talking. She quickly and concisely answered the questions about her age and number of years teaching. When asked about the most important part of a lesson plan, Patsy quickly asked to list two. This question piqued her curiosity and seemed to energize her talk. I noticed this enthusiasm as I listened to the tape, following the interview. To Patsy answering the question about the most important part of a lesson plan had two answers. She included:

some sort of instructional time where the kids have access to the information that they need to learn... if that's not there, then there is no sense in having it. But, other than that, I think that it is just the beginning ... the intro...

where you are building some background knowledge and you're trying to get them excited about what you're getting ready to do.

Patsy has sought advice and support for lesson plans from coworkers. Though she is extremely strong instructionally, she admits to liking to hear about other teachers' ideas. She eagerly discusses a lesson that she is quite proud of, the American Indian unit. The students choose what product they want to create following a brief introduction. Many of Patsy's students choose to integrate technology into their American Indian projects. Patsy indicated that some of the students are more comfortable than others when the assignment involves technology. Patsy indicated that the American Indian unit is a product of the Universal Design for Learning (UDL) model. This lesson planning model has the following elements:

1. Provide multiple examples.
2. Highlight critical features.
3. Provide multiple media and formats.
4. Support background context.
5. Provide ongoing, relevant feedback.
6. Offer choices of content and tools.
7. Offer adjustable levels of challenge.

Patsy feels that using the UDL model allows her to “meet the needs of all of her students”. Her students enjoy the freedom that the lesson provides them. She indicates that some of her students are “more dramatic” and like to act things out, others choose to write a song or rap. Patsy records all of the students' products using the Audacity audio recorder and editor. The students pull information through Google Earth, which lets them view satellite imagery, maps, and 3D images from outer space. The students, Patsy

indicates, were creative with the Google Earth maps, “adding push-pins to locations with different facts about the clothing and the shelter, and things like that, with pictures imbedded in it.” Patsy continually emphasized that she records all of the work that the students do using the flip cameras provided by the school.

When asked what makes her American Indian project a good lesson Patsy replies, “Student choice.” The lesson, according to Patsy, is a really good one because it has a “really good introduction, years ago called an anticipatory set.” Patsy adds that the lesson “hooks the kids into what they are doing.” There is direct instruction as part of Patsy’s plan, but the lesson provides an “opportunity for the students to practice and explore in a way that is comfortable to them.” Patsy adds that the lesson has a “wrap up” so that the students are clear about what the lesson goals were.

Patsy states that technology should enhance student learning. She thinks that there “is a balance between using the technology so that you don’t have to do something.” She commented that some teachers could get caught up in giving the students computers as a way of avoiding the instruction altogether, keeping the students busy and occupied. Patsy says that there must “be a purpose for what they are doing.” The technology has to serve an instructional role. Patsy likes technology, feels that it is here to stay, and that it is how this “generation of kids learns.” Because current students have grown up around technology, they are “on them all of the time.” The technology that Patsy uses with her students is technology that connects to the curriculum. She uses “technology every opportunity” that she can integrate.

Patsy admits that she is really interested in technology herself. She wants to learn more because she believes that the “students need it, like it, and enjoy it” as much as she does. Patsy doesn’t want to have her students sitting at the computer with headphones, practicing spelling words. When she plans to integrate technology into her lessons she asks herself, “this is great, but how is it going to be valuable? Or worth using?” When she realizes that the students can self-pace with the spelling lessons on Audacity, she then accepts that using the technology makes “a world of difference.”

Patsy participated in a program designed to support technology integration called retool for school. During the week long professional development the teachers took a lesson and “retooled it in order to integrate more technology.” She retooled the lesson and increased the technology integration and improved the student choice. The students were allowed to make the choices about the products that they would create.

When asked about the time that it takes for her to integrate technology into her daily lesson plans, Patsy says that she believes “that using technology is a time saver for teachers.” As the interview concluded, Patsy snidely commented that she “hates worksheets, so [even though her] kids have to do some every once and a while” she always tries to find something that they can do a different way.

Nancy. I began working with Nancy as a result of her contacting me to set up a much-needed dinner date. We hadn't seen each other very much since I left the County in which we worked together and she felt that it was time for us to share a meal and conversation. I had already spoken with her, briefly, about working on the project with me. I emphasized that I wasn't interested in her because of our history together as collaborative partners. I explained to her that I had heard about the lessons that she had recently written in which she integrated technology.

Nancy officially came into the project following a train of emails in which I explained my research goals and gained her informed consent. She was concerned that there wasn't much to say about technology use and Geometry. She wasn't sure if her story was one of interest. Nancy was also concerned about how she would do answering questions while being recorded. I agreed to send her an outline of my questions, as part of her agreement to work with me.

Nancy had recently been divorced. She was, therefore, in a different home and had bought herself a dog (for protection). When I called to verify our appointment, she indicated that she needed me to come a little later so that she would have time to go by to pick her dog up from the veterinarian hospital where it was boarded. I agreed though moving this appointment might negatively impact all appointments that fell behind her. I didn't want Nancy to feel uncomfortable about the time. I wanted to be sure to get her entire story. So, I told her that we were fine for time and not to feel rushed or uncomfortable about other interviews that I had scheduled for the day.

When I arrived at Nancy's house, she and her dog were just getting home. He was a large dog and seemed very threatening, to me. She also seemed too small to handle his musculature – so I stayed in the car while she went inside to put him away. We laughed at my reluctance, a bit before beginning the interview.

Nancy was a colleague who had entered the school following several unsuccessful Geometry teachers. She was enthusiastic and had high expectations for learning in her classroom. Nancy took great pride in her ability to write good lessons and felt that her experience teaching advanced students provided her with the necessary background to go deep into the curriculum and to make the lessons engaging and memorable.

Nancy is unusual because teaching is not her first career. She had been in the military prior to teaching. I believed it was this training that gave her the belief that students would be disciplined and dedicated. She soon found that this would be something that she would have to teach to many of her students.

Mostly because Nancy is so analytical and partly because she is so thorough, I looked forward to my interview with her. I wasn't concerned in the least that our previous relationship would interfere with the project. In fact, I felt confident that her trust of me would enhance her comfort level, allowing her to open up and give a good account of her practice in writing technology-rich lessons.

Data from Survey Responses for Nancy. Through responses to the survey questions, I learned that Nancy is 40 years old and has been teaching high school for nine years. She has one computer in her classroom and uses the computer lab to teach her twenty-three students less than one hour a month. Nancy has used computers in the

classroom for about nine years. Nancy's preparation for using technology came through a combination of undergraduate coursework, in-service courses and workshops, independent and distance learning. Nancy represents herself as an individual who has received adequate support to learn the basics of technology and its integration into the classroom. She is very interested in learning how to use various technologies and is someone who is somewhat comfortable using technologies independently with her students. Nancy's responses to the survey help me to present her as a person who values technology and feels confident integrating it into her daily lessons. The survey also helped me to establish an understanding of how Nancy perceives she has grown and changed in her technology integration practices.

Interviewing Nancy. We met in Nancy's kitchen—an appropriate place since she enjoys cooking and sharing her recipes with friends. We sat around her kitchen table, watching her dog first run through the yard before running towards the house with such force that I thought he would not stop. I remember thinking that I could not have a dog like that one. I would not want a dog so strong that I might think that he could come through a window, if he wanted to. Nancy excused herself and took the dog to a room in which he was put into his crate (while I hid in the powder room out of his reach/sight). I was assured that this was an acceptable training practice and that he would not be upset with me for it.

We laughed about the irony of me talking with Nancy about technology integration practices and about how significantly her pedagogy had changed in so few years. I knew that the interview would be rich and that I would gain great insights into

Nancy and her pedagogical practices as they related to technology integration. She began this insight by explaining that the most important part of a good lesson plan:

Incorporates ways to tell if the students are learning what they are supposed to be learning. And, I led a class, this year, on assessments. That was everything involved with that. What the kids know ahead of time, incorporating ways to know during a lesson or during a unit. Warm ups, exit cards, exit slips, graded and non-graded. The different ways to tell that they are getting what you think they're supposed to be learning.

I had hoped that Nancy was doing more than just projecting her notes onto a SMARTboard. Many people at her school are considered good with technology simply because they can turn on the SMARTboard and a projector. Nancy was humble about her technology skills, indicating that she “does the best that she can” and stating that her collaborative partner does a much better job than she does. I soon learned that what Nancy said was not at all true and that she had a story to tell me that had not yet been told.

Nancy feels that the most important aspect of a lesson plan is “incorporating ways to tell if the students are learning what they are supposed to be learning.” She enthusiastically went on to add that it is important to know “what kids know ahead of time, incorporating ways to know during a lesson or during a unit.” Nancy is always assessing her students’ learning and understanding; using warm ups, exit cards, exit slips that are graded and not graded. She regularly checks using “different ways to tell that they are getting what you think they’re supposed to be learning.”

Because her school has common planning times for teachers teaching the same courses, Nancy says that her group has good common planning where the teachers share

ideas. The teachers have different teaching styles, but they still rely on each other to share how they approach lessons. Nancy confessed that she doesn't depend on them to do things.

As we talked about teaching and learning Nancy explained that the most common trouble that she has had with instruction is that the kids don't understand. She described that she can design an activity that they can "do but need help, at the end, realizing how it is related to the topic." The students, Nancy feels, have difficulty synthesizing what they have done. So, Nancy is always trying to fix her instruction. As early as for the next class, Nancy makes adjustments to her instruction in order to support learning. Nancy has learned that not any two classes are the same. She originally "thought that every class had to be the same." She now accepts that its "ok if you change something." In fact, changing may increase understanding.

Nancy described a lesson that she felt went really well, a lesson on circles. Using Geometer's Sketchpad, Nancy introduced the students to circles and the relationships that segments in the circles have to arcs, pieces of the circle. The lesson went exceptionally well with Nancy's double-block inclusion students. They worked independently, going through five different activities with little or no support from the teachers. All of the students "did what they were supposed to do." Nancy was surprised how easily the students worked through the Geometer's Sketchpad project. She was amazed at how independent they were. The students were extremely comfortable using the technology to learn and explore a Geometric concept that they would not have been able to do without the specialized software. Nancy concluded that she had made the lesson herself.

She was proud of the lesson and its impact on her students. She also felt that the level of engagement was increased by the use of the technology. They didn't have to measure angles and they were able to get the measures of arcs, using the technology. Theorems and postulates could be easily explored using the Geometer's Sketchpad software, so the students remained engaged.

As Nancy continued to talk about how the technology engaged her students in learning, she shared some information with me about a colleague who regularly uses technology with her students. The teacher, Nancy says, "is using technology, she's excited about it, which helps the kids to be excited about it."

Technology plays the role of making lessons easier for the students to learn, says Nancy. She thinks that if a teacher can make learning easier using technology, then they should use it. Included in the ease of learning Geometry concepts, Nancy believes that the most important thing about technology is that it is engaging for the students. As she continued to think about the importance of the technology, Nancy explained that using the technology in Geometry class allowed the students to focus on the planned lesson. Their skills with using a protractor and compass were not important or necessary, because the Sketchpad software measured for them. Nancy admitted that the students should find measuring angles and segments easy, but because of the Sketchpad software, they don't have to know how to as a prerequisite to the lesson involving segments, angles, and circles. Finally, Nancy adds, "technology is a hook to get the kids into the lesson." The ease of putting several skills together into one lesson makes the students enjoy working with the Sketchpad software.

An important planning requirement is that Nancy has the laptop computers on wheels (COW) for more than one day in a row. At her school, this is usually not a problem because there are enough COWs available for the teachers to share. The students work in pairs or groups of three in order to support the different levels of computer expertise and ability to work through the step-by-step lesson. Some students, she admits, are not good with the computers. They each keep their own set of notes, but the students work through the project as a team.

Nancy feels that the “whole culture at [Lakeside] is about technology in good teaching practices.” The teachers are encouraged to create technology-rich lessons. The school administration keeps a variety of technology available for the teachers to use. Staff meetings include teachers sharing their technology lessons; SMARTboard lessons, clickers, podcasts, and using a web-based classroom resource such as SCORE are technologies that have recently made their way to the staff meeting forefront. The librarian often lets the teachers know when the computers in the library are available. There are five or six computer labs and eighteen or nineteen COWs available for the teachers to use. “There is rarely a time that if you want to use technology, that it is not available.” There are Kindles in the library and iPod Touches available for the students to use. The librarian even sends out a tip of the week.

Collaboration is the tool of invention at Lakeside. The teachers come together in clusters and discuss how they use the technologies. Even though they may not fully embrace a colleague’s lesson plan, they benefit from the sharing of technology uses. Nancy benefits from working with a collaborative partner who enjoys altering a

colleague's lesson. "He can make a lesson into something fancier, more entertaining." Together, Nancy and her collaborative partner regularly integrate technology into their students' daily learning experience.

Marly. At twenty-eight years and change, Marly is a wealth of information. I was concerned that I would not get to meet with her since so many attempts ended up as failures because of unexpected scheduling conflicts. I had conducted four interviews by the time that I met with Marly, so I was very comfortable with my questions and thought I had a good idea of what teachers thought about their technology integration practices.

Marly is unusual because she is not American-born. She was hired to teach Biology to tenth graders following a rigorous interview process where she was selected among thousands of applicants eager to come to America to teach. When I met her, I was amazed at how well she spoke English and how comfortable she was with her new environment. Though she was younger than most of the teachers at the school, she eluded conversations about the limitations of her age by engaging in deep discussions about pedagogy and best practice for educators. Marly could often be found in the center of informed discussions while wearing a penetrating expression that challenged the more solicitous among the teachers gathered in the workroom. Her confidence was often misconstrued as arrogance and her self-reliance as selfishness. The more honorable teachers and administrators soon learned that Marly was an asset to the school. Her ideas quickly spread and flourished in an environment fertile for ingenuity and imagination. I appreciated the way that Marly approached teaching. I felt both encouraged and challenged by her presence.

I had hoped that Marly would be willing to support my project as a participant because she was an enthusiastic teacher who brings so much creativity to her Biology lessons. Marly was a well-educated young woman with a broad background in Special Education and she was used to differentiating instruction in order to meet the needs of a variety of students. I anticipated a great exchange with Marly and felt sure that she would share something important to my project.

Marly officially became part of this project when she accepted the informed consent, following several email exchanges. Our schedules seemed to regularly conflict with one another, leaving me with the feeling that she was not interested in the study. I had met with her previous collaborative partner and was interested to see how her interview would compare with his. She was positive and enthusiastic about meeting with me and committed to meeting in a local library since there was a possibility that I might be allergic to her dog.

Data from Survey Responses for Marly. Through responses to the survey questions, I learned that Marly is 28 years old and has been teaching high school for six years. She has thirty computers in her classroom and uses the computer lab to teach her twenty-three students for about one and a half hour a month. Marly has used computers in the classroom for about nine years. Marly's preparation for using technology came through a combination of a large amount of undergraduate coursework, in-service courses and workshops, and to a great extent through independent and distance learning. Marly represents herself as an individual who has received a varying degree of support to learn the basics of technology and its integration into the classroom. She is very interested in

learning how to use various technologies and is someone who is extremely comfortable using technologies independently with her students. Marly's responses to the survey help me to present her as a person who values technology and feels extremely confident integrating it into her daily lessons. The survey also helped me to establish an understanding of how Marly perceives she has grown and changed in her technology integration practices.

Interviewing Marly. I looked forward to meeting with Marly and talking about her current instructional practices. I arrived early to the library and secured a private study room so that I would be able to offer her my complete attention and to avoid the distractions often present in the public library. The room was larger than we needed, so I wanted to be sure that our chairs were close together, to avoid difficulty with the microphone on my voice recorder. This was the first time that I was concerned about whether or not the recorder would be able to pick up the participant's voice. I didn't want Marly's accent to make understanding what she said hard for me to recount when at home listening to the recording and making the transcript. I wanted Marly to be comfortable and for my recording to not be the focus of the conversation. I knew that my time with Marly was limited and I wanted to make the best of it.

I was thrilled to be working with Marly, once she arrived and settled herself near me in our over-sized meeting room. She was energetic and exuded confidence as she began talking about her educational background and number of years teaching the subject matter. Her response to my question about what makes a good lesson plan sums up her attitude about teaching:

I think activities. Like, learning the skill. Not so much of there's some objective and we follow the curriculum map, but I'm into the activity and how to get the skill.

Have you ever gotten advice or support about lesson planning?

I look at resources in the books and I make my own lesson plans and I think I like to create my own 'cause that's my lesson plan.

Though Marly was teaching in a school that was “unplugged”, she speaks of enjoying the use of technology in her lesson plans. She believes that most important part of a lesson plan is the activities used to teach the students the material that the curriculum requires. She enjoys creating her own lessons because then she feels ownership of them. Marly teaches in an old school with students who have a wide range of abilities and financial backgrounds. The classroom she works in is a converted lab with small desks and old tables, making it somewhat uncomfortable for her students. So, Marly tries to limit the time that her students must sit in desks. She “gets away from where the kids are sitting down” by creating activities where they are rotating throughout the room.

After a few minutes of note taking, Marly's students may find themselves studying genetics by tracing family traits from their great grandparents and from different generations. They soon are able to align themselves to a pedigree, according to Marly. Marly feels that a good lesson is one that is engaging. The pedigree lesson engages her students because they like to talk to her about their families and their backgrounds. Marly uses the information to include the students in her lessons and to celebrate the students' individuality.

When Marly thinks about someone talking about having written a good lesson plan she thinks that the lesson plan applies to “the real world” or builds on the students’ past experiences. Marly likes lessons that can be applied and that the students can readily see the application of the knowledge. This encourages them to be more engaged with the learning goal of the lesson.

Marly uses iPads with her students because she thinks that technology is important. As a young teacher, she believes in supporting the students as they grow in a world that is moving faster every day. She aligns herself with their interests and strengths as she brings technology to her classroom. Marly feels that everything that they will ever want to know is accessible through computers. She wants her students to be really good with technology so that they can do presentations and research information that they need in their daily lives.

“A dash of social and physical interaction would be good, but games done through technology would be really good, also.” Marly has introduced her Biology students to dissection using the SMARTboard. She would like for them all to always have access to computers, but when they do not, she puts them on the SMARTboard and helps them to explore and experiment with simulations that she has found and created. Her students learned about the microscope using the SMARTboard before ever picking a microscope up. They also were able to completely experience a dissection before any animals were brought into the lab.

Marly goes online and explores for materials that she can use with her students. She likes to use the things that she finds and customizes herself because she is skilled at

differentiating for her students' needs. Not all of her lessons are created from scratch. Marly admits to recycling lesson plans. She explained how she took a really good lesson that she had written a long time ago and updated it by adding new technologies. When she comes upon a new website, she adds it to the lesson. So, her lessons are always evolving into better, updated and current lessons with the latest technologies.

A lesson that Marly quickly brought into our discussion is one in which she is teaching the students about dependent variable and independent variable experiment design. She used to teach the lesson on paper and it took a long time as the students had to look at the plant and observe it as it grew. Using technology, Marly is able to introduce the students to the same concept, but they use technology that simulates the plant's growth. The students care for it, watering it and making observations, just as they did with the live plants in years past. The students think it is cool to watch the plant and water it from home simply by accessing their online profile.

Though Marly has to scrounge for access to laptops and her school is unplugged and doesn't allow students to access their smartphones for any reason, she regularly plans technology-rich lessons for her Biology students. In addition to the SMARTboard, she has used laptops and flip cameras that she borrows through the media center. She has to be careful, though, because many of her students do not have access to computers. So, they cannot be expected to work outside of school on anything requiring internet access or computers. When the programming for flip camera data is not updated and all of the laptops cannot accept the video and photos that the students generate as classroom assignments, technology-rich lesson planning is a difficult task, at best. Fortunately for

her students, Marly loves using technology and recognizes that helping her students to engage in the learning that comes through her technology-rich lesson is worth the extra effort it requires in her building. Marly hopes that other teachers will join with her in their demand for more technology so that all of the students will be comfortable with the technologies that Marly sees are here to stay and are ever-growing in popularity.

Courtney. I began working with Courtney by happenstance. I was well into the process of finding participants when I saw her in a parking lot. She had heard about my project and self-selected by directly offering herself to me. She was willing to meet with me to discuss her technology integration practices, but our meeting would have to work around the busy schedule that one of her children kept.

Courtney and I met at a local fast food restaurant. It was the closest public place to where she would be dropping her child off for team practice and was far enough away to where Courtney taught so that we would not be disturbed. When she indicated the restaurant, I was concerned about the noise and distractions. Her confidence that the location would work quickly overcame my hesitance so, we agreed to meet.

I had hoped that there would not be too many people at the fast food restaurant. Fortunately, the restaurant was doing mostly drive through business. I parked my car in the front and walked in to meet Courtney. I ordered a couple of drinks and some appetizers for us to share. I had spent the morning interviewing and driving, so I knew that I should eat something in order to have the best attention span. Upon getting the food and making my way to the seating area, I noticed Courtney sitting in the far back, grading papers.

I began my conversation with Courtney by talking about my project, the difficulty that I had in getting approvals to collect data, and personal interviewing experiences. As a doctoral student, Courtney seemed very interested in the process that followed the proposal defense. She wanted to talk about my feelings about the process and to encourage me to push through to completion. We laughed as I communicated a willingness to both participate in her project as well as to be encouraging when she begins working on her Dissertation. We spoke about our educational experiences at various universities and the importance our fortitude is in our daily professional lives.

I was concerned about time, since I knew Courtney would soon have to excuse herself to pick up her daughter. I did not want to have to abbreviate the interview or make the necessary arrangements to meet again, so I forged ahead, signaling the beginning of the interview by announcing my recording device.

Data from Survey Responses for Courtney. Through responses to the survey questions, I learned that Courtney is 49 years old and has been teaching high school for twelve years. She does not have any computers in her classroom and must use the computer lab to teach her twenty-seven students when she needs access to computers. Courtney's preparation for using technology came to a great extent through a combination of undergraduate coursework and independent learning. To a small extent, in-service courses and distance learning can be credited for supporting her preparation for computer use. Courtney represents herself as an individual who has received an adequate amount of training using computers and she feels that she uses them effectively in her classroom. Courtney is comfortable giving computer assignments to her students.

Courtney is comfortable with computer technology and believes that incorporating multi-media into lessons enhances her teaching.

Courtney feels that she has a sufficient level of computer related support in her school. Faculty members are encouraged to use computers and technology and its integration into the classroom. Courtney uses computers once a week for small group instruction but uses cooperative learning groups several times a week. Computers are used to tutor students every day and Courtney promotes student centered learning, she feels, through her use of computers.

Courtney's responses to the survey questions related to her attitudes towards computer use help me to present her as a person who values the benefits of her students having access to computers and technology. Courtney admits that she feels pressure to integrate technology into the classroom and though she doesn't feel that they are dehumanizing, she admits to avoiding using technologies whenever possible. Courtney feels that more training would increase her use of computers in the classroom and though computers make her job easier, Courtney feels that they diminish her role as a teacher. Courtney strongly agrees that computers enhance her classroom instruction.

Interviewing Courtney. Courtney introduced herself as a forty-nine year old teacher who has been teaching for about twelve years. She teaches students from freshmen to seniors and has taught Math Analysis also known as Pre-Calculus, computer programming, intro to computer programming, C++, and regular Algebra 2 classes. Her experience was far beyond my knowledge of her in that she had taught at a private school and I was struck by her calm as Courtney rattled off the list of seemingly endless subjects

that she had taught; Spanish I and II, Algebra I, Geometry, Algebra Functions/Data Analysis, AP Computer Science, World Geography, and World History. She continued to offer background information at a pace that would have been far too fast, had I not been recording our conversation.

As a Doctoral student, Courtney was aware of my need for information. She was also sensitive to the requirements of my project. She soon exposed herself as a willing and rich participant who was full of experiences relevant to my project. When asked about her feelings about what is most important part of a lesson, Courtney quickly responded:

Clear, defined objectives... Knowing what I want to teach and the result that I'm looking for. So, what I'm teaching and what's going to be the end result. Be it very finite for that particular lesson it's the overall assessment, but, what should be attained from that lesson for that day... what I want... the final outcome that I want see present.

The most important part of a lesson plan, according to Courtney, is that there are clearly defined objectives. The teacher needs to know what she wants to teach and the end result she is looking for. The daily goals and long term, lesson or unit goals need to be clear. Support for writing her lesson plans come mostly through colleagues, though she is the only teacher for one of her courses. Most of the lessons that Courtney does she has created herself, based on her teaching style and instructional delivery preferences. The teachers have the benefit of common planning times, where they can discuss lesson planning, delivery, and assessment.

This year, Courtney has made quick assessments a goal for her classes. She uses SCORE to put quizzes on that can be quickly scored. She incorporates the quizzes in her

daily lessons because she has the advantage of having classes in a computer lab. At the beginning of a Math Analysis class, for instance, she can repeat and rehash the memorization of the Pythagorean Trigonometry identities before taking a small, ten-question quiz, keeping the students abreast of the skills prior to going onto the day's lesson.

Courtney likes that the entire process is online, on the computers in the classroom. The students take advantage of the short quizzes and are developing the skills necessary to answer questions on the computer, efficiently. The students even take their midterm assessment on the computers. The midterm was broken into parts, and was streamlined so that she could use different assessment approaches:

Part A: basic taxonomy, knowledge and rote

Part B: synthesization and analysis – word problems and applying the trig

Part C: Five basic calculator skills

Courtney had to assess the students' ability to use the technology within the content. The entire process of assessing them was automated. As they completed one section, the "screen would pop up presenting the next section." The program displayed a message telling the students when they were allowed to use a calculator. So, each student was able to work at their own rate.

Courtney uses the SMARTboard in her daily instruction, but believes that being able to use SCORE where she can generate tests, interactive games, and the posting of notes is a valuable use of technology for her students. While Courtney is teaching a lesson on trigonometry, or instance, she can pull different graphs into her lecture, include

a picture of the unit circle to refer to why an answer is or is not correct. Courtney feels that she has become strong at quickly doing a visual representation for her students. She feels that the technology has increased her pedagogy insofar as reaching the different learning styles. She states that she is not only “able to assess differently across the spectrums of Bloom’s,” but it is helping her to reach the different types of learning. Courtney is comfortably reaching her visual learners, which she had not reached before.

Courtney does not infuse technology simply for the purpose of infusing it. She says that her thought is that if the content that is being taught is best taught using a technology, then she does. She asks herself,

“how can this technology help me as far as move them from my spectrum of knowledge to synthesis, from analysis to synthesis... how can I use technology to reach as many of my learning styles?”

Courtney’s students, for example, were able to transform trigonometry into the real world as they used a motion detector to identify sine and cosine waves. She believes that because the students have learned much of their material using technology and in real world situations, they retain the information much better than if they did not. Her students tend to be behind other teachers’ students, in terms of pacing, but they require less time when they begin reviewing. Doing projects with her students is a conscious decision that Courtney makes because her students are truly going to learn. Courtney has enough confidence in her teaching ability to accept being behind because they are going to learn and be able to apply the material more so than ever as well as to retain it. When the time comes for them to recall, they are going to do very well, because of the technology-rich experiences that they have had.

Courtney benefits from administrative support that believes in her teaching style. She believes that “one of the biggest supports that you need to have in this kind of teaching style where technology is infused is that of the administration.” They accept that she is sometimes behind on the pacing map, but have confidence that her students will perform well, when assessed. All teachers, Courtney believes, need this support in order to have the confidence to include technology, which often takes more time than the pacing map allows for lessons. Many teachers use a “drill and kill” approach to instruction. They have a list of skills that they quickly work through, because they “gotta get through that map.” They “use worksheets and do not do too much technology, next concept, let’s go.” Every teacher needs to use some basic rote, but Courtney feels that there should always be a part of the lesson where a teacher is “working towards the infusion of knowledge and reach out through technology.” Teaching in a vacuum of not having technology, according to Courtney, is a detriment to the children. Courtney has institutional support with all of the lessons that she writes. If something is not available to her, someone in her building will see that she gets it.

Courtney provides online lessons for students to access during the summer. Many of them need to work on their skills from previous years in order to be ready for upcoming coursework. There are summer assignments available to students and Courtney uses technology “to help the students to keep abreast of their math skills.” The students return to school in September able to start off the year “at a brisk walk instead of crawling back to fundamentals of mathematics.”

Bob. I first heard about Bob from a colleague who was talking with another colleague about a person who had absolutely everything relevant to the Social Studies curriculum in some type of power point presentation. At the time, I was not thinking about my project, but still was intrigued about such a person. I could not imagine that someone was so organized and interested in a subject that I found so difficult to stay awake when forced to listen. My eavesdropping quickly became outright questioning. I wanted to know what he had and how he put it together. I was thinking that I could do the same with my more interesting coursework for Geometry. So, I went to meet Bob.

Bob was recommended to me by someone who did not know that he was married to a dear friend of mine. I really only knew Bob through the eyes of his wife. She had told me about how they met and how intriguing he is in his deep passion for American history. Bob does reenactments. He does so in an official capacity, so well that he and his reenactment companions have worked on movie sets where accuracy and numbers were both necessary and desirable at the lowest cost. He has often worn his reenactment outfits to school and taught a lesson dressed in the style of the time period that he and his classes were discussing.

When you ask Bob why he wears his reenactment uniform to school he indicates the higher level of engagement that he has noticed from his students. Bob has an almost boyish grin peeking through his beard and mustache as he talks about not only wearing a period costume to school, but bringing artifacts to share with his students. He enjoys more than the student response to his costume and finds the period outfit enhances the emotional impact of the knowledge that he shares with his students.

When I recently contacted Bob about the project, he repeatedly told me that he might not be what I was looking for. He told me that all that he had done was to take his original lessons that were on clear, plastic overhead sheets and transferred them to the new, power point medium. He talked about how he simply needed to find music, videos, and sounds to add to the power points in order to engage his students. I told Bob that he was doing exactly what I wanted to talk about. Bob agreed to help me with the project. We agreed to meet at his home for the interview.

Bob and I met at his home, not too far from my last interview appointment. Though I was close with Bob's wife, I had never been to their home. His wife and I usually met somewhere between their home and mine, for convenience sake. Bob and his wife live comfortably in a lovely home nestled securely in the woods. As I drove through the woods, trying to follow the directions provided by my car through the GPS system, I thought about how appropriate the surroundings were for Bob and his wife.

Their new addition to the home holds a space best described as a den or recreation room with its television and comfy sofa. Because my relationship with his wife was more significant, I spent a few moments catching up with her and talking about the cats and their peculiar behaviors. I also apologized for missing their celebration for the house addition and shared niceties about the guests with whom I am familiar.

Bob invited me into the kitchen. Talking with Bob, in his kitchen, was comfortable despite the fact that he had a plethora of antique and vintage farming tools mounted throughout the combined living room, dining room, and kitchen areas. The teeth of the various saws and cutting edges of the different tools were sharp and menacing, yet

seem right, to be in his home. Bob is earthy. He is comforting and calm. His wife is also a calming person. Her smile and gentle touch on the forearm or occasional soothing gesture make her a good friend to approach when the stress of daily living becomes too much to bear. Bob and his wife make a nice couple. He, with his tools and she, with quilts and other handcrafted art pieces peppered throughout the common area have created a space that speaks for both. This was a nice place to be conducting the last of my interviews for a long day.

Data from Survey Responses for Bob. Through responses to the survey questions, I learned that Bob is 51 years old and has been teaching high school for eight years. He doesn't have any computers in his classroom, but has occasional access for his 27 students in computer labs.

Bob's preparation for using technology in a small part came through undergraduate coursework. He has taken inservice courses and workshops that gave a moderate amount of computer use training. Most of Bob's computer use has come through independent learning and learning through distance learning coursework.

Though Bob feels that he has had adequate training in using computers, he doesn't feel that he uses them effectively in his classroom. He admits to not feeling comfortable giving computer assignments to his students. Bob realizes that computers enhance his teaching and he is comfortable using computers during classroom instruction, incorporating multi-media into those enhanced lessons.

Bob indicated that he feels that the school administration has given him adequate time to learn computer skills though he is not given sufficient access to computers at his

school. There is encouragement to use technologies at Bob's school, faculty members are supported through computer related training and the administration encourages the use of computers in the classroom.

Bob does not use computers for small group instruction at all though he does integrate computers about once a week for individual instruction. Student centered learning is encouraged through his technology integration several times a week and as a research tool. Mostly, Bob uses computers in his classroom as a presentation tool and a tool of communication.

When answering survey questions about his attitudes toward computer use, Bob stated that he would like for every student in his class to have access to a computer and that he feels that computer skills are essential to them. Bob feels pressure from others to integrate computers more into his classroom and would like to have his students able to use the computers more. He doesn't feel that computers are dehumanizing and doesn't feel that they diminish his role as the teacher. Computers make his job easier and Bob strongly feels that computers help him as a professional and enhance classroom instruction.

Interviewing Bob. Bob was concise in his communication. He seemed to think that the work that he did with his students was not much of a big deal. He was humble as he talked about his instructional practices. He spoke of hours spent surfing the web, looking for music, video, sound bites – anything that might potentially be of interest to his students. He talked about telling a story to his students rather than making them sit, bored, as he rambled facts. I found myself wishing that my Social Studies teachers had

been more creative. I might have been a better student and found history more interesting if my teachers had done as much preparation and personalization as Bob had done.

Bob made me a cup of coffee and gestured for me to sit at the lovely, heavy, oak table. True to form, Bob asked if I was ready to begin. I took out my voice recorder and began to ask my background questions. Bob, at fifty-one years old, has a Bachelor's degree in marketing and a Master's degree in education. He was teaching US History, both General and Advanced Placement US History. When asked what he thought is the most important part of a lesson plan, Bob replied:

Most important part of a lesson plan -- basically having a goal for the day. Having a goal, in general, for the day that ties into the unit. You have to know where you are going with it...

Bob believes that the most important part of a lesson plan is having a goal for the day. The goal should tie into the unit and the teacher needs to know where he is going with it. Bob is very possessive about his lesson plans. He likes to work out the plans on his own, which he admits is not always the best way to do it. He has worked closely with a few colleagues in the History department. Fortunately, the History team is a pretty good one.

Bob uses PowerPoint lessons most of the time in order to teach his lessons. Most of the lessons take the same structure. He uses personal stories to go along with the history lessons, making the learning relevant to the students. He sometimes gets emotional as he delivers his lessons, which he knows impacts some students as they tell him in subsequent years how they remember stories that he told them in other classes.

The more Bob can substitute boring notes in black and white, on paper for stories, the better he feels that the lessons are, for the students.

Included in Bob's PowerPoints are videos and music to enhance the message. At times, Bob uses united streaming online to find videos. He shared a story about a lesson around a video that a student brought in about the Japanese internment in World War II. The student's video is so good that Bob plans to use it with his classes. Bob feels that when a student looks for video representations of lessons that are experienced in Bob's class, then they are learning and are engaged.

Bob's wife gifted him an electronic Jeopardy game that he uses with his students. He finds that using the game for reviewing helps to keep the material fresh and in the forefront of their thinking. The students are also very competitive when answering the questions. He is sure that the experience of reviewing this way supports his student learning.

Bob would like to assign technology projects for his students, but finds the limited access to computers makes it difficult to expect students to complete the assignments. He has asked his higher level students to do PowerPoint projects, make movies, and do webquests online, but in class time is difficult. Bob hasn't converted his previous lessons into more technology-rich lessons. He has, though, converted his overhead slides into PowerPoint presentations. He mostly uses the SMARTboard in his room, with the projector, in order to project lessons. He doesn't fully use the SMARTboard technology, but enjoys using the random name changer in order to randomly call upon students to answer questions.

Bob's instructional practices would change if he had daily access to computers. He would like to have the students do more research on topics they are learning. He would have daily lessons that they would work on alone and in groups. The limitation of available computers on a daily basis keeps Bob from integrating this into his daily lessons. There is a time in the school year when computers are not available at all. This limitation frustrates Bob and prevents him from including more technology-rich, student-based lessons.

Delores. I had wanted to have Delores join the project because she was recommended to me by a person who felt that she would be well-suited as a teacher who not only used technology regularly as part of her instructional practices, but also one who willingly talked about it and shared new, fresh ideas. I imagined that Delores was slowly becoming a teacher leader and was impacting her school more than she recognized. Interviewing Delores would provide insights on her daily instructional practices, but would also provide a view into the culture of the school as it relates to technology integration.

Delores officially came into the project one evening when she answered my email soliciting support from classroom teachers. I had emailed her through her school email address, so I guessed this is why she so quickly responded positively, asking what would she need to do as her next step in the process.

Delores and I did our next communication through the email, including me sending her the informed consent and survey inquiry. She agreed to participate and scheduled a meeting for the interview, within days of my first contact. I was surprised to

find Delores to be so young and having only been in her second year of teaching. She was confident and intelligent. I was a little taken aback by her referring to me as “ma’am”, but quickly recognized it was her way of showing respect.

By the time that I met Delores, I had emailed and interviewed several participants. I had already conducted four interviews by the time I arrived at her school. I was comfortable with my interview questions and thought that I understood what most teachers were saying about technology integration and the experiences that they had at their respective schools. What I learned from Delores was that I still had an entire sector of teachers from whom I had much to learn.

Data from Survey Responses for Delores. Through responses to the survey questions, I learned that Delores is 24 years old and has been teaching elementary school for two years. She has two computers in her classroom and also has access to computer labs. Delores has 21 students who she takes to the computer lab approximately one and a half hours each week.

Delores’ preparation for using technology in a small part came through undergraduate coursework and inservice courses and workshops. To the greatest extent, Delores attributes her independent learning courses for her preparation for computer use. Delores feels that she uses computers effectively in her classroom and that she is comfortable giving computer assignments to her students. She strongly agrees that computers enhance her teaching and she is comfortable using computers during classroom instruction. Delores feels that her use of computer technology enhances student performance and that the use of multi-media in lessons enhances her teaching.

Delores indicated that she has sufficient access to computers at her school and receives a sufficient level of computer related support. Delores indicated that faculty members are encouraged to use computers in the classroom and that the school provides computer related training. Delores uses computers in the classroom for small group instruction several times a week. She also uses computers for cooperative groups and as a reward to her students. Once a week, Delores uses the computer for independent learning. Delores uses the computer every day as an instructional presentation tool.

On her survey, Delores indicated that she would like for all of her students to have access to a computer and that computer skills are essential to them. Delores indicated that she doesn't feel pressure from others to integrate the computer more into her classroom or tense when people discuss computers. Delores would like for her students to use computers more. She doesn't feel that computers diminish her role as a teacher or that they make high demands on her professional time. Delores indicated that she feels that computers change her role as a teacher and strongly agrees that they enhance classroom instruction.

Interviewing Delores. When I walked into Delores' classroom at our scheduled meeting time I was surprised by the difference in the atmosphere of a kindergarten classroom. The tables and chairs were smaller than I remembered when going into class with my children. The walls were full of colorful, playful images and the room was broad with several designated spaces or centers. I laughed as I looked about for a place to sit.

Delores approached me, smiling pleasantly and gestured to an adult-sized table and chairs set off to the side of the room, away from the children's play and working

areas. When she commented about the difficulty of finding an adequate place for adults to sit in her room is when I realized that she was diminutive in stature and young enough to probably not have too much difficulty sitting in the chairs designed for the kindergarteners. Delores had a welcoming face and a comforting voice, which made our initial interaction much more relaxing, as I set up my voice recording material and pulled out my list of interview questions.

I believe that Delores was a bit nervous about the interview. Her voice on the recording seems tight and her responses to me were all followed by ma'am. I guessed that she was tense about what I was looking for, from her. She may also have been uncomfortable thinking that what she said may be mistaken or misinterpreted. Her responses to the questions seemed to take longer than my previous interviews had. When she did respond, it seemed so well thought out that the wording didn't seem natural. When she talked about her interactions with her students, she seemed the most relaxed. She recognized her responsibility to plant the seeds of knowledge in the kindergarteners' minds, and she seemed to enjoy that aspect of her job. I wondered what it was like to be so young in such an important role.

It did not take us long to relax and forget about the audio taping and our unfamiliarity. The interview went surprisingly well from then on as Delores was confident about her technology integration practices and convincing in her assurance that the students were learning not only the curricular materials, but also how to circumnavigate the SMARTboard in order to acquire their daily calendar assignments.

When asked what she thought was the most important part of a lesson plan, Delores simply responded, “That it is engaging.”

Delores is interested in working on a Master’s degree in technology. It is obvious that her interest lies in technology because she describes her lessons as “having a lot to do with technology.” Though she teaches kindergarten, Delores does a lot of technology based lessons. She thinks of a good lesson as one in which all of the students understood the material and were able to master the concepts. This is her second year teaching, and Delores eagerly uses the SMARTboard with her young students. She encourages them to use it on their own, with her as a facilitator.

In Delores’ classroom, the morning circle time is student-led. The students use the SMARTboard to do the morning calendar. Delores says that it is very easy because the weather is hyperlinked to the internet. The students have learned that when they click a button, it will take them to Weather.com. They are learning that the internet can be accessed through the SMARTboard, seeing how the internet is interlinked to computers. The students have learned what a zip code is, allowing them to look up the weather for their specific area.

Though only one student at a time can use the SMARTboard for each of the morning’s circle time lessons, they all benefit from the software and its accessibility to the internet. Other students are assigned to put the information gathered through the internet access onto the whiteboard in the classroom and all are required to enter the information into their daily journals. Any of the students assigned as the “teacher” for the day can ask for help from their classmates. It is a group learning experience with the

classmates working as a team to gather the information for the day. Delores said that she is very proud and surprised at how well her students picked up the responsibilities of their daily calendar experience. They are working much better than she expected.

Delores intended for the SMARTboard morning calendar experience to teach the students about weather, time, dates, and such but found that in addition to the intended lessons, the students watched and learned as she changed her handwriting into typed text. They, too, found pleasure in changing their handwriting to text, using the application provided through the SMARTboard software.

Though Delores has not needed the support of an ITRT in her classroom, she has benefitted from the lesson that the ITRT creates and uploads to her grade level. Delores has used the information to teach her students to log in to computers and to use the SMARTresponse system. The SMARTresponse system allows individuals to submit answers using a remote in combination with questions displayed on the SMARTboard. The students love it. Each student has a number assigned to them, which is associated to their remote. Their answers are confidential, but register on the system and can be plotted in a variety of ways.

Delores is in her second year of teaching, so she doesn't have previous lessons to convert into technology-rich ones, but she indicated that she forces herself to use the SMARTboard with her students. She said that she doesn't use much other technology with her students, but has used flip cameras to record her students. Delores feels that other technologies may be too difficult for her students to learn and understand.

Delores works in a school where there is a SMARTboard in every classroom and technology is a big focus. She would like to use more technology, but indicates that the number of students in her class and their eagerness makes teaching them difficult, even when there is another teacher or ITRT in the classroom to help, the ratio is still too high to have an effective lesson with kindergarteners. Because of their age, Delores feels that her technology integration is limited. She continues to explore the response system applications and would love to see her students blogging. Delores accesses SMART exchange in order to get lesson ideas. She says that she “tweaks” the lessons in order to make them fit her class.

When asked what she feels is missing in her instructional environment Delores says extra support. She feels that she’d like to have help from people who know how to use technologies and how to make lessons adjustable so that they can reach all of her students. She’d like to reduce the time that it takes to initiate a lesson so that she can bring more into the classroom and not take as long as thirty minutes to get the students on task and running. The first clicker lesson that Delores taught her students took thirty minutes just to teach them how to turn them on and give their responses. If Delores had more people working to help the students, then the technology-rich lessons would be a little easier to manage because she could save time. Delores feels that because they are kindergarteners, they need more one-to-one instructional support.

Delores sees how much the students enjoy the SMART board lessons and feels that if they could use the flip cameras and use the computers to create photo stories they would be more interested in reading. She feels that they would enjoy reading each

other's work, but it would take a lot to get the stories written, the pictures taken and uploaded, and the photo stories created on the computers. Delores does what she can to expose her students to technologies. They take virtual field trips, providing visual representations for lessons that she creates and giving the students access to the world, at her fingertips.

CHAPTER FIVE: CROSS-PORTRAIT ANALYSIS

This chapter discusses the results of this study and the findings from the data presented in Chapter 4. The study aims to better understand how teachers integrate technology into their daily lesson plans in a technology-rich manner, exploring the impact of education, previous technology experiences and beliefs on the utilization of technology-rich lesson plans. By examining the reasons, ways, and influences for using technology-rich lessons shared by the eight volunteer teachers, I satisfied both my intellectual and professional goals for this study. The findings in the study can help to promote the increased use of technology-rich lessons in the classrooms in Amberville and other schools nationwide.

I sought to answer three questions about teachers and technology use, including:

1. How do these teachers perceive integrating technology into their lessons?
 - a. Do they value technology?
2. How do they understand that technology integration occurs?
 - a. How do they integrate technology into their lessons?
3. How has their perception of the influence of technology on student learning changed?
 - a. What caused this change?

The discussion of the study follows the main themes that emerged from the analysis of data in the process of answering the research questions. I have organized my

findings under five categories:

1. Motivation to integrate technology
2. Preparation for computer use
3. Confidence and comfort with computer use
4. In house support for technology integration
5. Attitude toward technology use

Theme 1 – Motivation to integrate technology

The question regarding teacher perception of technology integration: “How do these teachers perceive integrating technology into their lessons?” focused on the concept of ‘technology.’ The inclusion of this question was based on the assumption that teachers would have different perceptions of what technology integration looks like in their classroom (Swain, 2005).

Generally, as Bob said, teachers perceive technologies as “PowerPoint and the projector used in class... You Tube videos, videos that are gotten from other sites, like united streaming online and also music taken from online.” In his effort to integrate computers into his classroom, Bob finds materials created by other educators and historians to share with his students from online sources. He recognizes the positive impact of technology on his students’ learning as the emotional impact of experiencing history. Bob feels that the videos that he shares with his students help them because “students are seeing it, not on a black and white page. They are seeing it with somebody who is sitting there with them. It goes from it being text on a piece of paper to flesh and blood. That is probably the key.” Bob’s enthusiasm about his topic and his desire to

reach his students encourages him to use technology in order to present engaging lessons that his students will remember.

Delores is quite proud of her kindergarteners' ability to "do our morning calendar on the SMARTboard ... it's very easy because when we want to check the weather it's hyperlinked to the internet. So they know that when they click a button it will go to Weather.com." For Delores, this is described as a technology-rich lesson. As we talked, Delores shared her feelings about how important the technology that she integrates in her classroom is to her and how important she feels it is to her students' learning. Because she says that she thinks the technology is good for her students she encourages them to learn how to use it on their own, as much as she can. "My students are able to use the SMARTboard independently to where I'm more of a facilitator and it's more like student-led instruction for part of the day and without technology, I'm not so sure that they could do that without me."

Marcia describes her Phineas and Ferb themed Geometry lessons as technology-rich. She uses the SMARTboard to present her lessons in a format that is engaging to them. Marcia has planned the entire lesson on angles, using images and sounds from a popular children's show. The students use technology to learn the lesson, including "sorting things on the SMARTboard and reviewing." Marcia finds that the technology provides an opportunity to engage students, "you have the visual... you have the kinesthetic... obviously, I am talking to them about it... auditory... so it's hitting on a lot of different modalities." In addition to speaking about the multiple modality benefits that she finds through using technology, Marcia recognizes the advantage of the ability to

differentiate the lessons to students learning at a variety of paces. She creates technology-rich lessons that engage students to learn at their own pace and level. During her interview Marcia indicated, “I think that at this point, if they take my SMARTboard away I wouldn’t know what to do [laughter]... I would be kinda lost.” She recognizes the positive impact that technology has on her lesson planning abilities and the long term benefit that it has to her students.

Bryan discusses integrating technology because he believes that the students already know about technology and are using it outside of the classroom. He says that “education is always based off of information that students already know and current experiences that are occurring outside of the classroom. So, now you have technology as being pushed by the evolution of smart phones, evolution of computer operated devices.” Bryan uses the students’ familiarization with technologies to introduce lessons in a format that will be comfortable and interesting for the students. He also feels that the hardware and software available forces teachers to learn and utilize available technologies in order to “bring forth lessons into the student’s life.” During his interview, Bryan discussed his belief that teachers use what students already know and believe in in order to build lessons.

Courtney is interested in integrating technology into her daily lesson plans. She uses technology with her lessons in order to reach a diverse population of learners. She feels that “the technology has really helped me with my pedagogy insofar as reaching all the different learning styles.” As she integrates technology, she asks herself, “how can **this** technology help me as far as move them from my spectrum of knowledge to

synthesis, from analysis to synthesis?” Courtney is interested in constructing effective lesson plans as she asks herself, “how can I use technology to reach as many of my learning styles as possible?” Courtney doesn’t just want rote learning. During her interview, Courtney shared that she wants technology to be connected to the students in a way that is relevant and transferable to the real world. She also said that her current lesson planning, including technology, has long-term benefits for her students’ learning. Courtney doesn’t worry that she is sometimes behind her colleagues, in the pacing of the course. When asked about the benefits of using technology with her students, Courtney shares, “ I don’t have to review as much. So, that’s where I start getting on pace, because my kids having used technology have infused the knowledge, so by the end of the year, they don’t need to have that constant review and drill and kill.” Courtney is sure that her students learn more through her methods of technology-infused lessons. She says, about her lessons, that she has “enough confidence in my teaching to say but that’s ok, because my students are truly going to learn and understand this and be able to apply it and more so than ever, retain it. So, when the recall comes, they’re going to do well.” Using technology is a choice that Courtney feels is in the best interest, overall, of her students.

When discussing technology and her lessons, Marly expresses the importance that interactivity of technology plays in her technology-rich lessons. She feels that technology offers an opportunity for students to have positive social and physical interactions. She uses technology in order to simulate real world experiences in class, with her students. Simulating the world allows the students to learn “simulation first then they do the actual dissection. So, they know how to do it.” The technology used in the

simulated dissection lesson that Marly does with her students helps them to learn how to do a real dissection. Marly enthusiastically encourages her students to be prepared for dissection by exploring a simulated one. She also has them work through a plant growing simulation program. Using the program, the students provide the nutrients necessary for plant growth, using a computer-based simulation program.

Nancy uses technology when she feels that it will make learning a lesson easier. Her lesson on angles, arcs, and segments and circles eliminates the guesswork for students as they have the software determine measurements for them. Because software can make the calculations for them, students can focus on the goals of the lesson. The technology, Nancy feels, is a “hook to get the kids into” the lesson. She doesn’t use technology for everything that she teaches, but recognizes that the technology makes learning more engaging for her students. She also recognizes that the technology that she uses can help to make difficult calculations easier for her students. According to Nancy, “I really think for things that are tedious, by hand, but can be done on the computer, the kids can see the differences or the effects of different things, quicker.” Using technology makes her students’ learning deeper and reduces the stress of tiresome calculations that distract from the complex learning objective of some lessons. Making lesson objectives accessible to her students is a reason why Nancy integrates technology into her students’ learning environment.

Patsy uses technology in her lesson plans when she wants to enhance student learning. She also wants her students to enjoy the freedom of integrating their creativity with technologies available to them. Patsy speaks about the relevance of technology in

student learning to the purpose for what they are doing during a technology-rich lesson. She also said that she uses the technologies with which her students are comfortable and familiar. According to Patsy, technology should enhance a lesson. “I think that there is a balance between using the technology so that you don’t have to do something.” She realizes that some technologies may make teachers make the decision to use them because they can substitute for instruction. She realizes that some may “just give them a computer” and fall into the “let’s just keep them busy mentality.” Technology is good for instruction and student learning, but “there has to be a purpose for what they are doing.”

Theme 2 – Teacher Preparation for Computer Use

The interviews and survey data provide evidence of the teachers’ technology integration beliefs. A teacher’s likelihood to design technology-rich lessons highly depends on their preparation for computer use. This preparation for technology integration into the classroom has come in a variety of forms. I have labeled these Prior Computer-Based technology training and Professional Development technology training.

Prior Computer-Based technology training is training that teachers have experience before accepting positions as teachers within the County. This training is often done as teachers were students in undergraduate and graduate courses. Prior Computer-Based technology training is designed to support the learning of materials and may also be used as ways to demonstrate mastery of a course. Whether writing a paper using software on the computer or creating PowerPoints and videos, teachers who have experienced Prior Computer-Based technology training have had personal experiences with technology that make going into the classroom and expecting their students to use

technologies in much the same way less threatening. The outcome of this experience usually had the outcome of making the development of technology-rich lessons, by teachers for their students, more realistic. Students can be taught to use the internet to research concepts. Then, they can use word processing software to write, edit, and publish papers. They can also be taught to use spreadsheet software to manage data with numbers. Technology can make the products that the students create have a more professional appearance. Students can provide evidence that demonstrates their understanding of a topic. Oftentimes, students work collaboratively with their classmates and are given the opportunity to present their work to others.

Professional Development technology training is a term that refers to a variety of methods used within the County as a form of professional development focused on technology training. Professional Development technology training allows teachers to develop the skills and comfort of working with various technologies that can be used within the classroom. Teachers can pick and choose among a variety of classes to take, based on their technology background. Some teachers use the Professional Development technology training as a starting point for technology integration preparation. This preparation is usually in the form of learning how to access and navigate the internet, develop power point presentations, compose and edit using word processing software, and an introduction to variety of other technologies.

Additionally, professional development in the form of technology training usually is designed to expand the teachers' abilities to use the technologies available within the County. Many teachers would not be aware of the technologies available to them without

the Professional Development in the form of technology training classes. These trainings, organized by the school-based ITRTs usually give teachers instruction and hands-on training with the use of Blackboard, the SMARTboard, using Geometer's Sketchpad, and a variety of software applications.

Teachers often combine their prior knowledge of technologies with their exposure to new technologies through the County-based professional development classes as they create technology-rich lesson plans. Though the range of technologies represented by the teachers in my study went from calculators to the SMARTboard, the technology-rich lessons tended to use fairly traditional classroom technologies as new, engaging ways to present notes and basic information to students.

Theme 3 – Confidence and Comfort with Computer Use

Table 2 presents the results of the Perceptions of Computers and Technology Survey as they relate to the teacher participants' attitudes towards computer use that indicate comfort and confidence with computer use. This information, along with interview information is used to discuss the teacher participants' attitudes.

Table 2

Teachers Attitudes toward Computer Use

Computer skills will help me as a professional	strongly agree	4/8	50%	agree	4/8	50%							
Computers enhance classroom instruction	strongly agree	1/2	50%	agree	4/8	50%							
Computers diminish my role as a teacher	strongly disagree	7/8	1%	disagree	1/8	12.50%							
Computers enhance classroom instruction	strongly agree	7/8	1%	agree	1/8	12.50%							
Computers should be incorporated into the classroom curriculum	strongly agree	5/8	1%	agree	3/8	0.38%							
I feel pressure from others to integrate the computer more into my classroom	strongly disagree	1/8	13%	disagree	3/8	0.38%	agree	3/8	0.38%	strongly agree	1/8	13%	
More training would increase my use of the computer in the classroom				disagree	1/8	13%	agree	3/8	0.38%	strongly agree			neutral 4/8 50%

Based on their responses to the Perceptions of Computers Survey and supported through their interviews, half of the teacher participants strongly agreed that they feel that having computer skills will help them as a professional and the other half agreed the same. The survey responses indicated that the computers enhance the instruction for all of the participants, but all of them indicated that the computers do not diminish their role as a teacher.

The teachers indicated that computers enhance classroom instruction. Patsy, for instance indicated that the computers offer opportunities for, “the students to practice and explore in a way that... in a way that they are comfortable.” She enjoys integrating technology in lessons for them because she is sure that her lessons support student learning. Bob discussed converting his low-tech lessons to PowerPoint lessons in order to keep his better lessons accessible to his students. He is very comfortable finding

videos, music, and interviews online and often has to reduce the amount of material he shares with his classes because of time constraints. Bryan self-reports being pretty computer savvy. He enjoys integrating technology in creative ways for his students and feels that his comfort level encourages him to use technology in a variety of forms as a part of his lessons.

Courtney is extremely comfortable with all forms of technology, having her students use it in a broad range of situations from calculators to motion detectors. Her relaxed approach to technology integration has her investigating to find a variety of technology sources within her school. When asked about her interest in technology integration, Delores indicated that she is considering a Master in Technology, because she is so comfortable with instructional technology tools and technology integration. Delores likes that her students can observe her using the technology during a lesson, “they picked it up and now they can do it,” she states. Her confidence with technology seemingly transfers to her students as they are engaged in the technology-rich lessons that Delores plans and executes.

Theme 4 – In House Support for Technology Integration

Based on the participants in this study, the support within the school for technology and its integration is critical in the writing of technology-rich lessons. Patsy eagerly stated that the support of her school’s administration is significant in facilitating technology integration. In her school, time is allotted when teachers can come together to discuss lesson plans and to share technology-rich lesson ideas. This time is mandated. Without it, Patsy implied, teachers would not take the time necessary to investigate

technology integration. Patsy spoke of taking the time to “totally retool a lesson to integrate more technology for the upcoming school year.” Without the administration requiring the time be spent totally on technology integration, these teachers would be spending their time doing whatever seemed best suited. Which, for many, Patsy indicated, the time would not be spent on technology-rich lesson planning. Many chose to use the technologies for drilling facts, like the teacher who uses the computer “to record the spelling words and then the kids can just sit at the computer with the headphones.”

Talking with Bob about his access to the technologies that support his technology integration into his daily lessons, he stated that a “lack of computer resources” kept him from following through on many of the ideas that he has for his classes. “One thing that I always run into at the end of the year when I’d like to do technology projects...the computers are all lined up for SOL testing and they aren’t available for me. I’m already looking into that now, and that could be a problem at the end of the year. I’d love to use it more, but time is the biggest constraint on me from using it more

Unfortunately, Marly is at a school that is currently “unplugged.” She indicates that she “cannot really use as much [technology] as I want. Like, phones. There are phones that they can share with peers. There is an app. But, I cannot use it because we are unplugged.” This type of disconnect from technology is hurting her instructional practices. Marly spoke about the different lessons that she has written in the past, lessons that allows the students to explore outside of the classroom. With this type of limitation, teachers like Marly and her students’ learning suffer.

Theme 5 – Attitude toward Technology Use

Table 3 contains the results of survey questions related to the teacher participants' attitudes towards computers use in technology-rich lesson planning. Through the answers that they provided on the Perceptions of Computers and Technology Survey the teacher participants shared their attitudes towards computer use. When asked if they feel that computer use is just another fad, seven of the eight participants indicated that they strongly disagree, the final participant indicated that they disagree. These responses indicate that the participants don't feel that computer technology use in the classroom is a practice that has developed in the classroom that will be followed for a period of time, build in popularity before fading quickly when the novelty is gone. Through their interviews, all of the participants indicated that they believe that computers and technology, albeit constantly changing, will be around and available for their students beyond school and into their workplace. Research focused on a teacher's willingness in technology adoption list both attitude and perception as indicators.

Table 3

Teachers Computer Use

Computer instruction is just another fad	strongly disagree	7/8	1%	disagree	1/8	12.50%			
Computer skills are essential to my students	strongly agree	6/8	1%	disagree	1/8	12.50%	agree	1/8	13%
Computers enhance classroom instruction	strongly agree	4/8	50%	agree	4/8	50%			
Computers should be incorporated into the classroom curriculum	strongly agree	5/8	1%	agree	3/8	0.38%			

I believe that teachers whose perception is that technology is beneficial and worthwhile will have a positive attitude towards technology integration. Six of the eight participants strongly agreed that computer skills are essential to their students, on their responses to the Perceptions of Computers and Technology Survey. One of the participants agreed and one disagreed that computer skills are essential. Since six teachers believe that computer skills are essential, then they are more likely to integrate technology. All of the teachers who I interviewed expressed varying degrees of enthusiasm about integrating technology frequently and with some degree of variety.

Patsy introduces and uses technology with her students because it is a safe environment for her students to learn how to use technologies that are similar to those they will face in the real world. Bob's students are exposed to internet-based information that supports their learning. They quickly learn to infuse their own videos, interviews, and music into projects that they do for their assignments for Bob's class. During his

interview, Bryan discussed how “technology is forcing the teacher to take and utilize this hardware and software that is just general use and try to use it to bring forth lessons into the student’s life.” Students are exposed to technology in his classroom prior to having to use it in their lives following graduation.

In addition to using the technology in order to reach multiple modalities, Courtney states that, “You cannot teach in a vacuum of not having technology. It would be analogous to saying I’m going to teach you how to write with coal and chalk on a slate and still show me those same concepts ... they’re not going to be ready to use pen, in the real world.” Her students have the benefit, she believes, from the exposure to technology in high school. In her classroom, Delores states that her kindergarten students benefit from technology integration because, “they have a better understanding of what the internet can do.” Their experiences with technology will support their being prepared for a technology-rich environment in their futures.

CHAPTER SIX: DISCUSSION AND IMPLICATIONS

Whether it is through a County-appointed Technology Resource Teacher, a colleague, the school administration, or through a teaching cohort as Christensen (2002) and others have identified, “support is an influential factor to practice” when addressing technology integration. All of the teachers in this study identified various degrees of support in their schools. Many schools have a plethora of hardware from which teachers can select.

Swain offers that teachers use technologies in traditional areas. The task ahead is to help teachers to “move beyond this point to more advanced stages that will lead to changes in daily teacher practice.” Teachers continue to integrate technologies as they support teacher-directed instruction (Ertmer & Ottenbreit-Leftwich, 2010). These “low level” uses described by Ertmer and Ottenbreit-Leftwich tend to include PowerPoint to present a lesson or searching the web to research a topic. This ‘low level’ use (Delores using weather.com), as described by Ertmer and Ottenbreit-Leftwich, introduces her kindergarteners to online research.

Wozney, Venkatesh, and Abrami posit that “as teachers gain experiences with computer technology their use in the classroom evolves into using more computer applications, more often and more flexibly. As experienced by Glassett and Shrum in their two-year MINTY project in which “the students seemed to care more, were more

often engaged, and were less likely to cause disciplinary issues”

Some of the more common barriers to technology integration identified are: lack of time; lack of quality training; fear of computer technology; lack of computer technology equipment; and lack of instructional resources (International Association for the Evaluation of Educational Achievement, 2005; Becker, 2000; Littrell, Zagumny, & Zagumny, 2005; Thomas & Hong, 2013).

Conversely, several studies have identified factors that have facilitated computer technology integration: quality training; leadership; access to computer technology; mentoring; and others (Ertmer & Ottenbreit-Leftwich, 2010). The participants of this study identified the most significant factors hindering the integration process as: insufficient training and practice time, lack of time for planning, and avoidance of computer technology integration mishaps. These factors have been previously identified in earlier studies found in the literature (Littrell, Zagumny, & Zagumny, 2005; Zhao, 2001; Thomas & Hong, 2013).

A factor identified by teachers in this study was the impact that the Virginia Standards of Learning tests have on the integration of computer technology into the classroom. Teachers feel that they must limit their instruction to specific standards identified in the Standards, eliminating opportunities for students to explore through other means of learning. One other study found in the literature identified standardized testing as a factor hindering the integration process (Eteokleous, 2008).

The teachers participating in this study indicated that preparing for the state mandated assessment had a significantly negative impact on technology integration into

instruction. It is clearly identified in the literature related to high stakes testing that high stakes testing has created a situation where teachers are feeling extraordinary pressures. In response, many teachers have limited their instructional focus to the content and format found in the assessments (O'Neill & McMahon 2003).

Thomas Friedman (2005) has reinforced that schools will continue to play an important role in the increased use of computer technology by students. Friedman said, "I really believe that the role of schools and interaction and teachers and what you called the second tier players are still going to be very, very important for a long time." He has strongly suggested that American students who do not learn how to navigate in a global economy using computer technology will not be able to compete and end up losing many opportunities to students from other parts of the world that are able to navigate (Friedman, 2007). Further, it is imperative that they exercise this influence fully." Zhao, Pugh, Sheldon, and Byers (2002) similarly found that although schools have computers housed in laboratories, teachers might not have easy access to them if they needed to compete with other teachers for laboratory time.

Implications of this Study

The teachers in this study confirmed the findings of Windschitl and Sahl (2002) and Cuban (2002) in that technology-using teachers' instructional technology decisions are mainly related to their belief systems. It didn't seem to matter which technologies were present nor did it matter how many were available, the teachers consistently used the technologies in manners that were most comfortable to them. Their experiences and training with various technologies supported their technology-rich lesson planning. The

study supported, that for this school district, the findings that neither abundance of ubiquitous technology nor teachers' frequent use of instructional technologies changed or transformed teaching into more "constructivist" or student-centered practices, a finding made by Becker and Ravitz (1999) and Ravitz, Becker, and Wong (2000). Of the participants in this study, Bob indicated a desire to make the students' learning experiences more student-centered, but the time required to do that is not available. He feels that he must keep his students moving forward in the course in order for them to be prepared for the end-of-course state assessment.

The teachers in this study have been identified as teachers who are regularly integrating technology into their daily lesson plans. They have overcome many of the obstacles of lack of preparation, inadequate professional training, limited resources, and institutional support and are forging ahead with the technology integration that helps their students to learn. Though each has approached the goal of technology integration in his or her own way, each has expressed a desire to continue to integrate technologies. Many are spending their own time, beyond the time provided by their institutions, to plan technology-rich lessons designed to engage and enrich students. I believe that increased resources are warranted to allow teachers such as these to continue to successfully integrate technology-rich lessons into their daily practices.

Limitations of this Study

Generalizability. The participants in this study work in a County that has its own set of working conditions. The schools each have a varying amount of technologies available. Working with eight study participants also makes the findings confined to the County. I feel confident, though, that similar school districts might find the findings relevant and informational in terms of how teachers are integrating technology into their daily lessons. The study emphasizes the individuality associated with technology integration.

I believe that technology rich lessons are essential in effectively teaching in today's classrooms. Technology can be used to engage students and to make their learning relevant and meaningful.

Recommendations for Further Research

This study revealed that the teachers who participated chose to integrate technology into their daily lesson plans in order to make learning engaging and relevant for their students. They used their prior knowledge of technologies as well as the training that they received through the County in order to write technology-rich lessons. Since time is so limited in education, I believe that a future qualitative research study that looks specifically at teachers who are willing to invest time in order to develop skills on various technologies would be beneficial. What do teachers perceive to be the benefit of various technologies? This type of research would require a careful study into the teachers' technology background, different learning goals, and the training outcomes. Understanding teacher perceptions of technology integration would be helpful in

designing future professional learning experiences that promote technology-rich lesson planning.

Additional future qualitative research similar to the scope of this study but within another district would be beneficial to see if the results of this localized study are similar to other school populations. Also, a follow-up study using quantitative and statistical methodologies should be undertaken to determine to what degree the findings of this study reflect the larger group.

APPENDIX A

SUITABILITY OF PORTRAITURE AS MY RESEARCH METHOD

I. What is portraiture?

Based on a description provided by Davis and Lawrence-Lightfoot, “portraitists seek to record and interpret the perspectives and experience of the people they are studying, documenting their voices and their visions – their authority, knowledge, and wisdom” (Davis, J.H., & Lawrence-Lightfoot, S., 1997). The portrait that is created describes an individual in the context within that person’s experiences and considers their emotional, physical, and situational being. When the analysis of a portrait is done, the impact of all of these aspects of the individual’s existence in the context is considered.

The narrative focus of portraiture provides an opportunity for a broad use of symbolism and metaphor. The audience is inspired to think deeply on the issues that are important to them. Joseph Featherstone (1989) describes the impact of portraiture as giving “voice to a people’s experience.” He discusses the act of portraiture as “expressing complex truth and moral context in intelligible ways.” The portrait creates a narrative that reveals “the dynamic interaction of values, personality, structure, and history” (Davis, J. H., & Lawrence-Lightfoot, S., 1997).

The portraiture approach to research is in contrast with the positivist paradigm in that the latter views that context can potentially distort, distract, or confuse, preferring the laboratory to isolate and purify the human experience while portraitist see the natural environment as a resource. To the portraitist, context provides clues that are valuable in understanding how subjects negotiate and understand their experience. The portraitist watches, listens to and interacts with the subjects of her study over a period of time, putting together the emergent themes, as an artist might (Davis, J. H., & Lawrence-Lightfoot, S., 1997).

Davis and Lawrence-Lightfoot (1997) describe that the traditions and conventions of the phenomenological paradigm frame the portraiture method of research, using a similar approach and criteria of ethnography while its focus is on bringing together narrative and analysis with the goal of engaging a broader audience, beyond academia. The portraiture standard has the goal of accuracy in fully representing a situation versus reliability and validity. The portraitist works much like a novelist, developing a scene, describing the characters and their relationships, and tracing an entire story, bringing familiarity to readers. A connection between portraitist and reader is a goal.

The relationship between the portraitist and the subject is important, as the two construct meaning from a shared experience. This meaning is negotiated by the subject and the portraitist, the portraitist serving as an interpreter. The context of the experience is significantly linked to the content and may provide understanding to the whole. The context the portraitist presents may include “the subject’s history, background, or location” (Davis, J. H., & Lawrence-Lightfoot, S., 1997). As an artist does, the portraitist

must determine, for the sake of balance, what to include in the narrative in an effort to provide coherence.

II. Appropriateness of Portraiture for a Study of Classroom Teachers

For my proposed study of classroom teachers, portraiture is an appropriate research method because I would like to do a qualitative study of teachers' attitudes about writing technology-rich lessons so that I might capture the experiences that frame their decisions. These decisions may be products of several aspects of the teachers' daily lives, including environment, collegial relationships, intrinsic and extrinsic motivators, technical support (ITRT), and administrative influence (both positive and negative). Many of the studies done on teachers' attitudes about technology integration focus on what tools are being used rather than how the tools are being used and why they were chosen. I would like to expand the understanding about teachers and technology by researching their decision making process.

There are several aspects to technology integration into the classroom. There are also degrees of integration. I would like to address the goodness in the integration, not simply the volume type of integration. The term that I have chosen to address with my research is "technology-rich". I want to study how the technology chosen was decided upon and the degree to which the teacher feels the technology was effective in supporting specific learning. As I approach the research from the perspective of a portraitist, I will seek to "document and illuminate the complexity and detail" of the teachers' unique experiences, a process described by Davis and Lawrence-Lightfoot (1997). I am interested in allowing the reader to see herself reflected in the experiences of the teachers

and to reveal similarities. By retelling the stories shared by teachers about their technology integration experience, other teachers might feel “connected or identified with the story being told.”

I will use portraiture because it offers the opportunity for me to support the reader as she develops an understanding of the study participants’ perspectives. Through my study, I will seek to understand what the “truths” are to the participants’ situations, what “goodness” exists there, along with the “weakness and imperfection”, while developing a true picture, full of the complexities of life. The portraits that I develop can be shared with other teachers, who may have similar experiences.

Developing relationships with teachers who have integrated technology into their lessons will support my interest in better understanding how technology can most effectively be included in daily lesson plans. Through these relationships, I will be able to more fully understand the issues surrounding technology integration. My research can have meaning beyond my dissertation if teachers can relate to the portraits gathered and ITRTs can better understand the classroom teachers’ perspective of technology integration.

APPENDIX B

TEACHER INTEREST EMAIL

This email will be sent to all teachers referred by Instructional Technology Resource Teachers in order to determine who is interested in participating in the study.

Dear (Teacher's Name),

I am contacting you because I need your help. I am working on my Dissertation at George Mason University and am trying to get some teachers to participate in my study about technology integration. I have been told that you are a teacher who recently worked with or wants to work with an ITRT. My goal is to learn how teachers feel about integrating technology into their daily lesson plans with the support of an instructional technology resource teacher. The information that I collect from this study will be used to fulfill my dissertation requirements.

Your responses will remain anonymous and no one will know who you are because I will assign a pseudonym in place of your name on all survey materials and notes related to this study. I will not do anything that might reveal any information concerning your current school and position. I would like to audio tape interviews to help me keep up with facts that I gather, but if you prefer not, you may refuse. The information gathered from the interviews will not be used for any other purpose. I will only need two or three interviews with you, which should take between 30 minutes to one hour to conduct. I would also like to observe you as you introduce your lesson to students. This observation should last approximately 30 minutes.

If you are willing to participate in my study, please contact me so that I might talk with you about my research, make arrangements for you to complete a survey to begin my information gathering, and to schedule an interview. If you have any questions, please do not hesitate to contact me at nsummerv@gmu.edu or 540-846-0039.

Thank you,

Natalie N. Summerville

APPENDIX C

INFORMED CONSENT FORM

Teachers Perceptions of Including Technology-Rich Lesson Plans as Part of Their Daily Instructional Practices

Informed Consent

RESEARCH PROCEDURES

This research is being conducted as part of the requirements of the Doctor of Philosophy in the College of Education and Human Development of George Mason University. If you agree to participate, you will be asked to complete a 10-minute survey about your current instructional technology usage. You will also be asked to participate in 2-3, 30-minute interviews.

The first interview will help me to gather information about your technology background and practices. The interview will contain questions that will explore how you perceives various things influence your instructional practices, how you decided to use the instructional technology resource teacher, how your thoughts about the planned lesson were influenced by meeting with the instructional technology resource teacher, and your views on the role of instructional technology in learning environments, and your lesson planning preferences.

If you have not already met with the ITRT to talk about your technology-rich lesson, I will interview you, with the ITRT, as you discuss your technology-rich lesson plan. This interview should last approximately 30 minutes.

I will observe you as you introduce your technology-rich lesson to a class. This observation will last approximately 30 minutes.

Subsequent interviews will be used to clarify information following your meeting with the ITRT and the presentation of your technology-rich lesson.

RISKS

There are no foreseeable risks for participating in this research.

BENEFITS

There are no benefits to you as a participant other than to further research in instructional technology.

CONFIDENTIALITY

The data in this study will be confidential. A pseudonym will be assigned to all materials that you complete. If you choose to participate in audio-taped interviews, this

pseudonym will be used to log and maintain records of the interviews. If you agree to observations, all field notes memos will contain the pseudonym. Tapes and notes will be in a locked file drawer when not being used by the researcher. While it is understood that no computer transmission can be perfectly secure, reasonable efforts will be made to protect the confidentiality of your transmission.

PARTICIPATION

Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party. To compensate you for your participation, you will be given a gift card for a complimentary beverage from a local coffee shop.

CONTACT

This research is being conducted by Natalie N. Summerville, PhD Student at George Mason University. She may be reached at 540/846-0039 or nsummerv@gmu.edu for questions or to report a research-related problem. The faculty advisor for this research is Dr. Joseph Maxwell of George Mason University. He may be contacted at jmaxwell@gmu.edu. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

_____ I agree to audio taping.

_____ I do not agree to audio taping.

I would like to be contacted to continue in stage 2 of this study. _____ I agree.

Name: _____

School: _____

Email Address: _____

Phone Number (optional): _____ [] cell [] home [] other: _____

Version date: 07-22-2011

APPENDIX D

PERCEPTIONS OF COMPUTERS AND TECHNOLOGY SURVEY

Perceptions of Computers and Technology Survey

Purpose: This survey is designed to gain a better understanding of how educators use technology in the classroom and their level of experience with computers. The survey includes sections addressing level of confidence, skill, support, and uses of computers and technology in teaching. Responses will be kept strictly confidential and individual responses will not be identified or reported. Your participation is voluntary.

Thank you for your time and interest.

Average number of students per class: _____

Number of computers in your classroom used for instruction: _____

How many years have you been using computers in your classroom for instruction?
_____.

Do you have access to a computer lab? _____ Yes _____ No

If yes, how many hours each week do your students use the lab? _____

TEACHER PREPARATION FOR COMPUTER USE

Directions: For the following items please use the following scale to circle the one response that best reflects the extent to which you've acquired computer skills from the following sources.

- 1 = not at all
- 2 = to a small extent
- 3 = to a moderate extent
- 4 = to a great extent
- 5 = entirely

	Not at all				Entirely
As part of your undergraduate coursework	1	2	3	4	5
Inservice courses / workshops	1	2	3	4	5
Independent learning (e.g., online tutorials or books)	1	2	3	4	5
Interaction with other faculty / staff	1	2	3	4	5
Distance Learning courses	1	2	3	4	5

To what extent do you think the following types of computer education would be beneficial to you?

Introductory computer skills	1	2	3	4	5
Specific applications (e.g., spreadsheet, desktop publishing)	1	2	3	4	5
Specialized training on integrating the computer into the classroom	1	2	3	4	5

CONFIDENCE AND COMFORT USING COMPUTERS

Directions: Please read the statements below and use the following scale to circle the one response that best reflects your level of agreement.

- 1 = strongly disagree
- 2 = disagree
- 3 = neutral
- 4 = agree
- 5 = strongly agree

	Strongly disagree		Strongly agree		
I have had adequate training in using computers.	1	2	3	4	5
I use computers effectively in my classroom.	1	2	3	4	5
I am comfortable giving computer assignments to my students.	1	2	3	4	5
The computer enhances my teaching.	1	2	3	4	5
I am comfortable using computers during classroom instruction.	1	2	3	4	5
My use of computer technology enhances student performance.	1	2	3	4	5
Incorporating multi-media into lessons enhances teaching.	1	2	3	4	5
I am comfortable with computer terminology.	1	2	3	4	5
I am developing expertise in the uses of technology in the classroom.	1	2	3	4	5

GENERAL SCHOOL SUPPORT

Directions: Please read the items below and use the scale below to circle the one response that best represents your level of agreement.

- 1 = strongly disagree
 2 = disagree
 3 = neutral
 4 = agree
 5 = strongly agree

	Strongly disagree		Strongly agree		
I have adequate time to learn computer skills.	1	2	3	4	5
I have sufficient access to computers at my school.	1	2	3	4	5
I receive a sufficient level of computer related support at my school.	1	2	3	4	5
Faculty members encourage the use of computers.	1	2	3	4	5
The administration supports computer related training.	1	2	3	4	5
The administration actively encourages the use of computers in the classroom.	1	2	3	4	5
The administration actively encourages the use of computers outside the classroom.	1	2	3	4	5

TYPES OF SOFTWARE USED TO COMPLETE SCHOOL RELATED ACTIVITIES

Directions: For each type of software please circle your response to indicate how often you use the software with your students to complete school related activities. If you feel an item does not apply then circle (NA).

1. Word processors (e.g., AppleWorks, MS Word, ClarisWorks):

Not at all once a month or less once a week several times a week every day NA

2. Spreadsheets (e.g., Excel, Lotus)

Not at all once a month or less once a week several times a week every day NA

3. Databases (e.g., FileMaker Pro, Access)

Not at all once a month or less once a week several times a week every day NA

4. Desktop publishing programs (e.g., Pagemaker, Microsoft Publisher, Printshop)

Not at all once a month or less once a week several times a week every day NA

5. Presentation software (e.g., PowerPoint, Persuasion, Hyperstudio)

Not at all once a month or less once a week several times a week every day NA

6. Web publishing programs (e.g., FrontPage, PageMill, and Dream Weaver)

Not at all once a month or less once a week several times a week every day NA

7. Graphics programs (e.g., Draw & paint programs, PhotoShop, FreeHand)

Not at all once a month or less once a week several times a week every day NA

8. Drill and practice

Not at all once a month or less once a week several times a week every day NA

9. Games

Not at all once a month or less once a week several times a week every day NA

10. Simulations

Not at all once a month or less once a week several times a week every day NA

11. Tutorials

Not at all once a month or less once a week several times a week every day NA

12. Integrated Learning Systems (e.g., Josten, CCC)

Not at all once a month or less once a week several times a week every day NA

13. Web browsers (e.g., Netscape Communicator, Internet Explorer)

Not at all once a month or less once a week several times a week every day NA

14. Programming / authoring tools (e.g., Authorware, Java, Visual Basic)

Not at all once a month or less once a week several times a week every day NA

INTEGRATION OF COMPUTERS INTO THE CLASSROOM

Directions: Listed below are teaching modes in which computers may be used. Indicate how often you use computers in each teaching mode. If you feel an item does not apply then circle (NA).

- 1 = not at all
- 2 = once a month or less
- 3 = once a week
- 4 = several times a week
- 5 = every day

1. Small group instruction

Not at all once a month or less once a week several times a week every day NA

2. Individual instruction

Not at all once a month or less once a week several times a week every day NA

3. Cooperative groups

Not at all once a month or less once a week several times a week every day NA

4. As a reward

Not at all once a month or less once a week several times a week every day NA

5. Independent learning

Not at all once a month or less once a week several times a week every day NA

6. To tutor

Not at all once a month or less once a week several times a week every day NA

7. To promote student centered learning

Not at all once a month or less once a week several times a week every day NA

8. As a research tool for students

Not at all once a month or less once a week several times a week every day NA

9. As a problem solving/decision making tool

Not at all once a month or less once a week several times a week every day NA

10. As a productivity tool (to create charts, reports or other products)

Not at all once a month or less once a week several times a week every day NA

11. As a classroom presentation tool

Not at all once a month or less once a week several times a week every day NA

12. As a communication tool (e.g., email, electronic discussion)

Not at all once a month or less once a week several times a week every day NA

ATTITUDES TOWARDS COMPUTER USE

Directions: The following statements address general attitudes towards computer use. Please circle the one answer that best reflects your level of agreement.

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

1. I would like every student in my classes to have access to a computer.

strongly disagree disagree neutral agree strongly agree

2. Computer skills are essential to my students.

strongly disagree disagree neutral agree strongly agree

3. I feel tense when people start talking about computers.

strongly disagree disagree neutral agree strongly agree

4. I feel pressure from others to integrate the computer more into my classroom.
strongly disagree disagree neutral agree strongly agree
5. I would like my students to be able to use the computer more.
strongly disagree disagree neutral agree strongly agree
6. Computers are dehumanizing.
strongly disagree disagree neutral agree strongly agree
7. I avoid the computer whenever possible.
strongly disagree disagree neutral agree strongly agree
8. Computer instruction is just another fad.
strongly disagree disagree neutral agree strongly agree
9. The use of computers should be confined to computer courses.
strongly disagree disagree neutral agree strongly agree
10. I like using the computer to solve complex problems.
strongly disagree disagree neutral agree strongly agree
11. More training would increase my use of the computer in the classroom.
strongly disagree disagree neutral agree strongly agree
12. Computers diminish my role as a teacher.
strongly disagree disagree neutral agree strongly agree
13. Computers should be incorporated into the classroom curriculum.
strongly disagree disagree neutral agree strongly agree
14. Computers make my job easier.
strongly disagree disagree neutral agree strongly agree
15. Computers further the gap between students along socio-economic lines.
strongly disagree disagree neutral agree strongly agree
16. Computer skills will help me as a professional.
strongly disagree disagree neutral agree strongly agree

17. Learning computers make high demands on my professional time.

strongly disagree disagree neutral agree strongly agree

18. Computers change my role as a teacher.

strongly disagree disagree neutral agree strongly agree

19. I can help others solve computer problems.

strongly disagree disagree neutral agree strongly agree

20. Computers enhance classroom instruction.

strongly disagree disagree neutral agree strongly agree

APPENDIX E

TEACHER INTERVIEW SCRIPT

How old are you?

How many years have you taught full time? _____

What grade(s) and subjects do you currently teach?

Grade	Subjects	Number of Years

What grade(s) have you taught in the past?

Grade	Subject	Number of Years

Educational Background

Bachelors	Year Earned	Major	Minor
Masters			
Education Specialist			
Doctorate			
Certification			
Endorsement			
Endorsement			

Attitudes about Lesson Planning

What do you think is the most important part of a lesson plan?

Have you ever sought support/advice about lesson planning?

Have you ever had trouble with a learning environment?

What happened?

How did that incident impact your lesson planning?

Previous Pedagogical Practices

Tell me about a lesson that you have written that went really well.

What makes that a good lesson?

When you hear someone say that they have written a really good lesson plan, what do you think that they mean?

Previous Technology Integration

What role do you think technology should play in facilitating student learning?

Tell me about a good lesson that you have taught, using technology.

What makes that a good lesson?

Working with an ITRT

Why did you decide to use the support of the ITRT?

How did working with the ITRT change your lesson-planning process?

What factors do you feel were most impacted by your using an ITRT to do lesson planning?

What aspects of the school contributed to the effectiveness of your working with the ITRT?

How do you think the time that you take to plan lessons was impacted by your working on a technology-rich lesson with an ITRT?

What guided your choices of the technology to be used in the lessons you designed?

Administrative Support

In what ways do you feel your school supports your integration of technology into lessons?

In what additional ways would you like your school to support your use of technology?

How does the degree of support for technology integration in your school affect the ways in which you integrate technology into lessons?

APPENDIX F

STAGE COMPARISON CHART

Stage		Stage	Required Teacher Skills	Classroom practice and Structure	New and Experienced Teacher Standards	Learning paradigm
Stage	Activities					
<u>1 - Entry</u>	Plugging hardware together, installing and using software	Willingness to try!	N/A	10.1, 10.4	N/A	
<u>2 - Adoption</u>	Student and teacher use of technology to prepare documents, find things - basic tasks.	Basic hardware management, productivity applications - is comfortable using simple tools alone	Traditional Instruction	10.6	Teacher-centered, didactic	
<u>3 - Adaptation</u>	Use of technology to present materials and direct instruction.	Intermediate hardware and software use - is comfortable using the tools in front of students	Traditional Instruction	10.5, 10.6 (should include 10.2, 10.3, 10.10, 10.16)	Teacher-centered, didactic	
<u>4 - Appropriation</u>	Direct student use of technology in individual and collaborate projects	Must be comfortable in supporting student use of technology	Collaborative learning and student-centered project-based instruction	10.7, 10.10 (should include 10.8, 10.9)	Student-centered, collaborative	
<u>5 - Invention</u>	Supply new technology for students to select in projects and other work.	Must be able to design, appropriate, and assess new technology tools where appropriate for instruction	Student-directed instruction	10.12	Student-directed, discovery	

<http://teach.fcps.net/stt/>

APPENDIX G

INTERVIEW TRANSCRIPTS

BOB'S INTERVIEW

Bob02202012

1 *Well, thank you for doing this. How old are you?*

2 51.

3 *And, how many years have you taught, full time?*

4 Ah, eight years.

5 *What grades and subjects do you currently teach?*

6 I currently teach US History, General and AP US History... that will be grade 11.

7 *What grades have you taught, in the past?*

8 In the past I have taught grades 10 and I have had a number of seniors, also

9 *So, same subject?*

10 ... and a few 9th graders, too. So 9-12

11 *What is your educational background?*

12 Educational background... I have a BS in Marketing from Penn State University and a

13 Master's in Education from Mary Washington College.

14 *I think that's all I need...Ok, now we can get into the meat of the interview. What do you think is the most important part of a lesson plan?*

16 Most important part of a lesson plan... basically having a goal for the day. Having a
17 goal, in general, for the day that ties into the unit. You have to know where you are
18 going with it...

19 *Have you ever sought support or advice about lesson planning?*

20 I ... sometimes I have... But, I am very much... very possessive about my plans and I
21 like to work it out myself... which isn't always the best way to do it, but... sometimes, I
22 will seek it out. I work closely with a few colleagues in the History department that are a
23 pretty good team, with that. But, most of the things... most of the time I am doing things
24 on my own.

25 *Have you ever had any trouble in the learning environment?*

26 Such as...

27 *With the... trying to get a lesson across...managing the curriculum?*

28 I think so... I mean, everyone runs into problems every once in a while... a lesson just
29 doesn't take... doesn't come across appealing to the students. And, the curriculum that I
30 work with is so fast paced that I have to kinda bore right through it. And spend
31 ridiculously short periods of time on subjects that should require a lot longer time
32 periods. Um, so that comes into a bit of a problem there. So that can be a problem...
33 simply pace... it's so fast paced.

34 *Yeah, a lot of people are saying that. So, how does that impact your lesson planning?*

35 I just have to cut things real short. Ah, a lotta things like.. with history there's so much
36 available as far as videos, the time periods we talk about, the people we talk about. And,
37 ah, so many times, I'll plan those things to include that in my lesson, but I simply can't,
38 because I am running out of time. Things I need to cut. So, oftentimes I just get through
39 the basics and don't get to add those special things I'd like to. Especially the videos.

40 *Ok, tell me about a lesson that you've written that you think went really well.*

41 Uh, let's see. I think they all do... [laughter]... Well, generally, my lessons run the same
42 structure. I do a lot of Powerpoint, there are a lot of powerpoint notes. Some that I do
43 well with, I would say. I have those coming up here within the next week or so. Some
44 things on World War II. They come across very well because of the stories that I have to
45 go along with the history, itself. So, personal stories of the people who were involved
46 with, who I have come across. Talking with veterans and relating that to the students,
47 usually comes across. Anytime that I can make them... make it relevant to them, make it
48 real to them. When they know that I am emotional about that certain subject. When I
49 talk about D Day and point to Hawk, the US Army Raingers, I get emotional about it and
50 it relates to the kids and they remember it. In fact, I just, last week, I have a student who
51 I had, last year for World History, and I have her now for US History, and she brought up
52 the story for World War II that I was actually planning on relaying to the rest students,
53 next week, but she was so emotional about it yet this year, from hearing it last year. So, I
54 can related it as well. I can put those personal experiences in there that I've heard.

55 *So, that... it sounds that you are saying that that is what makes it a good lesson. What*
56 *makes it a good lesson?*

57 Making it relevant, I guess. The students are seeing it, not on a black and white page.
58 They are seeing it with somebody who is sitting there with them. It goes from it being
59 text on a piece of paper to flesh and blood. That is probably the key.

60 *When you hear one of your colleagues say they have written a really good lesson what do*
61 *you think that they mean?*

62 They've got the kids' attention. They've gotten the students excited about something.
63 That, to me, is what it means.

64 *What role do you think that technology should play in facilitating student learning?*

65 Technology... I think that there's a place... it has a place in the classroom. It can make
66 things more exciting. It can bring more things, especially visually, to the students. I
67 don't think that it is a substitute for learning and a good story, in most cases, but I think it
68 can add to, enhance, the story that is already there. In social studies, I know that that is
69 the case. I think it is very good for enhancing things in life. It's kinda like the stories. I
70 think seeing things with technology, can especially bring things to life, for the students.
71 It makes it real for them.

72 *So, you've told me that you use powerpoints and you use videos. Is that the extent to*
73 *which technology is in your lessons?*

74 I don't use it a lot, but I do use music. Especially with You Tube, now. There are so
75 many things are available with You Tube, now it's crazy. I have my students, now. I
76 encourage them, several times throughout the year, to look for things on You Tube, that
77 we might be able to use in class. Just the other day a student came in with a video that he
78 found about the Japanese internment in World War II. It's outstanding, I am planning on
79 using it in my classes in the next couple of weeks. Well, basically for technology-wise its
80 powerpoints and the projector I use in class, and the You Tube videos, videos that I got
81 from other sites, like united streaming online and also music I'm taking from online. One
82 other thing, too. I have a SMARTboard in my room, but I don't use it a lot except for
83 projecting on. But, one thing that I have done that works out well is that I have a random

84 name chooser on there for choosing groups on there and for test questions. The computer
85 automatically brings it up and the kids don't question it because the computer got 'em.
86 One other piece of technology, I forgot, that I use quite a bit. The students love it.
87 Jeopardy games for the class. Electronic Jeopardy games. Actually, my wife purchased
88 it for me to use with the class and I've used it for about six years or more, now. And,
89 students of all levels love it. My AP students, I've used it with them once or twice, this
90 year and they just went berzerk over it. They really loved it. And, it really sticks with
91 them when they are reviewing for tests. It really seems to stick with the kids. They get
92 very competitive with it.

93 *Do you ever have your students use the technology. It sounds like you're using it. Do*
94 *you ever have them do projects or assignments where they're using the technology?*
95 I have. And, again, time is the biggest thing. Right now, I'm looking at possibly doing
96 something like that with World War II. But, I have, in the past. Like powerpoint
97 projects, make movies, and done things online. Or, some classes have done
98 worksheets...kind of a search on the internet to find information on certain people. So, I
99 have done that, somewhat. But, time is the biggest thing there. And, also, lack of
100 computer resources. One thing that I always run into at the end of the year when I'd like
101 to do technology projects. The computers are all lined up for testing and they aren't
102 available for me. I'm already looking into that now, and that could be a problem at the
103 end of the year. I'd love to use it more, but time is the biggest constraint on me from
104 using it more.

105 *I heard you say powerpoints, overheads, and things like that. Have you always*
106 *incorporated some kind of technology? Have you taken a lesson that wasn't didn't have*
107 *technology and converted it?*
108 Not really. The overheads, I used those a lot before we got projectors in the classrooms.
109 As soon as I got the projectors in schools I started using them. I used them so much that I
110 couldn't get them every day, and after a while, I actually went out and bought my own
111 projector so I could use it in class for about a year. But, now since we have them all of
112 the time, that's the main thing that we use. And as far as incorporating something, I have

113 taken the overheads and incorporated them into the powerpoints. That's the way that I
114 have done that.

115 *Have you ever used an ITRT?*

116 A little bit. My wife being an ITRT, I use her knowledge quite a bit. But, in school, a
117 little bit, but not so much. A lot, I have been able to figure out on my own. I haven't
118 gotten too fancy with things, but I ... like the random name changer, the thing that
119 [Kathy] helped me with, to learn that. I haven't used the ITRT very much. They are
120 available, but the simple things that I have been doing, I have been able to figure out.

121 *In what ways do you feel that the school supports integration of technology? Do you feel
122 that you have school support the administrative support?*

123 Ah, it's there, yes, and with the SMARTboards in every room ... something that I
124 wouldn't have chosen probably for myself because of the little bit that I use it. I think
125 that there's support of the technology, in general. I think that the school system, with the
126 monetary constraints, we are really limited on the computers. That's the biggest
127 constraint. I'd love to see computers in the classroom for the students to use. Even a few
128 that we could even rotate on. It would be nice to have them in the classroom. That just
129 does not exist, at all, right now.

130 *What would you have the students do, on them?*

131 Searches, possibly doing homework. My AP Students do a lot of vocabulary work, all of
132 the time. All the stuff that they do at home on the computer, it would be nice to have
133 them be able to do that there. Even work in groups, for projects. If I had something like
134 that, it would be more easier to do hands-on projects with students.

135 *So, you just answered my next question. Do you feel that the absence of access to laptops
136 has effected how you are teaching your course?*

137 I think it would change it, if I did have them, a bit. Again, I am kinda set in my ways in
138 the way that I been doing things. But, I think it would change things. I think it would
139 open up to more assignments or maybe something a little smaller – with more focus. A
140 daily focus, that they might be able to use computer with. I think it would change it a bit,
141 but not a lot. I think I could tweak my lessons, but improve a little bit with computers.

142

143 *Do you share your lessons?*

144 Yes, absolutely. In fact, several teachers in the County, right now. I probably have sixty
145 powerpoints, or more that I am using in my US History class and a number of teachers
146 throughout the County, right now have my powerpoints... some of them are posted
147 online – our SCORE system, others, teachers have asked me about them. Other schools,
148 they have just started teaching , they’ve heard about my powerpoints, and asked, “can I
149 have them” So, there have been some exchanges of information. So, yes, I do share
150 them, quite a bit.

151 *Thank you, very much... this is really what I needed. I want to ask you one more question*
152 *that is not on my interview sheet. That is what process do you use. I know you say that*
153 *you have these powerpoints that you have used for years. But, when you sit down to*
154 *create a lesson, from the beginning, and you are trying to come across with a lesson that*
155 *you have to do, what do you do? How does that work?*

156 As far as the lesson, or the powerpoint?

157 *Starting with the lesson*

158 Curriculum map. I go to see what I need to do, according to the curriculum map... it is
159 pretty cut and dry. Days you should have things on ... the basic outline. So it’s the
160 curriculum map is where I start everything... be it the lesson themselves or the
161 powerpoints themselves, SOLs are driving everything. But, I use it as a basis and then
162 start expanding. I say I gotta touch these things and I have this many days to do it... so I
163 have to fit these things in here, now. I can often expand on those, within the time period.
164 *So, you then look and you say, I’m gonna make a powerpoint to do this, and I’m gonna*
165 *get some sound bites from that...?*

166 Yeah, as I go through it I say ah what do I have that can relate to this? Is there a song
167 that I can put in here that might catch kids’ attention? Is there some video that I found
168 talking about a certain person, talking about FDR or is there a video out there about him
169 that certain situation or one of the SOLs subjects that can deal with FDR. Then, I will
170 start looking for that to add to. Yes, it is starting with the SOLs and building up from

171 there. And, also, too, sometimes it may not be in the SOLs, but is related to the time
172 period and I will think, well, we can't skip over that ... you gotta know that part also.
173 And, so, I will bring that subject in that time period. But, it starts with the SOL and the
174 curriculum map... very driven by that.
175 *Thank you*
176

BRYAN'S INTERVIEW

BRYAN01232012

1 *How old are you?*

2 40

3

4 *How many years have you been teaching full time?*

5 15

6 *And you teach, uh, Biology?*

7 And basically, all of the sciences here .

8

9 *How many years did you teach Biology?*

10 Umm 1, 2, 4.... A total of probably 7 now.

11

12 *And, the other sciences?*

13 Uh... 8

14

15 *What grades are you primarily teaching?*

16 Uhm 9th and 10th grade

17

18 *Have you taught anything else, in the past?*

19 Besides science?

20

21 *Uh huh.*

22 A couple of math classes

23

24 *Oh, ok For about how many years?*

25 (sigh) about four years
26
27 *What grade?*
28 Uh middle school
29
30 *Ok, what is your educational level?*
31 Masters
32
33 *OK. When did you earn that?*
34 Uh... April of two thousand eleven
35
36 *What did you major in?*
37 Uhm, school administration
38
39 *Nice. Did you have a minor?*
40 No
41
42 *Alright... What do you think is the most important part of a lesson plan?*
43 Um... of a lesson plan is actually going to be uhm... the content you're covering, and the
44 material
45 *Have you ever gotten any support... actually have you looked for support about how to*
46 *do a lesson plan?*
47 Um... yeah, I get support from my um colleagues and from um... my um...other....
48 teachers in my department.
49
50 *Have you ever had trouble within the learning environment?*
51 What kind of trouble are you talking about? Like?,,
52
53 *In terms of planning a lesson?*

54 Oh, in terms of planning a lesson... um (clears throat) yeah, because um sometimes the
55 content can be a little challenging for students because... in science...the... uh...
56 transition takes place in high school or middle school. That's why you find a lot of
57 students doing well... um... their ninth grade year but when they get to tenth grade they
58 have challenges because they've never seen the concepts in Biology over the past five,
59 six, seven years. Cause really k-8 when it comes to sciences is kinda recycled
60 information and then once they get to 9th and 10th grade, really 9th grade pretty much
61 Biology, 10th grade and Chemistry and Physics, and upper level sciences. It is totally
62 brand new information. And that's why students make it... have a hard time making a
63 transition into the higher level sciences. Especially if their math skills are not good.

64

65 *So how has that impacted your lesson planning? How has that changed how you go*
66 *about planning a lesson?*

67

68 Um, really...when I plan a lesson I build in more repetitive assignments... more
69 "touches" you can call it...more exposure to the same type of information. When I was
70 in a traditional setting, I made it purposeful for us to touch that content at least five times,
71 five different ways. Over the course of a lesson... they see it, they read it, they write it,
72 they talk about it in a group, and then possibly... hopefully, they can present it. And,
73 then, of course, they will be assessed over it. So, I intentionally, especially the two years
74 that I spent at Riverbend... we intentionally wrote our lesson plans like that... to have at
75 least five times that they would touch the material. We built in that repetitiveness...
76 uh...exposure to the material.

77

78 *Can you tell me about a lesson that you think went REALLY well?*

79

80 Uhm, I believe, probably...uh, the learning of cells. (clears throat) uhm, the cell is, you
81 know, the basic thing that you learn in Biology and the cell went well because um, you
82 use information that they currently have and you can it is cells are something that you can

83 make into a um tangible item... I can't think of the word that I am thinking about...
84 Concrete! That's what I am talking about, you know... build cells and then from building
85 the cells, even though they are microscopic, (clears throat) excuse me they're
86 microscopic, then you can create em in a life, or much larger way and then teach from
87 that standpoint where they can feel it and see it... yeah, I think that those lessons went
88 well with students of all levels due to the fact that they could actually touch them and see
89 them... then, compartmentalize the information of what the specific operations of each
90 part of the cell is supposed to do... and how they work together to form a...a larger unit.
91
92 *So, what makes that a good lesson, do you think?*
93
94 Uhm...I think it makes a good lesson because the student can can can grab hold and
95 retain the information...uhm, ... I be- I think that our jobs are to help students.. build
96 their knowledge base... and, to build a knowledge base, you have to have a level of
97 comprehension for it to be pertinent...so I think that when it becomes pertinent to them...
98 and important to them they transition all of the information from me to them or the
99 convection of the information from me, the teacher, or the information has to be well
100 defined has to be done for them.
101
102 *So, when you hear someone say that they have written a really good lesson plan, what do*
103 *you think that they mean?*
104 They mean that they're their... in that in the lesson that they have been able to convey
105 that message... that information and knowledge...uhm, with comprehension. You can
106 build a great lesson plan and go through the operational plan and the student doesn't
107 comprehend what you are doing... it is as if it were terrible.
108 *What role do you think technology should play in facilitating student learning?*
109 Over my past 15 years it has become a much more larger role of technology just due to
110 the fact that education is always based off of information that students already know and
111 current experiences that are occurring outside of the classroom. So, now you have

112 technology as being pushed by the evolution of smart phones, evolution of computer
113 operated devices. Because students are apt to... uhm... deal with these items outside the
114 classroom, so now, that has become a piece of common knowledge to that particular
115 student. So, just like they taught us when we first started learning education, when you
116 are doing the concrete learning, you take what they already know and apply it to
117 something new. So, now technology is forcing the teacher to take and utilize this these
118 these hardware and software that is just general use and try to use it to bring forth lessons
119 into the student's life.

120 *Can you tell me about a good lesson that you have taught, using technology?*

121 Uhm... well, let me see...here... uhm...all of my stuff uses technology...

122 (laugh)...uhm... [pause] ... I'm thinking... can we come back to that question? Let me
123 think about that (laughter)

124 *Yes... we have already talked about what makes a good lesson...Have you ever used the*
125 *support of an instructional technology resource teacher... ITRT?*

126

127 Yes, I have. Especially when... ah... a lot of the content was being transferred from hard
128 content to soft content. Yeah, the ITRT helped you to, first of all, one of the major things
129 about using technology is knowing how to use the technology... that's a fundamental
130 roadblock. If you don't have anybody skilled to use technology, they are not going to use
131 it. So, the ITRT comes in and teaches us how to use the technology. I tell you when it
132 went well when I used technology... we used technology to, uhm...study... ah... ah...the
133 science lab rules... we made videos... I don't know if you remember those videos...

134 *I thought that you had done something... but I wasn't...*

135 They made videos and we gave all the kids flip cameras... and they were supposed to
136 make their own videos... they were supposed to show us every... they were supposed to
137 show us ten things that you are NOT supposed to do in a lab environment (laugh)

138 *I can only imagine*

139 One of the kids went in there.. you know, we were downstairs, right? They just went and
140 pulled the shower down... water went everywhere! And it wasn't even in our lab... it

141 was in Ms. Mottsberry 's lab (pseudonym). But, but, you know.. it helped them
142 remember what not to do.. and that went very well. Especially the kid who took the
143 scalpel and stuck it in the outlet and it shocked him (laughter...) I got that on tape!! He
144 ended up transferring like the week after that, so I didn't have to worry about that... yes,
145 he was trying to show... "don't do this" and he actually stuck it in there... and I was like
146 "no"

147 *Why did you choose what NOT to do rather than what to do?*

148 Because students, so many times... uhm...I wanted to use... uhm... the type of plan
149 where... students are always told what they can not do and most of the times students
150 know what they are not supposed to do. So, I thought that they would enjoy, in an
151 opposite type of learning style... they would enjoy doing things that they know they
152 couldn't do.. but when we got them into the lab... they always remembered what they
153 were not supposed to do... cause that's what they enjoy doing... so, you know... you, as
154 a teacher, if you can allow a leniency....the...allow the environment where the student
155 can do things like that... say, "this is what you are not supposed to do"...
156 cause...cause... cause it helps them remember more... cause it was something that they
157 were not supposed to do...So, we utilized that opportunity to help learn and... even
158 during the course of the year... we did that at the first of the year... then you can say..
159 "you are not supposed to do that... they thought it was funny, but it stuck with them.
160 And, when it sticks with them, then you can say, you shouldn't be doing that ... and say,
161 "remember when we were doing this that and the other... you know, and uh...So, every
162 time a student... they want to do that stuff...so

163 *Get it out of their systems...*

164 *So, do you think that the technology was critical?*

165 The technology was very critical because they were able to present their findings to the
166 rest of the class through digital media and, at that point, visual media was not as prevalent
167 as it is today. I am talking about just 36 months ago. Whereas, everybody had flip
168 cameras. They were able to take it, edit, cut it... fine tune the message that they wanted
169 to get across... and that is what the lesson was... was to video tape and then edit your

170 presentation to present to the class... no difference...just, just no different than you doing
171 a poster, like when we were coming up.. and now, you are doing... presenting with
172 digital media instead of like a poster or something visual... uhm hm..

173 *Did you need any ITRT support for that?*

174 Yeah, we did... ITRT support showed us how to use the cameras, how to edit the
175 material, how to put it... they put in their own music. The ITRT showed us how to
176 uhm...really supported us more on uhm...on how to use the technology in place of using
177 another type of media... like poster or paper, or powerpoint...

178

179 *Would you have done it if you didn't have ITRT support?*

180 Uhmhhh...I PROBABLY could have done it because I am pretty tech savvy,
181 personally, cause I am into tech, so... probably someone like one of my other coworkers
182 who teach the same thing... I would say that they probably would not have done it...
183 because of their level of technology knowledge.

184

185 *So, do you think that the time that it took to plan that lesson was worthwhile?*

186

187 Oh, yes, I do

188

189 *I think is obvious, you have talked about why you chose to use that technology. Do you*
190 *feel that the school supported you... the administration supported you in that type of*
191 *integration of technology?*

192 Yeah, they were pushing that. They wanted us to use the technology in whatever way you
193 could possibly could to... either student safety...or student learning... and um... to note
194 that... yes.

195

196 *That is all for my questions, but I am curious to see... did other teachers take your*
197 *lesson?*

198

199 I think, uhm, one other teacher did utilize the video cameras after we used them in the
200 class. I don't know if Marcy (pseudonym) did it again or not. But, we thought it was
201 something that we could deal with... we thought it was fun. And, it was fun across all
202 ability levels from the inclusion up to the advanced... all of them enjoyed doing it.
203 Across those different learning levels.

204

205 *So how for you, as a technophile. How does the degree of support for technology*
206 *integration... how did that affect how you integrated it? Was that significant in your*
207 *integration or would you have done it even if the school hadn't have been supportive of*
208 *it... if the administration hadn't been at that push?*

209 I probably would have been pushing towards that because I am trying to use that
210 commonality that students already have... something that they all use.. you
211 know...knowing in a greater degree than we, as adults use them. So, I probably would
212 have been 50-50. I would have pushed that... because I like doing that. The
213 administration was just pushing it also.

214

215 *So, this was at the very beginning of the year, since you were talking about lab safety.*

216

217 Yeah, the very beginning of the year.

218

219 *You really didn't know your student population at that time.*

220

221 No, I didn't. I just showed them the flip cameras and gave them the lab safety rules and
222 told them to demonstrate things that you are not supposed to do... with this. You know,
223 jumping off of lab tables.. you know...doing different types of stuff...and being able to
224 show what you are not supposed to do... no, I didn't know my student population.

225

226 *Amazing... wonderful... that's all that I need... thank you very much*

227

COURTNEY'S INTERVIEW

COURTNEY02202012

1 *How old are you?*

2 49

3 How many years have you taught, full time?

4 Full time... um... about 12 years.

5 *Wonderful. And, what grades or subjects are you currently teaching?*

6 I teach freshmen all the way to seniors, high school.

7 *What courses?*

8 Specifically, Math Analysis also known as Pre-Calculus, computer programming, intro to
9 computer programming, C++, and a regular Algebra 2 class.

10 *Pretty diverse. A lot of preps. What grades have you taught in the past? Have you
11 taught these subjects for a long time?*

12 Yes, I taught those specific subjects for a long time. In the past I have taught middle
13 school and I have taught Spanish 1 and II, I've taught Algebra I, Geometry, Algebra
14 Functions/Data Analysis, AP Computer Science, World Geography, and World History.

15 *Oh my goodness! Wow!*

16 I've also taught.. the middle school was a private school setting... so that makes a
17 difference.

18 Alright, let's talk a little about your lesson planning practices... What do you think is the
19 most important part of a lesson?

20 Clear, defined objectives... Knowing what I want to teach and the result that I'm looking
21 for. So, what I'm teaching and what's going to be the end result. Be it very finite for that
22 particular lesson it's the overall assessment, but, what should be attained from that lesson
23 for that day... what I want... the final outcome that I wanna see present.

24 *Have you ever sought advice or support for writing lessons?*

25 All the time.

26 *Where do you get that support from?*

27 Um...colleagues... that's mostly where it comes from. The C++ computer class... I am
28 the only one. And, for a while there, I was the only one teaching these specific courses.
29 So, I couldn't go to another individual for advice on how to teach that class as far as the
30 content. As far as learning... teaching styles, delivery instruction, that usually comes just
31 from within- my own style of teaching. But, um, when I have a chance within the
32 building. Like for math analysis, I'll go and common plan with another teacher and seek
33 her advice. We talk about a lesson. This year, more than ever, though, in planning my
34 lesson, I've planned more with the new ITRT than anyone in the building.

35 *Ok, what are you getting from the ITRT?*

36 Presentation of material and assessment of material. The big push, with me, with the
37 ITRT has been assessing doing quick assessments using the computers. She really helped
38 and trained me as far as SCORE, being able to put quizzes on SCORE. And what is
39 really nice is that I teach all my classes in the computer lab, even my Algebra II classes
40 and my math analysis classes. So, I've been able to incorporate and utilize them. Case in
41 point, in planning my lesson, one of my objectives for Math Analysis is that they need to
42 be able to apply the Pythagorean Trig Identities. Well, in the beginning of class, we still
43 repeat and rehash the memorization of those identities. So they take a small, ten-question
44 quiz. They'll come in and they'll get their small check assessment as I call it, to keep
45 them abreast of those skills. And, then they go into the lesson.

46 *Now, is that on paper, or ... is that on your computer?*

47 It's all online... on the computer... it is all on the computer. The assessment. And, this
48 year was the first time that I gave my midterms online... thanks to her. And, my Math
49 Analysis midterm was incredible! It is actually broken up into parts and it was
50 streamlined in that I used a different approach in my assessment... for example, part A of
51 my midterm was just basic taxonomy, knowledge and rote. Then, we moved into more of
52 synthesization and analysis. More word-type problems, applying the trig. The third part
53 of the assessment was five, basic calculator skills. I had to also assess their ability to use

54 technology within the content. So, and it was automated, and it was ... they finished one
55 section and then a screen would pop up presenting the next section...and then, the third
56 section. It even gave them a little message, "this is the section now where you are
57 allowed to use a calculator, please get a calculator." So, it really facilitated the midterm
58 for me.

59 *And you designed that?*

60 Yes, with the ITRT. So, we went ahead. And I did as far as the questioning and the
61 content, but she sat down with me and we placed things in folders...we automated it...
62 we timed it and so forth and so on. It was wonderful! So, I was able to see who in my
63 classes. How many did well on the first part? How many did well knowing their basic
64 knowledge skills? Then, the second part. Now, on the synthesis and analysis part of
65 trig... where did my classroom fall? And, then there's the basic technology skills and
66 applying that knowledge. So, it really helped facilitate and made it quicker and easier
67 for me to do so.

68 *Did you know, when you went in to the ITRT, what you were looking for?*

69 Um, I think that was more like a work in progress. When I first met her it was basically
70 getting to use the SMARTboard. Believe it or not, I was still on an overhead. I was very
71 archaic, all these years and being a nationally board certified teacher, my presentation of
72 material was what you would call quite archaic. I was still doing overheads on an
73 overhead machine. My markers... and so on... Because I wasn't comfortable with the
74 SMARTboard, to be honest with you. But, this particular ITRT, who made herself
75 accessible... I mean, that's what it came down to. I had tried previously before, with the
76 previous ITRT and I wasn't her priority. But this particular ITRT made herself very
77 accessible to everyone in the building. And, so our... and our personalities... she was
78 there for me. I could call her in a heartbeat and say, "I'm stuck on the computer with this
79 and this isn't working." And, again, it was very clear that the teachers in the building
80 were her priority. And that kept me motivated. And she said, "Did you think about
81 this?" And I'm like, "no" and I just flew. So, I started with her probably sometime in
82 October, not using the SMARTboard pretty much at all. With it just hanging there. To not

83 only just using the SMARTboard. Not only using SCORE. Not only using the testing
84 generating software that we use... what is it called? Um... it starts ... it will come to
85 me... But we have this software that will generate tests that you import into SCORE
86 using the item analysis in SCORE. Using interactive games, creating those for the kids
87 so that they can go home and practice... posting my notes on SCORE. To the point now
88 where I am actually teaching a class. And, this started in October and I was able to
89 progress with her and I am teaching classes as of January. Now, granted, my primary
90 degree is in Computer Science, and so I am pretty computer savvy and quick to pick up
91 computers. But, it wasn't until this individual came into my life and I really started
92 working... that my teaching completed changed, for the better.

93 *So, it's like your computer science knowledge and your pedagogy*
94 Came together quickly, very fast. And, it's not like I didn't want it before. I did search
95 and ask before and over the summers wanted to learn and emailed... but, it just never
96 came to be.

97 *So, would you say that your midterm exam is what you call a lesson that is technology*
98 *rich that went very well?*

99 That and also even the interactive things that I do during class. Now with the
100 SMARTboard, she taught me how to pull different graphs, so when I'm teaching, for
101 example, a lesson on trig... and I have students who are extremely visual. I can quickly
102 pull up a picture of the unit circle and say this is an example of why this is the answer
103 because if you look here... this is where cosine is zero. And why is has to be two parts of
104 the unit circle... so, I am able to do a very quick visual representation for my students.

105 So, the technology that she has helped me really helped me with my pedagogy insofar as
106 reaching all the different learning styles. So, not only am I able to assess differently
107 across the spectrums of Bloom's it's helping me with my diversity of teaching, reaching
108 my multiple, different styles of learners-tapping into Gardener's theories of fundamental
109 learning, my visual learners, my auditorial learners, all those types of learners...it's really
110 helping me I want to say more so with the visual learners in the classroom using this
111 particular type of technology.

112 *Ok, do you sit down and say, “this is my teaching objective, so let me see how I can*
 113 *infuse technology.” Or do you have a lesson that you’ve done before and you say, “Let*
 114 *me add some technology to this.” What is your thought process?*

115 My thought process is... it’s not so much that I want to infuse technology for the sake of
 116 infusing technology. My thought process is this is the content that needs to be taught
 117 and I go through this type of checklist that I always have as a teacher. Hey, where am I
 118 as far as Bloom’s or Marzano’s, cause of all of those best practices that we want to do.
 119 We want to make sure that they’ve got the knowledge base for it and as I move them
 120 forward... and then I go into am I reaching my diverse –diversifying my instruction to
 121 reach all of my learners. Then, the question of technology comes into play. It comes into
 122 play... how can **this** technology help me as far as move them from my spectrum of
 123 knowledge to synthesis, from analysis to synthesis... How can I use technology to reach
 124 as many of my learning styles and the question of technology comes into play as far as I
 125 don’t want to just teach rote to teach. I want to make that connection to where its
 126 applicable in the real world. And, so, for example even though the ITRT is
 127 very astute and the SMARTboard and all the software that is there when I common plan
 128 with another Math Analysis teacher, she was using software called Loggerpro and it
 129 basically was a thermostat, and using motion detectors and sound waves... those types of
 130 things... this technology, I was able to use so that the students had a hands-on
 131 experience of transforming trig into the real world. So, there was one lab that I did with
 132 technology where the students used a motion detector and they transformed it into sine
 133 waves and cosine waves. This really helped my kinesthetic learners. So, that’s where the
 134 question of technology came in. I needed to hit my kinesthetic learners... I’d done great
 135 with my visual, auditorial. Now, can I present this to my hands-on kinesthetic learners?
 136 That’s when I sought the technology that would aid me in that. Now, I’ll be honest with
 137 you... I had been doing that on my own for a while with teaching Algebra functions and
 138 analysis using motion detectors and different kinds of computer-based lab equipment.
 139 That, unfortunately I never received help from an ITRT, that was me going around the
 140 building going to the science teachers, the physics teachers and saying, “I need this

141 equipment because I need to teach my kids, hands on..." Now, with this new ITRT, I did
142 show it to her, and she says, "oh, great, how can I help you, blah, blah, blah blah...and
143 then she helped me. And, she also, with the sys op got all the software loaded into my
144 lab. That one, I wanna say was always within my lessons and she helped facilitate the
145 logistics of that one, while in the other cases, she was the primary teacher and I was the
146 learner. But, the ITRT did play a part in all of these things. I used technology in the
147 classroom.

148 *So, how do you think your timing in terms of your curriculum/pace of your curriculum is*
149 *impacted by this technology?*

150 You know, using technology or using problem-based reaching those higher echelons of
151 learning... you know, pay me now, pay me later. You gotta pay Peter, you gotta pay
152 Paul. I'm a little bit behind on my curriculum. And my pacing will be maybe three
153 weeks behind the other teachers because of what I am using in the classroom. But, I have
154 found, in all my years in teaching, as I start getting towards the end of the year, for let's
155 say an Algebra class with SOLs, I don't have to review as much. So, that's where I start
156 getting on pace, because my kids having used technology have infused the knowledge, so
157 by the end of the year, they don't need to have that constant review and drill and kill.
158 And, while other teachers are spending more time at the end year, revisiting these things,
159 they're trying to master them, with their students because I took a slower pace... and, I
160 got to the end of the line. I may have been the turtle, but I got to the end of the line. I
161 was right there with them, you know. And, so at some points... and I have to make a
162 conscious decision as a teacher, to do that. Because you do look at your map and you get
163 this sense of fear. Like, I'm three weeks behind the other teacher... do I really want to do
164 this project? How important is it to the learning of my students? And, that case in point,
165 I came up against that two months ago and I made a conscious decision to do that lab and
166 that analysis. And coming up against that one more time. And, I have to make a
167 conscious decision to say I know that I am behind in the mapping... and I say that
168 quoting it, "behind" in the mapping, per se. And this is going to put me two more
169 classes, maybe, behind. But, I've learned and had enough confidence in my teaching to

170 say but that's ok, because my students are truly going to learn and understand this and be
171 able to apply it and more so than ever, retain it. So, when the recall comes, they're going
172 to do well.

173 *So, it sounds as though you believe that the practices that you have are affecting their*
174 *long-term learning and retention... generalization to other skills?*

175 Yes.

176 *What type of support are you getting. I'm hesitant to ask this question, but what aspects*
177 *of the school, let's say, contributed to the method that you are using and what are the*
178 *problems that you've faced because you are doing that?*

179 One of the biggest supports that you need to have that I have found in this kind of
180 teaching style and infusing the technology and maybe being behind on the map is that
181 administrative support. Having that administrator say, "ok, I know you are behind on the
182 map, but I have confidence in you and it will be fine." And, when I first started teaching
183 at Lakeside, my administrator had the confidence in me to say, "it will be alright, go
184 ahead I will let you do it." Because, if I didn't have his confidence, and I think that's
185 what happens to a lot of teachers – they want to branch out and do these things but, they
186 get scared and they gotta get through that map. And, you know, to get through that map,
187 you do the drill and the kill... I checked it off, I gave a worksheet, and I did this, and
188 didn't do too much technology, but I checked that off on my map... next concept, let's
189 go. And, the kids know that. And, sometimes, yes, you do have to use some of that basic
190 rote. But, there should always be a part of your lesson that is working towards that
191 infusion of knowledge and reaching out to technology. You can not teach today in a
192 vacuum. It is such a detriment to the children. You cannot teach in a vacuum of not
193 having technology. It would be analogous to saying I'm going to teach you how to write
194 with coal and chalk on a slate and still show me those same concepts ... they're not going
195 to be ready to use pen, in the real world. They are going to look at it like what is this,
196 like the technology tools. They are not going to be able to use that knowledge that they
197 need to.

198 *You have done exactly what I needed you to do. You have told me everything that I*

199 I wanted to say, also in addition to the administrative support, I feel fortunate that I do
200 have... I am actually quick and savvy with technology. My bachelor's is in computer
201 science. I am not fearful of technology. Having the support, especially this year, my
202 second level of support would be that ITRT and that sysop. Those are the people I really
203 needed. It made my life a lot easier. The sysop provided software to be loaded, she was
204 there. If there was something wrong with the computer, the laptop, she's there to
205 troubleshoot for me... so that I can continue on with my lesson. The ITRT was there for
206 me so much. I am still progressing forward with her. Our personalities meld very well
207 together and I'm very inquisitive and I keep on saying, "well, can I do this?" and that,
208 and da da da da da da. She's like, "maybe, let me look into it." And, another thing that I
209 probably need to bring to the forefront of this interview is that I also used to teach Virtual
210 Virginia. So, I was an online teacher. Part-time I taught the AP Computer Science for
211 Virtual Virginia and that also gave me insight of where the technology can be infused
212 online. Now, this year, with the ITRT... all this experience that I've had, I can come
213 back and say, "I know that I've seen this...can we do it here?" And the answer is, most
214 99% of the time, saying yes, the other 1% of the time I am going to find a way to get it
215 done.

216 *So, you knew the questions to ask. You knew ...*

217 I want to say that now it's like 60-40 because there's time, too, where she's more privy to
218 say, the SCORE and the SMARTboard and she's saying, "have you thought about this?"
219 and I'm like, "no, and so in that case, she is leading me... a very comparable ... she
220 leads, I listen... I learn from her, I do most of the learning from her. I just give her like,
221 "I want to do this," And, she's the I'm gonna make it happen person. And, that's really
222 awesome.

223 *And, that makes a difference in whether or not you can even do something in the future. It*
224 *sounds like you are constantly thinking, "what can I do more?"*

225 Oh, yeah. Now, it's like forget it... I ... my summer, I'm like, oh my gosh I want to do
226 this and I want to do that. And I am hoping that I will have access to her over the
227 summer because that's going to be detrimental to me...Having access to her, since

228 October, has really changed that certain aspect of my teaching under so much more that I
229 want to do with my students and impact their lives and impacting the mathematics ...
230 case in point... I am always thinking about what next, what next? We need to , as a
231 County, math content in the County we need to start implementing math summer
232 assignments, especially in the areas of Algebra. Our kids take ... they're already weak in
233 factoring, you give them three months, they come back, they're coming in to Advanced
234 Algebra II, Math Analysis, factoring? They forgot about it. And, other states. Counties,
235 the predominant ones, do give summer assignments... now, the counter-argument to us
236 not doing math summer assignments in the County has been that parents ask what is my
237 child gonna do? They don't have a tutor. They don't have anybody to assist them with
238 these summer concepts and help them along. You can't just throw them something and
239 say, do this. Even though they've been previously taught the material. One of the
240 wonderful things, now with the infusion of technology and learning ... we can provide
241 online lessons for them to tap into during the summer. And, so they have that resource to
242 complete their summer assignments and keep them abreast of their math skills. So, when
243 they come into the math classroom in September, we are starting off at a brisk walk
244 instead of crawling back to fundamentals of mathematics. And, that's where this
245 relationship with this particular ITRT has been extremely helpful. Because it has gone
246 from very micro me in the classroom. I'm looking at it, I'm working with her...to impact
247 the County, at large. And so, it has taken a momentum of its own and it's wonderful.
248 *So, you say that you are doing something. You are going to teach a class to other*
249 *teachers?*
250 Professional development at the high school. I've already taught two classes...
251 examview, I just thought of it. Using examview and putting it into SCORE and doing
252 those assessments online. All of that knowledge came to me strictly via the ITRT
253 because she was there to provide the essentials that I needed.
254 *It can be done*
255 It can be done. And she did it... did it within days, most of the time. And, I ran with it.
256 Took off with it and, at some point they came to me and they are like, "We know that you

257 are doing all this stuff, can you teach this class for professional development? And, sure
258 enough, I said, “fine.” And, in my professional development classes, now, I am teaching
259 teachers how to take that Examview, take that Examview and migrate it into SCORE and
260 they can use it for their classrooms. Direct impact in their classrooms.
261 *And, instant feedback.*
262 Yep.
263

- 1 *How old are you?*
- 2 I'm 24
- 3 *How many years have you been teaching, full-time?*
- 4 This is my second year
- 5 *Ok, what grade do you teach?*
- 6 Kindergarten
- 7 *And, do you teach everything to the students?*
- 8 Yes ma'am.
- 9 *And you have been teaching for two years?*
- 10 I was second grade, last year, though. This is my first year in Kindergarten.
- 11 *In second grade did you also teach everything?*
- 12 Yes, ma'am.
- 13 *Wow, cause I know as they get older the teachers start teaching*
- 14 Uhm hmm.
- 15 *So, you have a Bachelor's degree?*
- 16 Yes, ma'am.
- 17 *Have you started to pursue a Master's ... are you considering?*
- 18 I'm considering a Masters in technology, actually.
- 19 *How nice! Your Bachelor's is in Early Childhood, or is it in Education?*
- 20 It's in Liberal Studies with a pre-K to 6th endorsement.
- 21 *Well, ok ... let's get into it... What do you think is the most important part of a lesson*
- 22 *plan?*
- 23 That it is engaging.
- 24 *Have you ever sought support or advice about writing a lesson?*
- 25 Not so much about writing, but getting a lesson together, absolutely.
- 26 *Who did you use for that?*

27 Depending on what the material was. If it was a reading activity, we have a reading
28 specialist. Or, my teammates.

29 *Oh, OK... Have you ever had trouble with any learning environment?*

30 Not really, no.

31 *Ok. Good. Tell me about a lesson that you have written that you think went really well.*
32 *It doesn't have to be technology specific. Just a lesson that you would say, wow, that was*
33 *a good lesson.*

34 A lot of it does have to do with technology. [laugh]

35 *Oh, that's fine, too. I just didn't want you to feel that you had to stay ... 'cause we are*
36 *going to talk a lot more about technology also.*

37 I do a lot of technology based. I am trying to think, just in general. Ummmm today, for
38 example, we are trying to learn how to count by fives. And, so, we did an activity where
39 we did jumping jacks. So our hands would go up for one, for five and then down.

40 *Oh, ok. So what made that a good lesson?*

41 All the kids were engaged

42 *When you hear that someone has written a good lesson plan, what do you think that they*
43 *mean?*

44 *What do I think that they mean?*

45 That most of their students understood the material and were able to master it.

46 *What role do you think that technology should play in facilitating student learning?*

47 Ummmm I think. I think it's good for them because it's hands-on... or, like I have... my
48 students are able to use the SMARTboard independently to where I'm more of a
49 facilitator and it's more like student-led instruction for part of the day and without
50 technology, I'm not so sure that they could do that without me.

51 *OK, now tell me about a good lesson that you've taught, using technology.*

52 Ok. Well, the SMARTboard, for sure. We do our morning calendar on the
53 SMARTboard and it's very easy because when we want to check the weather it's
54 hyperlinked to the internet. So they know that when they click a button it will go to
55 Weather.com, for them. Umm they're seeing how to use the internet. They've learned

56 what a zip code is so that they can look up our area's weather and they have a better
57 understanding of kinda what the internet can do.
58 *So, when they come in, is this on a daily basis?*
59 Uh hum
60 *So every day they access the weather... whatever you do as your normal morning routine*
61 *is accessed through the SMARTboard and they actually interact with the SMARTboard*
62 *on their own?*
63 Yeah. There's usually one student that I have that leads it. I have another who will put it
64 on the whiteboard and the rest have math journals and they're recording it in their
65 journals. But then the "teacher" helps or asks others for help...
66 *Wow!*
67 Yeah... it's pretty awesome.
68 *So, what do you think, mostly about it, makes it a good lesson?*
69 Everybody's engaged. It's a good behavior modification plan because if you're not
70 making good choices, then I'm not going to choose you to be my calendar helper. And
71 they know that. So, they work harder to follow the rules and directions and make good
72 choices.
73 *Wow, that's wonderful.*
74 And, they're five. They picked it up very quickly. Better than I expected.
75 *That's what I was wondering, too. Because kindergarten, you just wouldn't expect that*
76 *they'd pick it up.*
77 It took a lot for the first, probably month, it was like I had to teach a lot. I had to show
78 them. But, when I'm using the SMARTboard I do a lot, I talk a lot about what I am
79 doing so then they pick it up and they can see and they know how to do it. If my
80 handwriting is neat enough, you can highlight letters and you can tell it to recognize, like
81 if I am writing the word one, I think it's really cool that they can change their
82 handwriting into font. And I never said that it is something that you have to do. Just
83 because I talked my way through it, they picked it up and now they can do it.

84 *That's wonderful! Have you ever used an Instructional Technology Resource Teacher,*
85 *ITRT.*

86 Absolutely, yes.

87 *At what point did you use them?*

88 We've done the SMARTresponse system. So, she came in. She's helped them learn how
89 to choose their answers... she's with them when we go to the computer lab. Not too
90 much anymore. But, she taught them how to log on and get in there.

91 *Have you ever used an ITRT in creating a lesson?*

92 She has actually created lessons for us, as a grade level. And sends them out.

93 *Ok. But, you never went to her with a great idea and said, can you help me.*

94 Actually, we did... we did... we did a math lesson together,

95 *Oh, ok, how did that work?*

96 It went well. Ummmm it was cool because she just... this is her first year here and she
97 came from a middle school. So, she kinda has the higher level thinking aspect of it and
98 so, she really helps me build on to my lesson... so I can differentiate it.

99 *Have you ever taken a lesson that you had, previously, and gone back and rewritten it*
100 *using technology? Or, do you write them from scratch?*

101 Well, I don't because it's only my second year and I, basically, force myself to use the
102 SMARTboard. I don't really have any prior lessons that weren't technology-based
103 because I'm so new.

104 *That's interesting. Do you use anything besides the SMARTboard? Have you used flip*
105 *cameras or do you find the softwares like Audacity or Storyboard or anything like that*
106 *that you use with your students?*

107 Not so much, in kindergarten. Cause it's so hard to get them understanding it all. I have
108 recorded them with a flip camera. But, I haven't had them using it independently.

109 *What aspects of the school do you think contribute to your technology usage? Do you*
110 *know what I mean?*

111 Kinda.

112 *What is it about the school that makes it so that you are comfortable?*

113 Well, I think... there's a SMARTboard in every classroom. Technology is really a
114 good... a big focus. We have two technology labs where we can take the kids and the
115 administration really pushes us getting in there and getting them exposed to it. So, it's
116 very open to technology. We have a technology resource teacher who holds professional
117 developments after school. So, if it's an area that you are uncomfortable in, you can
118 build your comfort there.

119 *Is there anything about the school that doesn't support technology? Or anything about*
120 *the curriculum? Do you find any limiting factors in terms of your technology*
121 *integration?*

122 I think in kindergarten, specifically, because that's where I'm thinking. It's hard to teach
123 them how to use some things. Being that I have twenty one kids and I'm the only person
124 in here. Even if I do pull the technology teacher in here, it's still two teachers... twenty-
125 one kids. Umm, they're so eager. Very... you have to write things down, so I would
126 love to use clickers more and I would like to do the blogging. The other things that the
127 technology leads itself to, but I think that for this group...

128 *About how much time do you think that you are spending integrating technology into*
129 *your lessons? Do you think that it is adding time? Is it saving time?*

130 Well, because I don't have any prior lesson planning... it is pretty average, for me. But, I
131 do use the internet a lot and find lessons out there. Like SMARTexchange, for example.
132 If you are familiar with that one. I tweak those and I make them fit for my class and I
133 add what I can so it's not too awful.

134 *Is there anything that you think that you are missing, and I think that there is, that would*
135 *help you to integrate technology more in your classroom?*

136 Extra support.

137 *In the form of what?*

138 People who know how to use it. And being able to ... fully reach all of the kids.

139 Because it takes... the first time that we used clickers it took thirty minutes to teach them

140 how to turn it on, it was still in the beginning of the year, so some of them didn't know all

141 their numbers and they had to put in a student number, so they couldn't recognize them.
142 If we had more people in here, it would have been a little bit easier... to save time.
143 *So, you think because it is kindergarten and you need so much one-on-one type support,*
144 *or even three-on-one support... do you think that if you had it you'd do a lot more?*
145 Absolutely
146 *Using the SMARTboard? Or...using other technology?*
147 Probably other technologies, as well. Because they were able to pick up the basics of the
148 SMARTboard and how to use the computer, if they could create their own photo stories
149 and use the flip cameras more, they would be way more interested in reading. Especially
150 if they were reading each other's work. But, it would take a lot.
151 *So, what do you think are the long-term benefits of what you're doing in the classroom?*
152 I think it just exposes them to so much more. They can take virtual field trips, like we've
153 done. Or, we can have a lot more visuals, right at our fingertips.
154 *Things that we never had... I'm fifty-two! I say, It's amazing they get to see things that*
155 *we'd never see.*
156 Right.
157 *I really appreciate your time. I am looking at process. I am looking to see what teachers*
158 *think, when coming into the classroom and what factors influence that thinking. And it*
159 *sounds to me that the technology that is available to you, you're using to the maximum*
160 *ability, right now, with the limiting factor of age. Have you ever considered working with*
161 *an older aged student? It seems that that would just open up opportunities for you.*
162 Yeah.
163 *What subject would you be interested in?*
164 I am a big math person. So we do a lot on the SMARTboard, with math.
165 *This is all that I needed. Thank you so much.*
166
167

MARCIA'S INTERVIEW

MARCIA01302012

- 1 *Alrighty. The first thing that I want to do is gather some background information just so*
- 2 *that when I am writing this portrait, I can get a picture of who you are... how old are*
- 3 *you?*
- 4 40
- 5 *And, how many years have you taught, full time?*
- 6 Uh, fifteen.
- 7 *Wow. What grades do you currently teach?*
- 8 Fifth
- 9 *So what... do you teach all of the subjects?*
- 10 This year, I'm only teaching math.
- 11 *Oh, that's right cause I heard you say Geometry.*
- 12 Yeah.
- 13 *I teach Geometry, as well. How many years have you been teaching math to the fifth*
- 14 *grade?*
- 15 Ah, fourteen... part of those have been fourth grade, too.
- 16 *Ok*
- 17 *So, that's fourth and fifth grade... I've been teaching math...not always just math...but,*
- 18 *I've taught math every one of those years.*
- 19 *So, what is the maximum level... do you have a Bachelor's or do you have a Masters?*
- 20 I am um..., almost finished with a Masters.
- 21 *What are you getting it in?*
- 22 Uh, math education [laugh]
- 23 *Oh, so this is a perfect fit, for you?*
- 24 Uh hmmm...
- 25 *Ok... ah... what is your Bachelor's in?*

26 Uhm... early childhood, elementary ed.
27 *Alright. What do you think is the most important part of a lesson plan?*
28 The most important part of just the lesson plan...that's a hard question... the most
29 important part of it... um [long pause] ... the main lesson... I don't [laughter]
30 *It's ok ... The answer means different things to different people*
31 Because I am thinking about the introduction... and the practice... it's just the main...
32 meat.
33 *Have you ever sup...ah... sought support or advice about lesson planning?*
34 Uhm, yes... I have... Do you mean about how to write a lesson plan or about...
35 *Yes*
36 Uhm, well in both my Bachelor's and my Graduate program there's been a lot about
37 format of writing a lesson plan. But, otherwise, no. I thought you meant as far as the
38 content of the lesson plan.
39 *Well, have you ever had trouble with a learning environment? Have you ever found any*
40 *learning environment difficult?*
41 Yes... the sit still... listen to what I say... do what I say... I have a really hard time with
42 that kind of environment... I'm a mover
43 *What happened... how did you deal with that?*
44 I had a really hard time paying attention... and spent a lot of time staring off into space
45 [chuckle]
46 *Ok, uhm...tell me about a lesson that you have written that you think went really well.*
47 Uhm,...I have written a lot...
48 *That's good*
49 You like that? Well, I think my lesson today was pretty good. Uhm... we um... we
50 started with our daily.. routine... you know, when we come to math we have our daily
51 things that we do. Then, we started a brand new unit today which is on Geometry. And,
52 our Geometry unit is Phineas and Ferb themed, which is a Disney show. Um, and so...
53 uhm, they write down, today they did have to take some notes... but, they wrote down
54 um, the SOL and then they had to...um... define acute, obtuse, right, and straight

55 angles... that... every angle that we defined, then there was a.. um... an activity on the
56 SMARTboard to do. So, they had... um... we did writing journals first... so there's a
57 protractor and they had to drag an angle out to see if it was 90° and then they classified it
58 as right angle or not right angle [chuckle]. And, so we went through all, uhm, four types
59 of angles... obviously, we didn't need to classify the straight angle [chuckle]... that was
60 a pretty easy one! Not to do, but um, I had children, during that time who... really...
61 know... their angles they didn't need that review. So, I had them working with
62 protractors to go ahead and start measuring and finding exact measurements of those
63 angles. But, they hadn't used protractors before. So, that is always fun because then I
64 waited to see what they would do. We had talked about the placement of the protractor.
65 So, I had to wait to see what they would do... to see what they kinda figured out and then
66 it was very quick to help them because they are my accelerated group. And so, we just
67 kinda sorted things on the SMARTboard and reviewed and it was fun. [chuckle] that was
68 my lesson, today!

69 *So, what do you think mostly made that a good lesson?*

70 The fact that they can get up and move... that there's activity during the lesson... that
71 there's physical activity during the lesson... that you have the visual... you have the
72 kinesthetic... obviously, I am talking to them about it... auditory... so it's hitting on a lot
73 of different... they have to write down the notes and do examples... so there's the visual,
74 too. So, there are kinda getting all of it in there and... um, the kids that I have this year,
75 especially are really active. So, the more you can get them up moving, the better it is.

76 *That is so nice because by the time that they get to my school, we can't get them up on*
77 *their feet.*

78 Oh, I know.

79 *So, we appreciate that... When you hear someone say that they have written a really good*
80 *lesson plan what do you think that they mean?*

81 I think that they have written one where they are hitting... there are multiple things going
82 on in their lesson. That they have some activities and some practice, and ...

83 *So, like the different modalities... What role do you think technology should play in*
 84 *facilitating student learning?*

85 I have gotten to where, um, almost all of my lessons... the SMARTboard is incorporated.
 86 I think that at this point, if they take my SMARTboard away I wouldn't know what to do
 87 [laughter]... I would be kinda lost... it would completely change if they took it away...

88 Um, we do ... this unit is Phineas and Ferb themed... they ALL are familiar with that TV
 89 show. Um, so that engages them and I am able to do that on the SMARTboard because I
 90 have them on the slides. I have pictures and sound and things to go along with the theme,
 91 but also Geometry, too. And It allows them to get up move around and move things... I
 92 just... it's ...

93 *So do you think that the level of engagement is higher?*

94 Absolutely.

95 *Do you think that it ever changes the flow of your lesson?*

96 Um, my flow is actually ... a whole lot better... I have my whole unit in a
 97 SMARTboard... Um, it is a whole lot better. Because, I have... thought out my lessons...
 98 I have thought out... going back to that lesson planning. All of that has been thought out.
 99 It's all been done with the SOL... I've gone through the ...DOE resources. You know,
 100 pulled everything... it's put together. I 've already done the flow of the lesson.
 101 According to the SMARTboard...with my SMARTboard slides. So, it makes the flow
 102 much easier and now I don't have to stop and think, "oh, what am I doing next?" It's
 103 already... or stop and look at my lesson plans... it's already right there for me.

104 *Ok, that's very interesting. The reason I ask that ... have you ever taken a lesson that you*
 105 *had before technology and altered it and turned it into one with technology. Or, do you*
 106 *start from scratch, each time?*

107 No, it's based on old lessons that are ... enhanced..[laughter]. They are lessons that I did
 108 before, they're just better now. We still use the actual manipulatives. So, ... we still use
 109 pattern blocks and that kind of stuff... for them to actually kinda use with their hands. So
 110 it's a good in between from them actually holding the blocks to moving the blocks on the

111 SMARTboard and moving the pictures and that kind of thing. So, I think it is a good
 112 transition for them.

113 *Have you ever used ... I am sure that you have, but have you ever worked with an ITRT in*
 114 *developing your lesson?*

115 Yes, most of my SMARTboard units, I worked with an ITRT... on those. Um, I
 116 wouldn't have been able to do it without her help.

117 *When did you bring them in? Did you say, ok, "I want to teach this, and I am gonna use*
 118 *technology. Let's see what's available... or did you... How did you...?*

119 What happened was my ... my partner in crime... also teaches... the other half of math
 120 for fifth grade went to observe a guy at another school who had started doing this. So, we
 121 got the idea from him. And, he had worked with his ITRT very closely to do them. So,
 122 we decided that we wanted to do it. So, I started putting one together and... I would get
 123 stuck. I didn't know... I know what I want to do. I just don't know how I want to do
 124 it...I want to kinda do this. And, so I would call the ITRT who would come that very day
 125 and say, "ok, let's figure it out." And, she would help me work through... figure out that
 126 part of it. And, if I would say, "ok, I'm doing Geometry." Then, she would say, " oh,
 127 here's some great resources for you to look at" Or, she would send me websites. And,
 128 most of them did have SMARTboard slides, and that kinda stuff with them. But if she
 129 knew what I was working on she would try to find stuff for me, too. And, then the
 130 technology end she would help me ... "let's get this picture to do this. I put it in here, I
 131 wanted something different to come out." So, she was able to work me through that.
 132 Now, I can do most of it on my own.

133 *Wonderful. Did you think about it and then have the ITRT come in? Did the ITRT help*
 134 *you with the lesson actually in the classroom or was this all sort of...?*

135 It was ahead of time.

136 *Ok.*

137 It was all ahead of time.

138 *You never needed the ITRT actually in that room?*

139 No, I just needed her for the lesson. Now, activities with other schools that I needed the
140 ITRT with. Um, I used the ITRT... I talked a lot about SMARTboard. But, the um...
141 actually laptops are kinda my downfall. So, any time I was using laptops I would have
142 her in a lot of times, to help out ... with that... but it wasn't with the actual lesson... it
143 was more the technology... the technology side of it...

144 *ok*

145 but, what we did do, um, with the ITRTs, last year. There was a
146 math tournament. We had a big math tournament to review for the SOLs and it was
147 based on March Madness ... and it was the whole basketball thing. And, so we would
148 compete against other schools ... and so we would have the same SMARTboard that they
149 did. We could enter data that they could see, too. And we would enter our answer, too.
150 And, you know, both schools would pop up with that their answers were. But, we used
151 the Tanburg, so we definitely needed an ITRT in there. The ITRTs are the ones who
152 kinda came up with the whole thing... um. So, we had the Tanburg in there so we could
153 see the other class that we were competing against. And, we were planning on competing
154 using the Tanburg. It was really, really neat. It was a whole lot of fun.

155 *Like "it's Academic, or something"*

156 Right, right. We had the best time. The kids loved it. We loved it. It was great.

157 *What aspects of this school's culture do you think contributed to you effectively doing*
158 *these types of lessons?*

159 I am really really fortunate to be at this school...um, for a couple reasons. One, we have
160 very, very supportive administration. And, our administration, if we want to try it, they
161 say, "go for it." Anything that we want to try. They love for us to try new things, and
162 they really encourage it. So, I wasn't afraid of what my administration would think about
163 me doing certain things. And then, um our ITRT really pushed using technology ... so,
164 she would...during our team planning, sometimes she would meet with us and say, "ok,
165 well, what are you guys working on ... let me see what I can find. And, so she really
166 kinda pushed the technology and the use of technology . Um, and once I got
167 comfortable... I was very uncomfortable with it at the beginning..

168 *Really? You would never have believed it.*

169 I was very, very uncomfortable... I mean, to the point where I was in tears... I'm like, "I
170 don't know ... I can't do this... and, the ITRT would laugh at me all the time and she's
171 like, "You're way ahead of your ..." and I'm like, "I don't know..." like I was afraid of
172 it... to do it. And, she ... she was a friend of mine, to begin with . so, she's like, "come
173 on... let's try this, and so...

174 *What were you afraid of? What was going to happen?*

175 I just didn't think that I could do it. It wasn't that I was afraid that something would
176 happen. I was just afraid that I couldn't... I couldn't do it... But I just couldn't pull it
177 off. I was afraid that ... oh, well, I guess I was afraid of beginning the lesson and it just
178 not working and everything completely falling apart or me thinking it was going to work
179 one way and it didn't work that way. Which does happen. But, because so much of it
180 has gone so smoothly, it's not a big deal when it happens occasionally. So, um...
181 yeah...uh huh, you know, I was not... I wasn't comfortable with it at all.

182 *Are there any additional things that you think your school or its administration could do
183 to support you with the technology?*

184 I really don't. I don't. They make sure that we have everything that we need. We have
185 SMARTboards in every classroom. We have carts of laptops... we don't have enough
186 for every classroom, but we have a checkout system. So we... you have enough that any
187 time you want it, it is pretty easy to get them... to check them out. We all have document
188 cameras. So, we can use those. We have so much technology here and we've been
189 really, really encouraged to use it. And, so I don't... you know. I don't think that there
190 is a whole lot more that I could ask for.

191 *Have you ever done anything that is student-driven? Say, giving them flip cameras... or,
192 something*

193 We did... this is the first year that I've taught all math. So, in science, we
194 always did a really neat activity and I really miss it, this year. We do the rock cycle.
195 And, so we used, we have the um... microscopes ... I don't know what they are called.
196 But, they're oh, uh, they're ... you hook them up into the computer.... They're... they're

197 digital microscopes... I told you, it is the end of the day... I am going to have trouble
198 with words... We used the digital microscopes and put them into the laptops... And, so
199 they would use the microscopes to take pictures of the different types of rocks. And,
200 then, they used Photostory ... I think one year, it seems like we used Pixie... then, we
201 went to Photostory... and they would incorporate those and do pictures and they would
202 come up with a story about how this rock went through these different changes. So, it
203 was a really fun thing because a lot of them were on a vacation and then they got caught
204 or trapped. And, so, they would write stories and then they would create the story using
205 the digital microscopes and the software programs that we had. And, then we would
206 share them all up on the SMARTboard. So, we've done stuff like that which is really
207 fun.

208 *Have you ever found that the pacing that you are expected to keep **ever** interferes with*
209 *your lesson plan choices?*

210 I think... obviously, I can't say enough good things about the SMARTboard. But, I think
211 that helps keep me on ...track. I think it helps keep pace because I am like, "ok, next,
212 next next...because I don't... sometimes its I obviously have to stop for kids...and
213 explain things again. But, I don't think it ever gets in the way, I think it actually ... it
214 helps.

215 *How many hours are you spending with your planning? Do you know what I am saying?*

216 Um.....

217 *How much planning time are you*
218 *given?*

219 We have 45 minutes per day... for planning. Um, we don't have a lot ... of time... to
220 create...these things. Um, we kinda... can come up with what our lessons are gonna be.
221 But, to actually do the technology has to be done after school hours... and at home... and
222 way more hours [slight laugh]

223 *Do you have any idea about how much you average in a week?*

224 Um, well, I can't really say average... I can't really put it to a week because the one that I
225 am using now, I created last year. So, now, all that I have to do is tweak it so, we can ...

226 and I kinda tweak it as we go along because it is like I said, there's another teacher that I
 227 work with that's using it as well. So, last year, when we did it if there was something that
 228 didn't flow well or that didn't ... work, then we were like, "well, then we need to switch
 229 that around" or ... we did it then. So, we did it ... did it then... so, now, this year, we
 230 have a more polished ... so, once I put in all of the hours to create it... to kinda change
 231 it... you know, to make it better... doesn't take long at all. But, it probably took me...
 232 probably fifteen... hours... at least... to do ... to do a whole unit
 233 *So, I have to think in terms of units.*
 234 I'm sorry, 'cause if I did one lesson at a time I don't think it would work as well.
 235 *Do you find yourself being sought after by your colleagues?*
 236 Um... I ... um... hide... like... it's kinda funny. See, I'm anonymous, so I don't mind
 237 doing this for you, but I don't like them to know ... and, um... the ITRT used to try to get
 238 me to present at um... professional development things... and that kinda thing she'd try to
 239 get me, and I'd say, "I don't want to do it"... I'll do it with you, but I didn't want to do
 240 it... various conscientious about sharing... um, not that I don't want to share with
 241 people... because I would love to ... but because I
 242 *Yes, because you said that you are*
 243 *working with a colleague...*
 244 But, she and I work together for years and years. It's actually a self-esteem thing.
 245 Teachers are pretty brutal... to each other.
 246 *I know what you mean. But, your lessons just sound amazing.*
 247 I love them. I have a lot of fun with them, you know... and the kids love them and have
 248 a lot of fun with them... and But... I don't... it's a ... self-esteem thing... I don't want
 249 to present and they're like, "oh, ...well" and to be like... and I know a lot of it is
 250 because they didn't think of it themselves... and I know ... I am just not willing to put
 251 myself up to that scrutiny
 252 *Do you think that your technology rich lessons have impacted student learning,*
 253 *significantly?*
 254 Oh, Absolutely!

255 *If someone asked you to do data on it, could you say...well, this is prior to doing the*
256 *SMARTboard lessons and this is ...*
257 Um... I don't know if...maybe I mean you know.. with test scores and that kinda
258 thing...we could track it. But, the kids are DEFINITELY more engaged. They are
259 definitely more engaged because Disney is something that they are familiar with ...
260 something that they like . So they are more engaged with it... um, so they get excited
261 about it... it's like they get to hear more Phineas and Ferb songs... because there are lots
262 of songs in every episode of Phineas and Ferb... I have an eight year old, so [slight
263 laugh]
264 *I'll have to look it up, because I don't have an eight year old.*
265 They are the best shows...its Disney Channel... so I have them listen to the theme song
266 while they are getting their notebooks together and ready. So, they love it and they're all
267 singing and bumping and ... they're all into it... So, they're already interested before the
268 lesson even starts... They are very excited.
269 *Thank you, I appreciate your time*
270
271

MARLY'S INTERVIEW

MARLY02202012

1 *How old are you?*

2 I'm 28 and change

3 *How many years have you taught, full time?*

4 About six years

5 *What grades or subjects do you teach?*

6 I am doing inclusion Biology.

7 *What grade is that, primarily?*

8 Tenth grade.

9 *And, how long have you been teaching that?*

10 Maybe... six years.

11 *So, that's all you've taught, Biology?*

12 I've also had Resource

13 *What's Resource?*

14 Resource is a credit class that um... gain their... or retain their IEP goals and do missing
15 work for all academic classes. Um, I've taught that for maybe... four years.

16 *What's your highest level of education?*

17 Masters

18 *In what?*

19 Special Ed

20 *Alright, let's get into the meat.*

21 Yes

22 *What do you think is the most important part of a lesson plan?*

23 I think activities. Like, learning the skill. Um...Not so much of... there's some objective
24 and we follow the curriculum map, but I'm into the activity and how to get the skill.

25 *Have you ever gotten advice or support about lesson planning?*

26 Um... I look at resources in the books and I make my own lesson plans and I think I like
27 to create my own 'cause that's my lesson plan.

28 *Have you ever had trouble with a learning environment?*

29 With the kids I teach, ... yes... and where I am teaching, right now, yes. It is a pretty old
30 school and some of the kids have just a different orientation... the school is pretty old and
31 tables, I guess, and one specific problem that I have now is that the tables that we have,
32 right now, are short and the kids are big. And so it is kinda uncomfortable...

33 *Oh, interesting. How does that impact your lesson planning?*

34 I try to get away from where the kids are sitting down. Most of the activities are where
35 they are rotating... and we use the hallway, as the classroom is kinda tiny. So, and
36 there's like big things that we don't use. It used to be a lab, ... they converted it to a
37 classroom. And so, the fact that the tables are small and the kids are bigger... I ... kinda
38 get away from the notes, say for an hour so... we have notetaking. We do one page of
39 notes... which is really really cool.

40 *Tell me about a lesson that you have written that you think went really well.*

41 Hmmm... there's a lot. Because it is Biology and its very, very interesting so... um,
42 maybe the past, ...last nine weeks... I would say, the genetics... um, like tracing your
43 trait from the great grandparents from different generations. So they were able to ... also
44 align it with the pedigree... so they could trace like ... the hair, oh, the great grandparents
45 had those hairs... and just. And, some of them were kinda weird because some of them
46 didn't know their families. So, it was pretty interesting to try to describe it to me.

47 *What makes that a good lesson?*

48 Um... engaging... it's very engaging. Kids like to tell about themselves and their family
49 background which is really cool. And, I the idea of me knowing them, as well would
50 help me... like, create the lesson plans on individuality. Let's say if a kid is like a more
51 social person, then he is the type of kid that will learn more by working with peers. So,
52 that's where I pinpoint them.

53 *When you hear someone say that they have written a really good lesson, what do you*
54 *think that they mean?*

55 Um, maybe a lesson plan that would ... like apply in the real world, or that they have
 56 learned in the past. Something that is more of... like, application.

57 *What role do you think that technology should play in facilitating student learning?*

58 This is a fast world, right now, I think technology is really important. Um, especially
 59 with iPad. Mr. Monk tried to do that with the iPad thing. I think... and I believe that
 60 say, a dissection, ... real life is good. But, there are some kids that can't participate and
 61 having an iPad would be AWESOME. And, um, everything is in computers. Like,
 62 everything can be all activities can be really good with the technology. And the
 63 presentation is wise... the SMARTboard is more interactive. Um, I guess a dash of
 64 social and physical interaction would be good but games done through the technology
 65 would be really good also.

66 *Tell me about a lesson that you've taught, that's good, with technology.*

67 Um, a coming lesson would be the last... maybe the third nine weeks, after we've taken
 68 the SOL, will be dissection. And, I like it because we use a SMARTboard to dissect
 69 before we dissect the real thing... So, like pinning the flap of the skin will all be on the
 70 SMARTboard and it's all simulation... so I like that ... simulation first then they do the
 71 actual dissection . So, they know how to do it. And, the last activity that we had was a
 72 microscope. When they were able to manipulate the microscope online and then they
 73 were able to know it with the actual microscope... so, it's kinda cool...

74 *So the knowledge transferred?*

75 Um hum... it's like gaming, and then they apply it in a real activity.

76 *So, why do you think makes that a good lesson? Why do you think that that's a good*
 77 *thing, for them?*

78 I think that technology is very attractive. Um, technology is very engaging. Games are
 79 very engaging. Kids love games, everybody loves games. Anybody likes to use
 80 technology.

81 *Have you ever used the support of an ITRT?*

82 Um... Our ITRT is a new person and I guess that I've done it a Riverside, my previous
83 school. But I've only wanted one time... at the most... I usually go online and try to
84 explore it myself. The website is very user friendly.

85 *Which website?*

86 Any website is user friendly. Anybody can just use it... go look at it... maybe.

87 *How much time do you spend, on average?... Preparing lessons?*

88 I would say that I recycle lesson plans... So, I've had a lesson plan before. I make a
89 lesson plan for every nine weeks. And, you make packets out of it and I've done that .
90 So, this year it was kinda easy. I just bump it up. Like, whenever I get a new website, I
91 just add it up. So it is not as time consuming .

92 *So, have you ever taken a lesson plan that wasn't technology rich and then rewritten it
93 and added technology to it?*

94 Hmm. I have lesson plans that were kinda before... years ago. That it wasn't on paper
95 and I use it um.. I added technology converted technology or added technology in it.

96 There was one

97 with, I think there was one like dependent variable independent variable experimental
98 design... it was on paper and they had to manually look at the plant and observe it and it
99 would take a long time... and, um... this year, I added... used the technology like a
100 simulation. Like they have a plant. They make their plant and they do the time, the
101 water it is all like simulation. They create their profile. And, they have a plant and they
102 visit it every day until it like the plant grows.

103 *Oh, that's wonderful*

104 Using technology... yeah. It is not a real plant. 'Cause there's always variability in a
105 plant. But, a simulation of a plant growing, so. I think it's pretty cool. I just did that this
106 year.

107 *So, how did you decide where to put the technology into the lesson?*

108 Um, I like to ... it's only when I feel like... it will use time. Let's say, ...like with plants,
109 there's always... you have to consider the time required for plants. Like, on the
110 weekend, you can't water the plants. But, if it will be in the form of technology

111 simulation. You can water the plant, even at home. 'cause you can just access your
112 profile. So, you eliminate that. Let's say you want to water the plant for every seven
113 days, including the weekends, they won't be able to do that if they are in school because
114 we have "A/B" scheduling. So, if we have the technology, they can do that like for
115 every seven days, consecutively.

116 *So, what aspects of your school's culture... what part of it... made it effective for you to*
117 *use technology ... actually allowed that the technology was something that you could take*
118 *advantage of ?*

119 Um, right now, COUGAR is unplugged. So, I cannot really use as much as I want. Like,
120 phones. There are phones that they can share with peers. There is an app. But, I cannot
121 use it because we are unplugged. Um, some, like IPADS ... I contacted the um Beatrice
122 Clogsworth, and I was able to use five of the IPADS, but then the school says, "no" So,
123 it wasn't as... it's still frowned upon, right now... for..

124 *Why?*

125 Because it's unplugged... they say it's unplugged...

126 *What does that mean?*

127 Because the kids... they can't use any electronic devices... iPhones or iPads in the
128 hallway or even in the classroom... they can't use it... only with laptops... that's it. But
129 I... it's really, really cool to have something... really cool that we can share with kids.

130 *So, they won't even let you use it for...*

131 It is for security purposes, they said. But um...But, I can always use the laptop. But,
132 there's only very few laptops in school. So, I always end up using the SMARTboard.
133 Sometimes, having twenty-eight kids. It's probably too much. Some of them, probably.
134 I cannot grab all twenty-eight kids to my attention. But, if they have their own laptop,
135 that would be good, but we are very limited, right now.

136 *So, in many ways, the school doesn't support you in your use of technology?*

137 Um, ... I guess um, the administrators are really very good with the technology...they are
138 pushing the school... pushing...pushing for technology, but, I guess, the resources of just
139 who come... who gets it first ... kind of.

140 *Is it because it is an older school?*

141 Yes, it is an older school and we are trying to get there. And some of it ... like the Wi-Fi
142 services are not as great ... so everything needs to be plugged in... and kinda like... you
143 know. Everything is in COW ... it's not like a Wi-Fi network. We don't have that.

144 *Oh, I didn't know that*

145 Yeah.

146 *So, what would you like to see happen? What would you like to see change?*

147 Um, I want to be able to have IPADs in classrooms, instead of COWs. You know, cause
148 they're bulky and ... I want to be able to have just a class set of IPADs and I think I was
149 able to look at it with Beatrice and she said that you can't have access to printers and you
150 can't have programs that can run to an IPAD ... or something... but I was able to tell her
151 that there are IPADs that you can use for kids that can't write or even look at the notes...
152 write down the notes. So, they can just say it and it would type it for them. Dragon
153 program is updated. So, I think its... I really want to push um more um... higher
154 technology, in school. And, maybe, a good Wi-Fi service. Like, each classroom. That
155 would be awesome.

156 *So, I hate to keep beating this, but, How does the degree of support that you get, and the*
157 *limitations of your school in terms of the technology that is available. How does that*
158 *affect your lesson planning ideas?*

159 Uh, maybe... if I had to say, maybe 75% would be. Yeah, 75%

160 *You would do it more?*

161 I would try to do it more, but the rest of it would be like snow... there's limited
162 resources. I can't really do as much. And, some of the kids, if I wanted to do it. And if I
163 wanted them to do it continue it at home. Well, then, they don't have computers. So, and
164 some of them can't drive to the library. So, it's kinda like when I do create lesson plans
165 it's like I look at the list of kids who don't have computers. Cause, at the beginning of
166 the year, I asked them if they had computer access and then I look at that list. Look at the
167 percent... And, if they do have access, at home. And if they don't, then I try to make the

168 lesson plan as accommodating as possible, technology wise, this school... as much as
 169 they say "YES!"... it's still kinda really no action towards it.
 170 *You talked about IPAD and COWs. What about flip cameras and things like that. Are*
 171 *they accessible to you. Do you have some...?*
 172 We do have we did try to use the flip camera. My lesson plan, one time was to use the
 173 flip camera when they do the planes... paper planes... and, unfortunately, the flip
 174 camera doesn't save in each COW...cause it has different programming, wasn't updated.
 175 And . later, I didn't know that the school hasn't paid for the software to update those. So,
 176 I was kinda bummed with that... and the kids were kinda like "ah, that is just horrible" so
 177 we just used the old-school graphing and we tried to use the flip cameras to ... um, this is
 178 very cool... we have the flip camera and one kid was able to say, "Mrs. V. we can use
 179 our phone to use the video for what not to do in the lab and we did try that and,
 180 unfortunately, one of the kids wanted to do it in the hallway and the administrator says
 181 no. Cause, we are unplugged. So, that's kinda like no consistency. You kinda feel like.
 182 In that school, you kinda feel like which is which. It's not that great. If the flip camera
 183 doesn't work. And this was one of the administrators that I was talking to . Because,
 184 after that incident, I had to report saying why did you use the phone during instruction
 185 time. And, I said "it's all related to what we are supposed to do and there's no
 186 availability of flip cameras, cause there is not software for the laptop. So, having it in
 187 the phone is better cause we have those microdisks." And, it's cool, and I know all this
 188 stuff. But, no because if other teachers see it, the students will probably use the excuse
 189 whether it's school related or not. So, it's kinda like a shame. But, I hope the school will
 190 agree to some degree of ... in support of the lesson plans.
 191 *Maybe if you can get it approved, in advance. I don't know. How does the County's*
 192 *pacing effect your technology use? Do you think that it has any impact, at all?*
 193 Some of my lessons. [pause]
 194 *Does it slow you down?... does it speed you up? Is it a hindrance?*
 195 It's kind... in between... because Biology is an SOL course. And, the students that we
 196 teach , that I teach, actually, is kinda. We're kinda dragging along some of the rest of the

197 kids. Um, my goal isn't to be 100% with the curriculum map. My goal is to be 85% of
198 that curriculum map. And have fun...and, that's just my goal. I don't want the kids to
199 think that we have to finish the curriculum map and pass the SOL. I want them to think
200 about the 85%, because that's what the SOL wants. But to still have fun and take the
201 time to learn the skill. Like I taught experimental design for maybe a week, because I
202 wanna do a lab.. a computer, and a game. Because I want them to learn that skill. Are
203 we behind on the curriculum map? Absolutely. Did they fail the Benchmark?
204 Absolutely. But, guess what? When I have all of the questions of the day they remember
205 the game and they remember the lab. So, I guess, it's if... And, if there is no available
206 laptop, then technology will pull me down with my pacing.... With my 85%... so.
207

NANCY'S INTERVIEW

NANCY02202012

1 *Alrighty. How old are you?*

2 40

3 *I am going to take some notes, but most of my notes come off of the recording, because ...*

4 Ok

5 *I get caught up into the writing and then don't get to pay very good attention to what you*
6 *are saying. How many years have you taught, full-time?*

7 This is my ninth year.

8 *Ok. What grades are you currently teaching?*

9 I teach 9th through 12th grade, but I mostly teach sophomores and juniors... students in
10 every grade.

11 *What do you teach? What subject?*

12 Um, Geometry, just regular Geometry that has a mix of kinda average students and
13 advanced students and uh double-block inclusion Geometry.

14 *What grades have you taught, in the past?*

15 I taught the same thing, last year. And, the year before that the same classes, except that
16 the inclusion Geometry wasn't every day. Before that, I taught 9th through 11th graders in
17 [Stockholm County], algebra 1, Geometry, Honors Geometry, Honors Math Analysis in
18 the Governor's School in [Stockholm County]. And, before I moved to Virginia, I taught
19 ninth grade science, in Florida.

20 *What is your educational background?*

21 Um, I have a Bachelor's Degree in Civil Engineering from Michigan State and a Master's
22 Degree in Engineering Management and a Master's Degree in Education. You can't tell
23 that I am highly educated?

24 *I can tell [laughter]! Alright, let's talk about lesson planning. What do you think is the*
25 *most important part of a lesson plan?*

26 Incorporating ways to tell if the students are learning what they are supposed to be
27 learning. And, I led a class, this year, on assessments. That was everything involved
28 with that. What the kids know ahead of time, incorporating ways to know during a lesson
29 or during a unit. Warm ups, exit cards, exit slips, graded and non-graded. The different
30 ways to tell that they are getting what you think they're supposed to be learning.
31 *You said that you taught that?*
32 Right. As part of a professional development at the school... with some other teachers.
33 *Oh, ok. When you said that, I was thinking students. Have you ever sought advice or*
34 *support about doing lesson plans?*
35 I don't think I ever have. I didn't student teach, so I never have... I never really made
36 lesson plans under supervision. But, we have really good common planning, so we share
37 ideas. So, if that counts as seeking advice, then... it's kinda informal... how do you
38 teach this? But, at this point, the group that I work with, we have all taught Geometry for
39 a while. I think we have all accepted that we kinda have different styles. We still rely on
40 each other to talk about different ways to do things. But, I probably don't depend on
41 them to do things.
42 *Has that ever changed any of your process?*
43 Yes. I've tried different things.
44 *Because of the...*
45 Because of the group that I work with. Uhm... yeah.
46 *That's interesting. Have you ever had trouble in a learning environment?*
47 Of course.
48 *What type of trouble?*
49 I think most common trouble is with instructions that the kids don't understand. They
50 don't know what they are doing or supposed to be learning in... I think if I have an
51 activity designed... they don't necessarily... they can do the activity but they need help,
52 at the end, realizing how it is related to the topic. Kinda like synthesizing what they have
53 done. Uhm, and getting the point of the lesson. Does that make sense?

54 *Yes, it does... cause all of us have been there. How did that impact how you did your*
55 *lesson planning? Did it change anything/*

56 Uhm, If I can, I try to fix it for the next class. I think all the classes that I teach, this year,
57 I teach two sections of each one. So, if I can, I fix it before the next class. In the past,
58 when I taught five sections of the same class, then you even have overnight to kinda fix
59 it, if you need to. When I taught Science, in Florida, my first three years of teaching I
60 can remember something about radioactive decay... and I thought it was a great activity,
61 but I could tell the kids didn't get it. So, I changed it up the second block. Still didn't go
62 well. Changed it up for the third block. It either went well that time, or I changed one
63 more time. I finally had it down to what they could understand. So, I had a hard time,
64 when I first started teaching. I guess it's because I taught one prep, the same prep, for
65 three years. But that's what I liked, as a new teacher because I felt like I got to get better
66 at it. It wasn't like it was a lot to handle. Of course, like anybody who teaches a new
67 class. But, when I came to Virginia, and taught three different preps in math, and I had
68 never taught math, I was a little overwhelmed. So, I think it is good for new teachers to
69 have one prep. And, that lets you do that kind of adjusting, if you need to. I know that,
70 in the beginning, I had trouble ... I thought every class had to be the same. That's
71 probably just the way that I think... I didn't realize that they are never going to be exactly
72 the same... and it's ok if you change something. And, if you did it really good the fourth
73 time, you could always go back to the ones that didn't get that and incorporate it in. Or go
74 over material, so... I have learned that it is ok, if it is not exactly the same.

75 *Tell me about a lesson that you wrote that you think went really well.*

76 We had, on Thursday and Friday, we [Joseph] and I had Geometer's Sketchpad to start
77 the part of the circles where the kids see the relationship between the central angle and
78 the intercepted arc, the inscribed angle and the intercepted arc. And, there's three other
79 things that we look at. There's the opposite angles in an inscribed quadrilateral are
80 supplementary, if you have a triangle inscribed in a circle and one of the sides of the
81 triangle is a diameter, it is always a right triangle, and a tangent is perpendicular to a
82 radius. And, that just went exceptionally well with our double-block, inclusion students

83 on Thursday and Friday. They mostly work independently. Kinda went through the five
84 different activities. And the kids... I just felt like they went to town on it. They did what
85 they were supposed to they needed help making the connections, in the end. Like, for
86 example, there's a picture, they pull up a file that has the radius of a circle and the
87 tangent. And, they measure the angles formed and they see that they are 90 degrees.
88 Then, you ask them, "what does this mean about the radius and the tangent?" And, they
89 say things like, they're supplementary. We point out that line segments are
90 supplementary. What is it called when you get the right angle? So, they need help with
91 the vocabulary. But, I think that that is just typical... two kids got it. And, I think that's
92 double-block inclusion. We haven't looked at angles in a while. But, quite a few of them
93 can get it. And, I just think that kids really worked, for the most part, independently
94 through the project... through the activity and they were understanding what they were
95 supposed to. Even on a Friday... and they can be crazy on a Friday. And, then we
96 practiced.. both classes... well, the second class, we always work faster. And, that was
97 smaller. But, in that class, we were able to start on the practice problems. You know,
98 you get them using the new material and then the kids were getting it, and using their
99 practice. It's funny how you can ask them. We didn't have a lot of time left... it was
100 maybe ten minutes before the bell rang and we need five minutes to clean everything up
101 with the calculators (and we have calculators disappear, so we have to be real strict to
102 make sure that they all get back). But, after I introduced some example problems, I said,
103 "Ok, I want five minutes of hard work... I want five minutes to do as many as you can on
104 the front of the page... The kids went to town. Double-block, inclusion, on a Friday!
105 You know, we just lay out that expectation and they do it!
106 *Did you write that lesson or was it an activity that you got from another source?*
107 I made that myself.
108 *Oh. Ok. And what do you think made it good?*
109 Um, we hadn't used the Sketchpad in the room in a while. So, I think that ... I think the
110 kids are ... all levels of kids, I've seen, become engaged with a lesson with the
111 Sketchpad. I think it was clear. It was different things. It's not like you were stuck on

112 one thing for a while. Two teachers in the room helps the kids when they get stuck doing
113 something. But, I've taught it for a while. I think that helps. Just experience knowing
114 how to teach it... how to explain it. So...

115 *They were engaged*

116 Yeah, that's the biggest thing.. that's a huge thing.

117 *When you hear someone say that they have written a really good lesson plan, what do*
118 *you think that they mean?*

119 I'm thinking about my friend, [Hannah], who I taught with in Stockholm and now she's
120 in her second year at Lakeside. And she's done a lot with technology, here. Maybe
121 someone else you need to talk to. Because we didn't have that in Stockholm. Cause we
122 have the SMARTboards mounted in our classrooms, and she did a SMARTboard
123 professional development, the first half of the year. She'll come in, it seems, at least once
124 a week. She has review stations. She's got an extra SMARTboard put in the room. So,
125 she's got SMARTboard stations, laptop stations. But, she talks about how she is really
126 using the technology and I think [what makes me think those are good?] I think when
127 she talks about it I like how much energy and passion she still has for teaching even
128 though I know that she's been a teacher for 15 years. And I think her... she loves
129 teaching and always wanted to be a teacher. So, when she talks about a good lesson plan,
130 I look at what she's done and I've seen how much effort she's put into planning it. And,
131 really thought about it. And I also have one of her students in my duty in math as
132 tutoring study hall and I've seen that materials that she brings, because she's been absent.
133 And, she prints the materials off of SCORE and I will go over them. So, for her lessons,
134 it seems like she is using technology, she's excited about it, which helps the kids be
135 excited about it. And, then there's materials available for kids that are absent that seem
136 clear. Let's a kid get caught up. It seems very thorough... how she's prepared these
137 lessons.

138 *What role do you think that technology should play in facilitating student learning?*

139 I think if you can use it to make it easier for the kids to learn something, you should use
140 it. I don't think it's appropriate for everything. You probably could do that, if it's what

141 you want to do. And, it's actually a goal of mine, I talked to [Joseph] about this. I'd like
142 to do a paperless unit. I would love to try to do that because we use worksheets, we do.
143 I think it's really something that engages the students. That's the most important thing
144 that I think about technology. The Geometer's Sketchpad program that I use, the kids are
145 measuring angles. The kids are measuring segment lengths and then looking for
146 relationships. So, using the program, the kids don't have to use a protractor or a
147 compass, which is it should be easy, ... they should know how to do. But, I've tried to,
148 in the past, but, it's not. The technology is a hook to get the kids into that. It's just like
149 using graphing calculators. If you can learn something by graphing lines with different
150 slopes, and see this number, right here, makes the line do this. This number, right here,
151 makes the line do this. I think, that is something that I never had, when I was in high
152 school, in the 80's. And we did a lot of calculator discovery activities when I taught
153 Honors Math Analysis, in Governor's school. So, I really think for things that are
154 tedious, by hand, but can be done on the computer, the kids can see the differences. Or
155 the effects of different things, quicker. Does that make sense?
156 *Yes, it does. They can see it instantly rather than waiting...*
157 They get caught up in graphing.
158 *It could also be something that they don't do well... One skill doesn't affect the other.*
159 Right. Exactly. Yeah.
160 *Well, you've talked, pretty much, about your technology lesson. Would you say that the*
161 *one that you did on Thursday and Friday was one of your better ones? What you would*
162 *call a good lesson. Or, is there another one that you would like to talk about?*
163 Yeah. It went.. well, I guess it just went better than it ever has. 'Cause in the past, I just
164 had the two, main things, the central angle and the inscribed angle. And then, at some
165 point, probably in the past two years, I tacked on those other three things, that are really
166 kinda minor points. But, they might see them. We have to teach them. They are related
167 to the other two ... I don't ever expect to get through all those, but we were able to have
168 the COWs two days in a row and all the kids got through them.... They seemed to
169 understand. So, ...

170 *So, they each had their own computer?*

171 Some of them had their own, but they were in pairs or groups of three. I try to let them,
172 on a computer activity. Some of them are not comfortable or are not good with the
173 computer, so I don't mind if they work in pairs... Everyone has their own paper for their
174 notes. But, I don't mind if two or three kids work... not more than three... 'cause they
175 can't/don't see the screen, then.

176 *Have you ever used the support of an ITRT?*

177 I haven't, very much. When I think of how I like to use technology, I have not, very
178 much. I am taking, this semester, my professional development is the advanced
179 SMARTboard. So, I couldn't make the meeting, so I had to go and I worked with the
180 ITRT on the lesson that she was going to teach. And I know [Joseph] does quite a bit,
181 cause he has these things that he wants to try. He's been in our room, he goes and meets
182 with her. And, he thought how to do things, but I haven't, very much.

183 *In what ways... Let's change our focus for a moment. In what ways does the school*
184 *support your technology integration? What type of support are you getting?*

185 I think the whole culture at [Lakeside] is about using technology in good teaching
186 practices. Since I've been there... when I tell people... parents that I meet that have kids
187 there, or other teachers, or my friend, [Heather], or teachers who are unhappy, I just tell
188 them. Teachers at my school have a real passion for being a good teacher. And, that is
189 not something that I had at my last school. And, trying new things. We had a faculty
190 meeting, I think it was last year. A teacher got up and shared how she was using ...like,
191 she put lessons on SCORE... it was for French. Um, Podcasts. Then, the kids could
192 access that. I mean, that's amazing, to me. That you can make a podcast of your lesson
193 and then put it on SCORE for somebody who was absent or somebody who needed a
194 refresher... somebody who wanted to review. And, that's typical of what teachers do, at
195 this school. I don't know if it's really... I don't know if its pushed on us or if people want
196 us to do ... I feel that it is part of the culture of teaching, at this school.

197 *So, you don't feel that it is pushed on you, ... Is that the teachers that have ended up*
198 *there? Or, is it the availability of the resources?*

199 I think that the availability has a lot to do with it...[Jasmine Kyle], our librarian, often
200 will let us know that the library is available. And, there's computers in there. They're
201 good with the waiting lists for the COWs if somebody doesn't pick them up. So if
202 somebody turns up not to use it, they want somebody else to use it. We have (I don't
203 know how many computer labs) (one, two...) five or six computer labs in addition to
204 eighteen or nineteen computer COW carts. There's rarely a time that if you want to use
205 technology, that it is not available. I don't even know all of the stuff.. the clickers, the
206 SMARTresponse... we just have a ton of stuff. [Jasmine Kyle] has gotten Kindles for the
207 library. I think she has Ipod touches... and she shares, with us, ways to use it,
208 frequently... so...I'd say, probably, my opinion, a lot of ideas come from her. I think
209 from [Ariel Mabury]. She used to send out a tip of the week about things to do. I don't
210 think that the new ITRT has, as much...but it is her first year here and I think she came
211 from an elementary school. So, I am sure that is a very different environment from what
212 we have.

213 *Have you ever taken an old lesson and added technology to it? And, integrated it?*

214 I am sure that I have. I can't think of one. This year, I think a couple times, we've used
215 the SMARTnotebook system and it is one with snowflakes on the main screen. In one
216 class we couldn't get a computer lab and one class we could. So, for one class, the kids
217 could throw the koosh ball at the SMARTboard and that would direct them to a question
218 and they would answer it. And then, we could reveal the answer and then go back to the
219 original page and then someone else could throw the koosh ball. And do that. So, in the
220 computer lab, the kids worked individually on it. And, it was a worksheet that when they
221 hit the kooshball it took them to one of the problems on the worksheet. But, [Joseph] has
222 done that a lot. I'll say, these are the problems that they need to practice and he can make
223 into something fancier., more entertaining.

224 *And more engaging.*

225 Yeah. More engaging. It's funny, though some of the kids would rather have the
226 worksheet. So, we usually make extra copies for kids that are absent or we have an
227 Autistic student who works quite a bit slower, good student, solid performing student.

228 But, we almost always give him his own hard copy so that he can work at the pace that he
229 needs to. Kids that are absent get the hardcopy. There's a review game that my friend,
230 had used, where you have all the cars from the movie, CARS lined up. It's called Road
231 Rally. And, so you put a problem on the board. The kids all answer on a white board,
232 they hold them up, so every kid that gets it right gets to advance their car, one notch. I
233 think you can do it for twenty questions is how it is set up. For extra credit, or something
234 for the winner. And they, so the kids go across. And they flip the cars around using the
235 SMARTtools and then they come back across. So, the kids really get into that. And
236 we've done that with the regular and the inclusion. They get so excited about those cars.
237 It's the same problems, but with the game. They love games. I've had kids ask if we are
238 playing games. I've never had kids ask me that.

PATSY'S INTERVIEW

Patsy01202012

- 1 *How old are you? ...*
- 2 (Patsy laughs)
- 3 *You don't have to say...*
- 4 49
- 5 *I like to brag that I am 52. How many years have you taught full time?*
- 6 14
- 7 *And, what grade do you teach?*
- 8 Currently, fifth.
- 9 *In fifth grade, do you teach all of the courses?*
- 10 I don't... we team teach... I teach science and history.
- 11 *Oh. Ok. That makes a difference. And, how many years have you been doing that?*
- 12 This is my seventh year.. Well, wait a minute... teaming... yeah... in some variation.
- 13 *It's just a general idea so that I can talk about who I am talking to*
- 14 We have done different things... just to see what works
- 15 *Have you taught other courses, in the past... other grade levels, in the past?*
- 16 Well, when I first started, I actually taught everything in fifth grade. So, I taught the
- 17 math and the language arts... yeah
- 18 *Alright...*
- 19 And I have also taught other grades... I've taught kindergarten and third.
- 20 Wow
- 21 I started with kindergarten, then I moved my way up.
- 22 *How long were you in kindergarten?*
- 23 Just a year. Six in fifth, one in third, and one in kindergarten.
- 24 *What is your educational background? Do you have a bachelor's degree?*

25 I have a bachelor's degree in Psychology with a certification to teach... and a Master's in
26 Education.

27 *OK. That is kinda getting some background information . Ok. Now, let's talk about*
28 *lesson planning. What do you think is the most important part of a lesson plan?*

29 (PAUSE... exhale) I have to pick the most important part of the lesson plan... actually
30 (exhale)... can I say two?

31 *Yes!*

32 Cause obviously some sort of instructional time where the kids have access to the
33 information that they need to learn... if that's not there, then there is no sense in having
34 it. But, other than that, I think that it is just the beginning ... the intro... where you are
35 building some background knowledge and you're trying to get them excited about what
36 you're getting ready to do...

37 *I see what you are saying. I know exactly what you mean. Have you ever sought advice*
38 *or support about lesson planning?*

39 Absolutely!

40 *Where have you gotten that from... where did you go?*

41 Coworkers... in general. I just, yesterday... sent out an email with the gifted teacher last
42 week and then I sent out an email to the math specialist and to the ITRT because of a unit
43 that I am getting ready to do that I need support from them to pull it all together.

44 *Wonderful...have you ever had trouble in the learning environment in terms of getting the*
45 *support that you need?*

46 Never.

47 *Ok. Tell me about a lesson that you wrote that you think went really well.*

48 Probably, and it is also my favorite, is um, we do at the very beginning of the year... is an
49 American Indian unit... and, it's not so much the lesson as it is the unit because I
50 introduce the material to the students and then I have them choose the product that they
51 want to create. Because they are studying about all of these Indians and so then they
52 choose what they want to do. A lot of those do integrate technology and some of them
53 don't because some of the kids aren't as comfortable with that. So, I do that and then

54 once they choose the product that they wanna make... then I assign a tribe that they have
 55 to learn about and group them. And then they work on the project, basically, for the rest
 56 of the time... and then they present. And, usually, I give a group the option of writing a
 57 skit and performing it so that we record that on a flip camera. I give, um, . [interruption
 58 occurs for about 1 minute before we return to our interview]...
 59 So, anyway, like this year, and I have presented this at a couple of ... tech
 60 conferences...because I planned this with the whole UDL model in mind as well ... and
 61 whenever something like that comes out, I think teachers panic and say “oh no,
 62 something else we have to do” but it’s not.. not really... and, um... it’s really important
 63 to me to meet the needs of all my students and I figure if I’ve got these kids that are a
 64 little dramatic and they want to show me that they have learned that material then I think
 65 that’s fine. And, then I had um I had a lot of students this year, not last year, but this year
 66 who chose to write a song or a rap ... and we recorded that on Audacity and then...
 67 Google Earth... one group... two groups... did a Google Earth project where they- pretty
 68 simple because ... since they were only assigned one tribe they really didn’t have to do a
 69 tour. But they push-pinned the location. And then they added pins around it with the
 70 different facts about the clothing and the shelter, and things like that. With pictures
 71 imbedded in it.
 72 *Creative.*
 73 One made a board game...so I did have the, ya know, hands on part. Not all technology.
 74 But, even with the board games, we record everything on the flip cameras... when they
 75 do a presentation. It always gets recorded.
 76 *Wonderful. What do you think makes that a good lesson?... What would you say?*
 77 Student choice
 78 *I think so. When you hear that someone says that they have written a really good lesson*
 79 *plan, what do you think that they mean?*
 80 [whispering to self]... what do I think they mean. [aloud] I would hope...I mean if I
 81 went to look at that... I would hope to see, again, that really good introduction, that years
 82 and years and years ago we called an anticipatory set. That really hooks the kids into

83 what they are doing. And then... that there's ... if there is direct instruction, which I do
84 believe there has to be some of, that after that there's an opportunity for the students to
85 practice and explore in a way that... in a way that they are comfortable with... and that
86 doesn't always happen with every single lesson that we do and there is some type of
87 closure to it as well ... that you wrap it up...whether it's just asking a question and taking
88 responses...or I know exit tickets are big... just something that wraps it up instead of
89 leaving it hanging.

90 *What role do you think technology should play in facilitating student learning?*

91 Well, it has to enhance it. And, I think that there is a balance between using the
92 technology so that you don't have to do something like I think it would become easy for
93 some teachers to get caught up in the "I'll just give them a computer" you don't want to
94 get into that "let's just keep them busy" mentality... there has to be a purpose for what
95 they are doing.

96 *Oh, yes.*

97 Um, but I am a huge fan of it and I think it needs to be there. I mean, that's how are
98 kids... that's how this generation of kids learns... they are on computers all of the time
99 and if it's not computers its video games and things like that. Um, I have a lesson a unit
100 coming up that we always get on and play, "Oregon Trail". As part of the unit and the
101 kids just think that they are playing a game. But they have thought, you know, something
102 that they have to do for follow up that connects to the curriculum.

103 *I know my children used to love it.*

104 It is one of their favorites because they get to play Oregon Trail and nobody has time to
105 do that anymore, but it fits our curriculum and it is really neat... so I don't see why I
106 wouldn't want to use it. To me, that is a simulation and it is perfect. So...

107 *So, is that what... my next question is tell me about a lesson that you have taught using*
108 *technology*

109 Oh, my gosh... there's so many. Um, the one that I was referring to is brand new... I
110 haven't taught it...I haven't done it yet. One of the ones that I really like... I try... um...

111 I use technology every opportunity I have and try to integrate... so it is hard for me to

112 pinpoint specific... just like the American Indian unit I told you about... one lesson we
113 do ... after we have studied the key people of the American Revolution we do an um...
114 and I learned this at a technology conference...but I love it and the kids love it... they do
115 an um...it's a FACEBOOK-looking-type template and it actually has three tabs on it... it
116 has the wall and info and photos... and they pick a person that they want to do... I don't
117 assign that... I assign the way that they are going to do it and they pick a person and they
118 do... um on the wall, they do a conversation with that person... like, if they do George
119 Washington, who might he have been talking to... what might he have been talking
120 about... and then, on the info page... to me, it serves as a mini biography because you are
121 just giving that basic information and they imbed pictures and they share them with the
122 class. And, um, that's our wrap up to that particular unit. But, I like that lesson because I
123 show them how to navigate the fake FACEBOOK... it's called SMARTBOOK instead of
124 FACEBOOK... and then, they work, they already have all of the information, so it's a
125 matter of pulling it together where they show me that they learned something about that
126 person.

127 *Oh, ok, so they have also learned about setting up the SMARTBOOK/FACEBOOK-type*
128 *Well, the templates already there... all they have to do it fill it in... But, my students also*
129 *do make SMARTBOOK lessons. I mean, that is one of the things that we do with that*
130 *SMARTNOTEBOOK file... they make lessons to teach other students... I usually... I*
131 *haven't done that yet, with this group, this year. I usually do it later in the year...But, I*
132 *know that they have done it with the math teacher that I teach with... already to teach*
133 *something... together in groups. They create it and then they teach the rest of the class.*
134 *That's wonderful. Have you ever used the support... I think that you said that you have*
135 *used the support of an ITRT.*

136 Yes.

137 *How did it work? How did that change your lesson planning experience?*

138 Probably just the fact that they had ideas that I hadn't thought of... I do try to do a lot
139 of... I love to do a lot ... but, probably ... it just seems like every time I turn around...
140 somebody will.. and I am meeting with an ITRT... and they will say, "well, have you

141 thought about trying this?” and I will say, “well, no”... I will think, well no, never
 142 thought of that ... let’s roll with it.

143 *What um factors were most impacted by your using the ITRT? What part of the What*
 144 *factors of your lesson planning experience do you think were most impacted ?*

145 It wasn’t really instructional it was more just the use of the technology. It may be some
 146 program or some use of technology that I hadn’t thought about using for that activity. I
 147 might have planned to do this...still integrating the technology... and then the ITRT said
 148 “well, have you thought about using this” I say, no, I didn’t think about using it that
 149 way...

150 *What aspects of your school contributed to your working with an ITRT?... Do you know*
 151 *what I am asking? Is there something particular about the culture of this school that*
 152 *facilitates or contributed to your. . .*

153 Well, in the beginning... I was friends with the girl that got hired as the ITRT...and I
 154 kinda wanted... it was almost, for me, kinda like I wanted...she got hired, we wanted to
 155 make sure our ITRTs kept their jobs and had jobs, so we started using them a lot so that
 156 they would.

157 *How wonderful*

158 Because we didn’t want to see somebody say, “ you don’t need one”... so, we just sort of
 159 developed that rapport and that support of each other... then, we got a new ITRT and she
 160 was very outgoing and very... very positive... she had a very positive personality... and
 161 even if you felt like you couldn’t do something or weren’t using it very well... she
 162 always had something positive to say about it, “oh, that was really, really good, but the
 163 next time, you might want to try blah, blah, blah” which is what we do with our students
 164 ... and um, ... and then... we just have had a lot of different ITRTs so it sort of
 165 depends... I am just really interested in the technology myself... I am really into the
 166 technology stuff myself... so it makes it more worth doing, too. You know, I think if I
 167 didn’t want to use the technology I might not have anything to do with the ITRT, but
 168 that’s not where I am at... I want it because I think the kids need it. And, I like it, I enjoy
 169 it.

170 *And you said that... I want to make sure that I am clear on this..*
 171 ok
 172 *You said that the choices about the technology that you used or the way that you used the*
 173 *technology was impacted by the ITRT because they had a different ... is it because they*
 174 *had a different approach to it? Or,...*
 175 No, just they knew about things that I didn't ...
 176 *That you hadn't been exposed to*
 177 Yeah... we just do not have time to research all that and I don't have time to get on the
 178 computer and look around for things... but then, somebody would say, "well, have you
 179 looked at this website, because on this website there's this webquest that is already done
 180 and you don't have to make one... that kinda thing... or even... um... I was trying to
 181 think how I first, 'cause I love Audacity...and I ... I think a lot of times it was just... that
 182 was presented to us and I was teaching language arts and we decided to use and did use
 183 for several years, our language arts teacher still does... to record the spelling words and
 184 then the kids can just sit at the computer with the headphones... that's not what I do...
 185 that's what she does... But, I did, in the beginning... So, sometimes it was them
 186 presenting this thing to us... and my big question is always ... "This is great, but how is
 187 it going to be valuable? Or worth using. And when we realize that the kids using
 188 Audacity can scroll... go back...they can self-pace... take as long as they need to to take
 189 the spelling test... just something as simple as a spelling test... it made a world of
 190 difference...
 191 *Wow . Um, in what ways do you think your school supports your integration of*
 192 *technology into the lessons?*
 193 We have mandatory meetings, once a month, with the ITRT... grade levels.
 194 *Oh, I didn't know that...*
 195 Yeah, it's on a Tuesday, I don't remember which one... maybe the second or third... but,
 196 that probably doesn't matter...the ITRT spends her day, during each grade levels'
 197 planning time, with a meeting... and, many times, our administration comes in and sits in
 198 and

199 *What do they present... what does the ITRT give you at that time?*

200 Well, they will ask us, ahead of time, if there is anything that we need to know about.

201 But, a lot of times they will come in with showing us how to do something that we didn't
202 know how to do. Or, some of us may have known how to do it, but others didn't... um.

203 Their focus is turning a lot more towards... um, ... professional development type things.

204 So, we can kinda imbed that into our planning meetings... so, um... last time we met
205 with them, or time before last, they showed us how to create our classes and put them
206 into the SMART response system which we use, too. But, always, before, the ITRTs just
207 sorta created that list and put it in and it was like "oh it was there" for us, but they came
208 and showed us how to do it. Which I like because I can just use it and don't have to wait
209 on someone to create it in my class for me. I can use it when I want to .

210 *How do your colleagues take the mandatory ITRT meetings?*

211 I think it depends on the group. Um... [long pause] this particular grade level is very
212 into using technology as a whole and very open to that kinda thing. And, I think, it
213 depends.

214 *It sounds as though you all have recognized the benefit and have integrated the
215 technology into your daily thought process...*

216 oh, absolutely

217 *Have you ever taken an old lesson and rewritten it?*

218 yes, because ... [getting up and going to the SMARTboard to prepare for her students'
219 arrival] I did because you remember that lesson that I was telling you about with the
220 American Indians my students ... I had always done it that way... I had assigned the
221 project and um tribe and I also had also had not always had the access ... I took that and
222 we were just basically... last summer, at school... it was called retool for school... a
223 week long professional development and we took that an I put ... totally retooled that
224 lesson to integrate more technology for this year... which we have already done it,
225 now... but, I did that over the summer. To integrate technology more and I had more to
226 learn about some of the things in order to do that. And then, um, instructionally, too, I
227 kinda looked at it needed more student choice... it had some student choice, but I decided

228 that it needed a lot more and kinda flip flopped it to where they were choosing the
229 product. I mean, who cares about which Indian Tribe you are doing, matter of fact, a lot
230 of times, the kids will choose one that they already know about, so I would be very
231 intentional about giving them one that I felt like that they didn't know as much about so
232 that they had to work harder at it.

233 *I know that you have students coming in and I think that we are done.*

234 I was about to say, do you have another question?

235 *No, I don't. I think that I just want people to understand that what I am interested in is*
236 *exactly what you told me. How has your normal practice been impacted by technology?*
237 *Is it ... do you see it as a hindrance like some people do... or do you see it as enhancing*
238 *and does it affect the process, cause I ... since you've been teaching for 7 - 8 years, how*
239 *has your process changed? Has it taken you more time because of your doing technology*
240 *integration?*

241 See, I believe that it takes less time. I really believe that using the technology is a time
242 saver for teachers. But, a lot of teachers, I think, are recognize that.

243 *It is very difficult for us, as a culture, to change how we have gotten comfortable doing*
244 *things.*

245 But, I hate worksheets, so ... my kids have to do some every once in a while, but any
246 time that I can find something that they can do a different way. I am all about it...

247 *Well, thank you so much I ... you've been amazing...*

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