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Effectively Integrating Technology to Engage Students and Meet Learning Objectives in Language Arts Classrooms

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Dedication

This dissertation is dedicated to my mom and dad who always pushed me to do better and to never give up. Thank you for always believing in me. Your baby girl did it again!

Abstract

Technology is an ever-changing resource that is more advanced now than it has ever been. This action research project explored how teachers intentionally plan the use of technology in their classroom based on the objectives that need to be taught. The main study that this action research explores is how teacher align objectives to integrate intentional technology that engages students in the middle school ELA classroom? By collecting data via questioning, interviewing, observing and collaboration among participants, the findings show that the use of technology in the classroom is most efficient when implementing a backwards design approach to lesson planning.

Table of Contents

Chapter 1: Introduction

Aligning Learning Objectives to

Intentionally Integrate Technology into the Classroom

In classrooms across the nation, students are not only being given technology as a tool, but are expected to use it to enhance their learning. As students continue their education into high school, college and beyond, they are going to be more exposed to different types and levels of technology that they will be required to incorporate into their daily lives. “Colleges are using technology to improve the quality of student learning; make active and engaging learning available throughout institutional offerings; and help students become more successful learners” (Dabba, 2019). So why shouldn’t these benefits of using technology be used at a younger level to increase student’s engagement and learning? Effectively addressing content standards/learning objectives at this stage of learning, will help to enhance the importance of developing technology to prepare students for next level/life skills.

While enhancing learning with technology is important to prepare students for high school and college, it also serves as a tool to engage students when used well, aligned with curriculum and student learning goals. Especially at the middle school level, students have other interests and things that they find important in their life other than just school. Getting students engaged in Language Arts is a difficult task I face every year.

Based on the diversity in learning goals and strategies, technology also offers methods to meet the differing needs of middle school students. Among my usual 75 students, around 20% of them are on Individual Learning Plans (IEPs) or 504 for a medical need. Each year, over half of my total students are below grade level at the beginning of sixth grade according to the district reading comprehension assessment (NWEA/MAP) given three times a year in reading and mathematics to show student growth. Because of the differing learning trajectories, I try to incorporate their personal interests as well as 21st century opportunities in order to engage them in their learning. "Technology integration necessarily alters the traditional paradigm of the teacher providing wisdom and the student absorbing knowledge...and for good reason. The knowledge needed for tomorrow's jobs will change before many of today's students enter the job market" (Bitner, 2002, p. 9).

Despite my efforts, in integrating technology to meet students' curricular needs and providing engaging instruction, challenges still exist. Keeping students on-task and effectively engaged with technology continues to be difficult. For most students who have access to technology outside of school, they use their digital media for "fun" and not always for academic purposes. While some strategies have proven effective in some contexts, it is impossible to fully keep this from happening especially when students are on their own outside of school.

The decision on the selection and use of technology for instruction should be made at the onset – when the instruction is being prepared by the teacher, not in the middle or at the conclusion of the instruction. The objective and method of instruction

including technology and outcomes of instruction should be specified at the planning stage (Okojie, 2006).

> Lack of effective planning may cause problems. Having a vision and a plan for the implementation of educational technology integration is key to well-integrated educational technology. Strategic planning for technology adoption requires visionary educational leadership skills. The planning phase is of major importance in technology integration (Kurt 2017).

Especially when incorporating technology, teachers must take into account their own attitude and perspective towards technology and the level of technology integration that they feel comfortable using. "While teachers are beginning to stretch out of their comfort zones, students are benefitting from opportunities to engage with content in new ways" (Salazar, 2020, p. 1). Teachers should be incorporating technology with a specific purpose in mind for using this tool.

"Technology provides tools for active learning, among others—it is a means, not an end. Integrating technology into our pedagogy conjures reflection on our part as educators about moving away from the ways things have been done, to imagining the ways things ought to be done" (Berkeley Center for Teaching & Learning 2019, p. 26). Often the use of technology allows students to attempt assignments given since they are already proficient in the use of technology instead of shutting down because they feel as though they *can't* do the assignment. Deciding to actively not learn something involves closing off part of oneself and limiting one's experience. It can require actively refusing to pay attention, acting dumb, scrambling one's thoughts, and overriding curiosity (Kohl, 1994). By engaging students with the use of technology, teachers are hopeful that

students are actively participating in their own learning. Teachers must ask themselves, how can objectives be aligned to integrate intentional technology that benefits students in the middle school ELA classroom? Focus needs to be placed on what the final outcome is and what rubric the students should be exposed to for an assignment. By making the expectation clear to students, it helps to ensure more of an expectation of the assignment. A rubric is any established set of statements (criteria) that clearly, precisely, accurately, and thoroughly describes the varying or developmental levels that may exist in a student's work. Rubrics also provide valuable information for guiding or coaching students to their desired level of performance (Stanford, 2010).

With any lesson that doesn't go as planned, educators have to reflect on what they could have done differently. If objectives are not explicitly met, there are many reasons that this could occur. "Assessments should reveal how well students have learned what we want them to learn while instruction ensures that they learn it. For this to occur, assessments, learning objectives, and instructional strategies need to be closely aligned so that they reinforce one another" (Eberly Center for Teaching Excellence, 2019, p. 3).

Problem of Practice (PoP)

Teachers often find it difficult to create lesson plans that effectively integrate technology into classroom learning. One common challenge to technology integration for teachers is knowing what technology to integrate, on which content to focus, and how to integrate it effectively. Teachers must also take into account their own competence when it comes to their personal knowledge or the technology support that is available. These

challenges represent the specific problem of practice on which this action research dissertation in practice will focus.

The problem of practice on which this study focuses is the intentional role that lesson planning takes when integrating technology into the classroom. It focuses on when technology is really necessary in order to meet an objective and not just a distraction. Technology application is becoming a more integral part of the teaching and non-teaching practices of teachers than ever before (Liu, 2016) and it is important to understand how to effectively integrate technology while meeting goals and engaging students.

Technology in education is commonly defined as a technical device or tool used to enhance instruction (Okojie, 2006). “Educational technology might include media, models, projected and non-projected visual, as well as audio, video and digital media.” Some “educators may take a narrower view” and are likely to “confine educational technology primarily to computers, computer peripherals and related software used for teaching and learning” (Okojie 2006, p. 7). It should be noted that technology, which is used to facilitate learning, is part of the instructional process and not an appendage to be attached at any convenient stage during the course of instruction (Okojie, 2006). One critical key is to look at the collaboration among others on this problem. One thing we have learned thus far is that for many faculty members, the value of alignment comes most powerfully into view when they are sharing assignments with one another and talking about what they see (Hutchings, 2016). Is the use of technology actually helping the students achieve the goal/objective of the lesson or is it just being used as an engagement tool?

According to the Berkeley Center for Teaching and Learning (2019), technology can support and enhance teaching and student learning in three central ways: It can expand the scope of classroom learning beyond the physical boundaries of the classroom (and also beyond inclusion of only teacher and students), it can expand accessibility of, and engagement with, content and information, and it can expand the ways students can demonstrate what they have learned. Today's children are growing up digital. Their view of the world is very different from that of adults, thanks to unprecedented access to information, people, and ideas across highly interactive media (Lemke, Coughlin, Thadani, & Martin, 2003). At this point in time, educators have no choice but to adapt to technology integration. The times require that schools change or become obsolete. This study examined and investigated how to appropriately integrate technology into a successful classroom.

Theoretical Framework

The theoretical frameworks that surround my research study are grounded in the areas of Social Efficiency and Technological Pedagogical Content Knowledge (TPACK) that attempt to help me identify the nature of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge (Koehler, 2012). In addition, student engagement informs my work as technology is only effective when it actively engages students in their learning goals. Student engagement has been defined as "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" and the extent to which students are engaging in related activities (Trowler, 2010, p. 11).

The Social Efficiency ideology, launched in 1913 by Franklin Bobbitt, focuses on how to meet the needs of students so they can be contributing members of society. Bobbitt claimed in his 1918 essay, "Scientific Method in Curriculum-Making," that education develops a type of wisdom that can only come from participation and experiences. This involves what kids must do and is more than memorization (Flinders & Thornton, 2017, p.11).

Social efficacy is coupled with the effective use of technology to engage students and meet the learning goals of students. To increase and improve educators' use of digital learning tools, some researchers and organizations have created theoretical models to guide teachers' and administrators' practice (McLeod & Richardson 2013). The TPACK framework was introduced by Koehler and Mishra (2005), who originally used the term "technological pedagogical content and knowledge," or "TPACK." The TPACK framework aims to integrate technology into the same framework as pedagogy and content (Mishra & Koehler, 2005). This integration is supported by research suggesting that learning only technological skills does not prepare teachers and educators to integrate technology in their content-specific teaching (Lawless & Pellegrino, 2007).

The TPACK framework for teacher knowledge is described as a complex interaction among three bodies of knowledge: content, pedagogy, and technology. The interaction of these bodies of knowledge, both theoretically and in practice, produces the types of flexible knowledge needed to successfully integrate technology use into teaching (Koehler & Mishra, 2009). The TPACK framework builds on Shulman's (1987) descriptions of Pedagogical Content Knowledge to describe how teachers' understanding of educational technologies and Pedagogical Content Knowledge (PCK) interact with one

another to produce effective teaching with technology. Effective teaching depends on flexible access to rich, well-organized and integrated knowledge from different domains including knowledge of student thinking and learning, knowledge of subject matter, and increasingly, knowledge of technology (Shulman, 1987). TPACK presents a dynamic framework for describing teachers' knowledge required for designing, implementing, and evaluating curriculum and instruction with technology. TPACK strategic thinking includes knowing when, where, and how to use domain-specific knowledge and strategies for guiding students' learning with appropriate information and communication technologies (Niess, 2011).

Effective Technology Integration to Improve Instruction, Student Engagement, and Mastery

In order for technological integration to be effective, we must examine the perception that comes along with the technology and how that can impact a teacher's use of the tool. The real importance of incorporating technology in the classroom is to understand the relationship between pedagogy and technology. Teachers must look at the problems that come along with using technology in the classroom, such as limited resources and lack of skills when it comes to computer usage, but not use these as excuses. If teachers were more diligent and understanding about the pedagogical issues that surrounded incorporating technology, then it would be more effective in the classroom (Okojie, 2006). In order for computer usage to be appropriate, the thought of usage must be considered in the planning stage of a lesson.

Research has found that teachers use a variety of teaching for different reasons. A group of student teachers decided to integrate technology into their elementary

classrooms to determine if the usage enhanced instruction. They applied technology for a number of reasons, such as student engagement, time management, motivation and meeting individual students' needs. One of the main questions they considered was not *what* technology to select but *how* to apply the selected means to maximize learning outcomes within the given instructional time. The results show that the primary technological means used to enhance teaching was to provide visuals for attention, engagement and interaction (Okojie, 2006).

Another study, conducted by Baek and Kim (2008) explored what makes teachers use technology in the classroom. The purpose of the study was to identify factors influencing teachers' decisions about using technology in the classroom setting and examine the degree to which teaching experience affects these decisions. While the majority of teachers intend to use technology to support teaching and learning, not all teachers use it for the same reasons. Experienced teachers generally decide to use technology when pushed to, while teachers with little experience are more likely to use it on their own will.

Research Question

This action research project explored how teachers intentionally plan the use of technology in their classroom based on the objectives that need to be taught. It also identified strategies to meet objectives and engage students in the technology-integrated lesson planning. For this qualitative research study, the question calls for different forms of data collection such as interviews, observations, and questionnaires (Efron & Ravid, 2013). When using technology, teachers need to make sure that they are being diligent and intentional about using technology and that it is not just a tool being used to keep

students busy or to make less work for the teacher. While students often love being given the opportunity to use technology, it needs to be apparent that this technology is being used in the proper way. The main study always come back to; *how can I align my objectives to integrate intentional technology that engages students in the middle school ELA classroom?*

As a 6th grade Language Arts teacher, I find that my students enjoy using technology but when it comes to the outcome of their assessment, I'm not always confident that they have met the goals I have set forth. The students in my district perform poorly on our state assessment so there have been discussions happening about why that is. It seems as though the discussion keeps coming back to the accuracy of the standards being taught based on teacher interpretation. Ohio has recently adopted the Common Core State Standards which has been cause for change and redirection in the classroom. In an era of high-stakes testing and accountability, contemporary teachers are faced with ever more demands and still limited time and resources. Fortunately, technological advances allow teachers to tailor curricula to individual students quickly and effectively (Stanford, 2010). This study sought to better understand aspects that drive effective technology with the following research question shaping the work.

1. How can using a universal design and the intentional alignment of formative and summative assessment with lesson learning objectives support the process of selecting and effectively integrating technology into the classroom to meet the objectives for the students and while keeping students engaged?

Researcher Positionality

For this action research, I was an insider since I am a classroom teacher but I collaborated with other classroom teachers. "Insider researchers often collaborate with other insiders as a way to do research that not only might have a greater impact on the setting, but also has the potential to be more democratic" (Herr & Anderson, 2015, p.3). The use of technology is important as it is where our society is moving forward but it must be used strategically and methodically to engage students and meet learning objectives. When using technology, I often have a higher percentage of students complete the assignment than without the technology in place. But because my students are in middle school and the rigor is higher, there are certain expectations that they need to meet in order to show that they have understood and mastered the objective and just completing and turning in an assignment doesn't do that. Did I not make the final objective clear enough? Did I overestimate or underestimate what the students needed the technology for? Was the use of technology even necessary in this area?

When I started teaching 12 years ago, we were lucky enough to have four desktop computers in the classroom that the students had to share amongst themselves. We did very few full-class assignments on the computer due to the limited accessibility. Moving forward, schools integrated a computer cart that could be checked out for their classroom in order to make arrangements for each student to have access to technology. The problem with this being not having the availability of these computers when needed. Sometimes teachers would just need them for a day or two but when working on a larger research or writing assignment, you would need them for your classroom for multiple days which may have not been a possibility.

As of 2017, students have access to a computer at all times based on one-to-one technology initiatives in our district. My students have access to this technology not only at school but can take it home as well. Accessibility is no longer an issue or concern which allows for students to have an immediate connection to the technology needed.

Research Design

Action Research

Action research is usually defined as an inquiry conducted by educators in their own settings in order to advance their practice and improve their students learning. (Efron & Ravid 2013). Efron and David (2013) also suggest that the researcher must conduct investigations in their classroom and schools. In addition, action research provides educator with a powerful strategy for being active partners in leading school improvement. For the study, this was the most evident strategy to use both for myself and for my students.

Within action research, qualitative research is designed to study school situations and events as they unfold naturally while quantitative research is designed to gather numerical data from individuals or groups using statistical tests to analyze the data collected (Herr 2015). For this action research project, I used a qualitative technique in a single study focused on English/language arts teachers at one school. “Qualitative research is a type of research that encompasses a number of philological orientations and approaches” (Merriam & Tisdell 2006) In this study, I mainly focused my research of the attitude on the instructor towards technology and how that affects their integration of technology into the classroom.

Data Collection and Analysis

"In most forms of qualitative research, some and occasionally all of the data are collected through interviews" (Merriam & Tisdell, 2016 p.108). For my research, I conducted individual interviews with each of the four other Language Arts teachers at my school in regards to their use of technology in the classroom (see Appendix B). In order to conduct a good interview, I took the steps necessary beforehand to have good interview questions. Merriam & Tisdell (2016), suggest asking questions that "relate to experience and behavior, take into account opinions and values, feeling questions, knowledge and sensory questions and background questions" (p.23). The questions revolved around teachers' overall use of technology, their own comfort and knowledge of integrating technology, as well as the outcomes they have seen and experienced.

I also hosted a focus group (see Appendix D) as a form of data collection to allow teachers to come together to have a conversation and share ideas. When using a focus group, it is more of a "conversation" taking place among a group. However, since multiple people are engaged in a conversation, data can be socially constructed because of other members' input in the group.

To better understand the interviews and focus group data, I conducted observations as well (see Appendix C). Using the emergent data, I determined what I planned to observe and how to best record these observations. Regardless of conducting interviews, focus groups, and observation, it is important to ask good questions that are clear to the person being questioned. Taylor (2016) discussed how participants in a research study are susceptible to being influenced by the way questions are asked or how they are worded. When conducting an observation, it is important to keep in mind my

research question and theoretical framework and focus on observations that relate to my problem of practice.

These three types of data collection tools (interviews, focus groups and observations) allowed me to understand first-hand experiences. Regardless of the type of qualitative data tool used, it is essential for the researcher to create a safe relationship between myself and my participants so that they feel they can be open and honest in their answers.

Data Analysis

Merriam and Tisdell (2016) suggest simultaneously collecting data and analyzing data. “Data analysis is one of the few aspects of doing qualitative research- perhaps the only one- in which there is a preferred way” (p. 197). After I began collecting data, I coded the information looking for similarities in the responses. Lapadat, Mortus and Fischer (2005) remind us that is critical throughout the data collection and data analysis process that the researcher remains unbiased and remembers our role in the process.

Significance and Limitations of Study

The middle school where I teach has had one-on-one Chromebooks since 2017. This has required that more teachers use technology in their classroom as a learning tool for students. The benefits of this action research project are to generate a connection between the effective use of technology in the classroom that is aligned to curriculum and engages students and teachers’ own belief and experience. While this study is intended to generate knowledge, action research it is not intended to be generalizable or demonstrate external validity.

List of Definitions

Chromebook: a computer that runs on Chrome operating system. This was the primary device used by participants in this research study as provided by the school.

Device(s): any machine that can be used to connect to the Internet. In this study, students used technology to access or interact with videos (i.e.- Chromebooks, laptops, desktop computers, smartphones, tablets, etc.)

Engagement: a term to describe if a student was focused, felt a sense of accomplishment and enjoyed the content they are being taught. Student engagement hinges on four 25 characteristics: success, curiosity, originality, and relationships (Strong, Silver, & Robinson, 1995).

One-to-one: a term that means the ratio of devices in a school and students is 1:1, that all students have access to devices inside and outside the school setting.

Technology tools- refers to software, primarily, that can be used to develop or support online course content.

Chapter 2: Literature Review

In this chapter, I examine the research surrounding my problem of practice (PoP) of how teachers use technology to align to teaching objectives and engage students. This literature review addresses the current trends related to technological integration in the classroom and its effectiveness as well as analyzing the historical context. I investigate best practices to use when engaging students with technology. I then use scholarly literature to support the theoretical framework ideas aligned with Social Efficiency and Technological Pedagogical and Content Knowledge (TPACK) while discussing the backwards design as well as student engagement.

Introduction

The purpose of this action research study is to explore how teachers can align learning objectives to integrate intentional technology that engages students and meets the learning objectives in the middle school English/Language Arts (ELA) classroom. I investigate and analyze the best measures and tools to use. Teacher-initiated research has grown astonishingly over recent decades in spite of the increased pressure for specific student achievement (Cochran-Smith & Lytle, 2009; Meyers & Rust, 2003). Educators want to test ideas and interventions to determine how they work in their classrooms, and inquiry offers an opportunity to systematically understand new strategies and ideas. This

is an approach that is used to facilitate learning with students and it works well with teacher professional development also. We use inquiry and give them questions and problems and want them to determine the answers and solutions instead of being told. Cochren-Smith and Lytle (2009) define inquiry as "a way of knowing and being in the world of educational practice" (p. 13). Action research can be seen as a strategy for teacher leadership (Smeets & Ponte 2009). Not only can it help teachers with their own work in the classroom, action research can also have an impact on the work of others in the school or the school as a whole. Using technology in the classroom is a way that teachers can allow students to take ownership of their own learning (Ntuli, et al., 2009).

I work in a high-poverty school district where we have been fortunate enough to provide one-to-one Chromebooks to our students while they are at school. After the initial trial, students were then allowed to take their computers home to continue their learning outside of the classroom. Because of this initiative, teachers have been incorporating more technology into the classroom than ever before.

One of the reasons that our school implemented one-on-one technology was to support the focus on learning objectives to improve academic achievement among our students. There has been a push for our students to gain proficiency with technology as they meet their learning goals. Technology is a huge and vital part of our world and it is only going to continue to grow which is why I knew from the beginning I wanted to center my problem of practice on technology integration in education. At the time of the study, the school had been integrating technology for academic purposes for several years. I teach 6th grade and that is when students start at our building so this is their first time having this opportunity to use the technology at school as well as take it home with

them in the evenings to continue their learning. Because of that, I think it is even more important to make sure students are using the technology for the specific goal being given by the teacher.

Technology is intended to be a learning tool, but without clear goals, it is difficult to know how to use it in a way that supports learning. Schiro (2008) states in his publication, *Curriculum Theory* that systematic improvement has been difficult, "for we have been unable to settle on a single ideological orientation or a negotiated compromise among ideological orientations" (p. 1) and we're unable to set clear goals for our school, and unable to pursue those goals with single-minded determination. While improvement is the goal for everyone, finding a goal that everyone agrees on is difficult. If we could settle on attainable goals, and continue to work on them by only changing the failing variable, we would see a lot more success (Fullan, 2007). The use of Common Core State Standards in ELA offers the potential to organize us around learning objectives that define success and further students' learning trajectories as they progress toward high school and college.

My problem of practice focused on whether technology is being used efficiently and effectively to teach the Common Core objectives. "To meet students where they are in a modern classroom setting and better optimize their learning, educators and school districts have adapted to kids' natural technological processes" (Braunschweig, 2019, p. 57).

Teachers, including pre-service teachers, are being asked to integrate technology into their instruction to support student learning (Liu, 2017). Teachers are often faced with the challenge of incorporating available technology into the classroom but are not

always given the appropriate tools they need to do that effectively. Some of the common challenges to technology integration for teachers is knowing what specific type of technology to integrate, which content to select, and how to integrate it effectively. Teachers must also take into account their own competence when it comes to their personal knowledge and experience with technology and the technology support that is available (Ertmer, 1999).

When considering ways to change teachers' practice, particularly their uses of technology, the literature reviewed suggests that the influence of teachers' beliefs substantially impacts their use of technology (Ertmer, 2005). The theoretical framework for this action research focuses on teachers meeting challenges accompanied with technology and the Technological Pedagogical Content and Knowledge (TPACK) framework. Using "backward design" (Wiggins & McTighe, 2011), teachers begin by looking at the end result that they want their students to produce, and looking at student engagement to keep students focused on their individual tasks and learning. Teachers need to be able to interpret content and transform it for teaching that makes it accessible to their students. However, the majority of educational facilities have divided professional development programs that address the type of TPACK knowledge separately which results in unrelated separate professional development programs that do not emphasize the importance of the relationship between technology, pedagogy and content (Stover & Veres, 2013).

Historical Perspective

Since the 1920s, many technologies such as film and radio have been incorporated into the classroom with a goal of making teaching and learning more

productive (Hannafin & Savenye, 1993). Educational technology emerged out of the technological tradition when a kind of knowledge began to be systematically applied to instruction. Educational technology is the product of trial and error that evolved from instruction and simple observations because educational technology is a process rather than a product (Saettler, 2004). Educational technology research has passed through a number of stages, focusing, in turn, on the content to be learned, the format of instructional messages, and the interaction between computers and students (Winn, 2002). It was not until the mid-1980s that computers started to become something other than a novelty in teachers' classrooms. Technology use by educators and students continued to be relatively rare through the mid-1990s until the federal Technology Literacy Challenge Fund helped schools make computers available to more students (Riley, 1996)

Jason Frand (as cited in Kvavik, 2005) observed that today's young students take technology for granted but that staying socially connected is a central part of their lives. Schools however want to focus on not just the social aspects of communication, which is important, but the academic achievement that can be facilitated through technology. This can be seen especially in schools that have used technology as a lever to achieve school-wide reform in teaching and learning. By expanding the time and space of schooling, opening the classroom to the outside world, forming communities of learners, parents and teachers, and by giving all schools access to an expanding world of resources, both teaching and learning can be advanced to a new level of effectiveness and social importance (Venezky, 2004).

Social Efficiency

Social efficiency, as Snedden defines it (as cited in Bergen, 1981), is the position in education that calls for the direct teaching of knowledge, attitudes, and skills intended to shape the individual to predetermined social characteristics. Social efficiency presumes to improve society by making its members more vocationally useful and socially responsible.

Furthermore, in the modern day, students must be able to take their experiences in current society to prepare them for the future. Teachers are merely an "instrument for furthering the development" (Schiro, 2013, p.7). It is important for students to not only learn what they are being taught each day in the classroom, but how this information can be attributed to what they will need to know regarding skills and social productivity for the future. Social Efficiency educators believe that objectives of the curriculum should be observable skills and actions for students and stated in behavioral terms. Teachers must "control the learning experiences students have by 'manipulation of the environment in such a way as to set up stimulating situation- situations that will evoke the kind of behavior desired'" (Schiro, 2013, p. 59). Since Ohio has moved to the Common Core State Standards, there is additional emphasis on key skills and abilities designed to enhance the college and career readiness of students.

Since kids are growing up today with more technology than ever, it is important to leverage this technology with the skills and actions that are perceived to prepare students for their future. In order for our current learners to be successful in the future, they need to learn by doing and lead by doing. Students today like the social interaction of schooling and need to develop those communication skills for the future (Parsons &

Taylor, 2011). As technology in the classroom progresses, more and more students are going to demand that it be included, but this comes with challenges like funding, access and skills, and the fact that technology must be relevant and interactive to the coursework (Oblinger, & Oblinger, 2005).

21st Century Skills

As schools continue to invest in technology tools and resources for instruction, it is increasingly important that teachers and school leaders are equipped to leverage this technology to support students in learning real-world skills. A variety of organizations, agencies, practitioners and scholars have agreed on the importance of preparing students for the 21st century, and have articulated definitions and frameworks for the requisite skills and their instruction (Harmes, Welsh & Winkelman, 2016). Many changes that have taken place in regards to technology over the past decade (Lemke et al., 2003). Children today use computers more than ever before. Students are not only interested in using technology, but it is important that they are learning digital skills that will help them in the future which begins in the classroom by promoting standards and enhancing skills that are using technology. In order to meet those goals, teachers must not only prepare to help their student achieve academically, but take a look at how to make their students proficient with 21st century skills. We are living in a digital age and we must prepare our students to use these technological skills for their future.

Additionally, after two years of study (Lemke et al., 2003), a set of skills was created for what is needed by students, citizens, and workers in the Digital Age: digital age literacy, inventive thinking, effective communication and high productivity. These skills are central to another goal for learners in the technology-filled lives they may face:

media, technological, and information literacies. The American Library Association (as cited in Lemke et al., 2003) suggested these literacies include the ability to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (pg. 15) and being able to choose, interact with, and produce technology-based media. Scholars contend that, without these 21st century skills, our learners will not be prepared for their futures of our classrooms.

Throughout the education literature, researchers and philosophers are emphasizing the need for all learners to master 21st century skills. These include knowledge acquisition, problem-solving, critical thinking, production, inquiry, communication and creative thinking (Egbert, 2005). Studies are exploring how these skills can be effectively facilitated using technology with dual goals of increasing skills in critical areas needed for success in the future including proficiency in technology.

One of the goals of technology education is to enhance students' higher-order intellectual skills. Barak & Doppelt (2002) explored the outcomes of using technology as a creative way to develop knowledge and ideas. Their study looked at students' perspectives of how they feel their learning environment, teaching methods being used and assessment techniques have on their outcomes, addressing the issues of how to promote low achievers by providing them with a rich, modern, and flexible technological learning environment. The students in the study were given an alternative assessment by creating their own technological projects to show their demonstrated knowledge in an innovative way. Because this is something that students were engaged in and found interesting, they changed their attitudes towards their everyday learning and their future intentions to continue engagement.

Kendal & Stacey (2001) examined the impact on learning differentiation with technology. The study examined how two teachers taught differentiation using a hand held computer algebra system, which made symbolic representations of the derivative readily available. Comparison of the results showed that although each teacher's teaching approach was stable over two years, each used technology differently. New technologies provide more approaches to teaching and so greater variations between teaching and the consequent learning may become evident.

Within classrooms, the availability of technology is offering teachers the opportunity to usefully question what they do and why. Although technology itself is incapable of action or thought, its presence in the classrooms and schools is helping to facilitate questions about the goals of classrooms, conceptions of teaching and learning, and the ability to address personalized student needs. If good questions are asked and applied and strategies to find the answers use technology in effective ways, resultant changes in thinking and pedagogy can lead to greater student achievement (Egbert, 2007).

In terms of the distribution of wealth, opportunities, and privileges within our society, technology can help support low-achieving and non-traditional students. Economically-disadvantaged students, students of Color, linguistically-challenged students, students with special needs, and others may be particularly dependent on schools to close technology access and usage gaps since their existing economic, social, and/or cultural capital may not be sufficient to do so (McLeod & Richardson, 2013). Most of the attention with the rise in technology has focused on typically underserved students' access to computers and the Internet (Warschauer, 2004). Becker (2006) conducted a study that examined digital equity in education as a multilevel organizational phenomenon with data from 70,382 students in 3,479 schools and

40 states. Students in rural schools or schools with higher percentages of African American students were likely to have less access to computers. With respect to computer use, girls and students eligible for free or reduced-price lunch were likely to use computers more frequently when computers were available in the classroom.

Teachers (and administrators) must pay attention to this concern or already-disadvantaged students will fall further behind as our world becomes even more technology-suffused (Becker, 2006). Many schools, like my school, have tried to address disparate technology access and usage at home, not just at school. We allow our students to take their Chromebooks home with them each evening to help support the learning from those who don't have access to technology outside of the classroom.

Technological Pedagogical and Content Knowledge (TPACK)

To meet the content knowledge demands that stem from social efficiency and are currently embedded in Common Core State Standards and 21st century skills**, t**he TPACK framework offers a map for understanding how to integrate technology into the classroom effectively. Lehtinen et al., (2016) investigated the effect of an intervention regarding the use of simulations in science teaching on primary school preservice science teachers' self-assessed technological, pedagogical, and content knowledge (TPACK). The connection of their self-assessed TPACK on their views on the usefulness of simulations in science teaching and on their disposition toward integrating simulations in their teaching was also studied. The results showed significant differences between preservice teachers' pre- and posttests in content knowledge, pedagogical knowledge, and TPACK domains. Preservice science teachers' technological knowledge correlated with

their views on the usefulness of simulation and disposition toward integrating simulations in teaching.

A study from Graham, Borup and Smith (2012) examined using the TPACK framework as a model to understand how that impacts teachers making decisions about the use of information and communication technology in their teaching. The research showed significant student growth in the use of rationales grounded in content-specific knowledge and general pedagogical knowledge.

Teacher's Competence and Own Experiences

As part of the TPACK framework teachers must assess their own knowledge about certain ways of thinking about, and working with technology, tools and resources and working with technology can apply to all technology tools and resources. This includes understanding information technology broadly enough to apply it productively at work and in everyday life, being able to recognize when information technology can assist or impede the achievement of a goal, and being able to continually adapt to changes in information technology (Koehler & Mishra, 2009). According to Becker and Riel (1999), teachers' practices and beliefs are continually shaped by their ongoing experiences as teachers, by the values and opinions expressed by those around them, and by the expectations of influential others, all of which are transmitted through formal and informal norms, rules, and procedures.

Bitner and Bitner (2002) explored the importance of preparing teachers to use technology in the classroom. Their study looks at the main reasons that teachers may be hesitant or stressed when incorporating technology into their classroom suggesting eight areas of consideration. First being the fear of change and that change can bring fear and

anxiety. Second, basic technology training is often overlooked. Third, when teachers use technology for their own personal use it can foster their interest in using technology in their curriculum. Next, teachers need modeling (or models) to see students using the technology that has already been integrated. Also, student learning should be the main consideration. Attempts to use the technology may fail. It is important to have a climate in which failure is accepted. Continuing encouragement is needed to inspire trial and error. Finally, ongoing support must be provided.

Given that technological skills are unlikely to be used unless they fit with teachers' existing pedagogical beliefs, it is imperative that educators increase their understanding of and ability to address their own beliefs, as part of their efforts to increase teachers' technology skills and uses. This will not only enable teachers to use computers to their full potential but will enable students to reach their full potential as well (Ertmer, 2005). Teachers and principals have likely received training on specific software or devices, however, there is often a need for additional training in and modeling of the most effective uses of technology for higher-order thinking skills in everyday instruction (Harmes, et al., 2016).

Collaboration Among Teachers to Support Technological Integration

The importance of a social network of technology-using teachers for sustaining the work of exemplary computer-using teachers has also been reported (Becker, 1994). Stevenson (2004) conducted a study that gauged opinions of teachers when it comes to collaboration with one another. There is a growing amount of research that points to colleagues and informal collaboration as being tremendous assets for teacher development in technology use. Teachers have their colleagues as convenient and

available resources to learn about technology. Stevenson found that teachers preferred to informally collaborate with one another in regard to technology usage rather than to have a formal, planned training or activity. When seeking information regarding technology use, teachers value informal collaboration as a more effective method of professional development than organizationally planned or sponsored activities. Informal collaboration regarding technology is a pervasive part of teachers' professional lives. It often takes place spontaneously and teachers do not consciously separate it from the remaining content of their daily conversations. Informal collaboration among teachers regarding technology is influenced by two major factors, time and the perceived potential for receiving information specific to their needs. Teachers' specific needs generally focus around two broad areas, curriculum ideas and how-to information. Teachers seek out different types of individuals depending upon the broad area with which they need assistance. Teachers recognize a few individuals, informally recognized experts, who they believe offer expertise in the areas of both curriculum ideas and how-to information.

Similarly, Rennie (2001) used case studies from two different schools that documented the ways in which one teacher from each school had established successful classroom strategies for incorporating technology into her classroom, and how she had a significant effect on the practice of other teachers in her school. The relationship between one pair of teachers in each school is used to explore the nature of their collaboration. One pair used "joint work", with shared responsibility for the work of teaching, an example of deep collaboration. The other pairing was more one-sided, a collaborative relationship better described as one of aid and assistance. Both relationships were based

on mutual respect, and demonstrate how teachers choose to work together towards a common purpose, the implementation of technology education.

"Understanding by Design"- Beginning with the End in Mind

TPACK is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; understanding of students' prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones (Koehler & Mishra, 2005). In order to determine when technology is appropriate, teachers much look at the content knowledge and specific assessment they will be using.

In pedagogy literature, there is ample support for the importance of well-designed student learning objectives (Eberly Center for Teaching Excellence, 2015). This piece is vital in the teacher's role in a student's education. A teacher has to be able to identify exactly what they want the students to learn in order to design the lesson around that objective. "The notion of alignment has become increasingly prominent in efforts to improve student learning today" (Hutchings, 2016, p. 6). Every teacher has a list of standards somewhere that they are expected to teach their students. The question being, is the teaching and assessment teachers are doing relating to what is the standards. For some subjects, teachers focus on one or two standards at a time. For other subjects, like language arts, multiple objectives can be taught and assessed at the same time. If a student is doing a writing assignment, the teacher needs to be clear on what it is that they

are wanting the kids to do. Is the teacher looking at the writing itself, or the overall content of the writing, or grammar and spelling, etc? The goal of the main types of classroom assessment (summative) is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark (Eberly Center for Teaching Excellence, 2015). The teacher must first begin with a backwards design mentality. "Done well, the [curriculum] mapping approach to alignment is systematic and comprehensive. Built on widely shared and endorsed institutional or program outcomes, mapping yields a valuable big-picture view of which outcomes are being taught and assessed—and which have somehow fallen between the cracks" (Hutchings, 2016, p. 27). Teachers will need to make sure they have thought through what is the final assessment that the students will be expected to complete and then work backwards to determine how the students are going to get there. What is the teacher going to do? What are the students going to do during learning? What kind of pre-assessment might be given to determine what prior knowledge the students already have? How might a teacher synthesize all of the information that is given to students and or make connections to their lives? "Teaching models using technology as a tool in the classroom to help students achieve must be provided" (Bitner, 2002, p. 2).

Wiggins and McTighe (2011) claim that learning is enhanced when teachers are intentional about their lesson plans. By implementing "backwards design", teachers are required to identify their required results, determine assessment evidence and plan learning experiences and instruction. This step is where teachers will have to be intentional about integrating technology. The Universal by Design framework is based on seven key tenets (Wiggins & McTighe 2011, p. 13):

1. “Learning is enhanced when teachers think purposefully about curricular planning. The UbD framework helps this process without offering a rigid processor prescriptive recipe.”

2. “The UbD framework helps focus curriculum and teaching on the development and deepening of student understanding and transfer of learning (i.e., the ability to effectively use content knowledge and skill).”

3. “Understanding is revealed when students autonomously make sense of and transfer their learning through authentic performance. Six facets of understanding—the capacity to explain, interpret, apply, shift perspective, empathize, and self-assess—can serve as indicators of understanding.”

4. “Effective curriculum is planned backward from long-term, desired results through a three-stage design process (Desired Results, Evidence, and Learning Plan). This process helps avoid the common problems of treating the textbook as the curriculum rather than a resource, and activity-oriented teaching in which no clear priorities and purposes are apparent.”

5. “Teachers are coaches of understanding, not mere purveyors of content knowledge, skill, or activity. They focus on ensuring that learning happens, not just teaching (and assuming that what was taught was learned); they always aim and check for successful meaning making and transfer by the learner.”

6. “Regularly reviewing units and curriculum against design standards enhances curricular quality and effectiveness, and provides engaging and professional discussions.”

7. “The UbD framework reflects a continual improvement approach to student achievement and teacher craft. The results of our designs—student performance—inform

needed adjustments in curriculum as well as instruction so that student learning is maximized."

Understanding by Design (Wiggins & McTighe, 2011) is the "backward design" approach used to create curriculum units and assessments that focus on developing students' understanding of important ideas to guide curriculum, assessment, and instruction. This means analyzing the desired final product and assessment and then working backward to make sure that objectives are being met. UbD framework offers a planning process and structure to guide curriculum, assessment, and instruction. Its two key ideas are contained in the title: 1) focus on teaching and assessing for understanding and learning transfer, and 2) design curriculum "backward" from those ends. The idea behind this approach is to focus on teaching and assessing for understanding and learning and to design curriculum by "beginning with the end in mind."

The UbD framework breaks down the backward-design process into three stages that drive curriculum and instruction (Wiggins & McTighe, 1998).

Stage 1: Identify desired results

- Questions: What is worthy and requiring of understanding? What should students know and be able to do?
    - goals
    - content standards
    - review curriculum expectations
    - "big idea"
    - difficult concepts

Stage 2: Determine acceptable evidence-

- Questions: What is the evidence of understanding?
    - informal checks
    - observations/dialogue
    - quiz
    - academic prompt
    - performance task/project

Stage 3: Plan Learning experiences and instruction-

- Questions: What learning experiences and teaching promote understanding, interest, and excellence?
    - activities
    - knowledge and skills to know ahead of time
    - how should it be taught
    - materials and resources

These three stages of the backwards design include questions that teachers should be asking themselves when planning lessons for their students. In my study, I navigated through to see if teachers are using any of these stages and strategies to determine if technology would be appropriate.

Furthermore, the TPACK framework is the complex interplay between the three forms of knowledge: Content (CK), Pedagogy (PK), and Technology (TK) that faculty need to have to be able to interpret content and transform it for teaching that makes it accessible to their students which is why it is important for teachers to strategically plan out their lessons and analyze how they plan to incorporate technology (Polly, 2019). This

supports that backward design is beneficial for TPACK and the effective integration of technology.

Student Engagement

While it is critical that curriculum goals and desired student learning guide the integration of technology, students must be engaged to fully realize results. The engagement theory is based upon the idea that students are motivated to collaborate with others and create projects that are meaningful outside of the walls of the classroom. This is best described in three components: relate, create, and donate (Kearsley & Shneiderman, 1998). This approach is similar to constructivist theory and can be aligned with situated theory. It is no secret that by the time students get to middle school, a lot of them have lost their love and passion for education. In my district, our five elementary buildings are kindergarten through 5th grade so when students enter my classroom in 6th grade, they are coming to an entirely new school for 6th, 7th and 8th grade before moving on to the high school. This social and emotional aspect is difficult for them to figure out on top of the rigor that the middle school curriculum brings. This is one of the reasons that the need to engage students in the classroom curriculum is so important. Techers needs to be able to hold students' attention on the academics of the classroom while students are also dealing with real-world challenges outside of the classroom. "By engaged learning, we mean that all student activities involve active cognitive processes such as creating, problem-solving, reasoning, decision-making and evaluation. In addition, students are intrinsically motivated to learn due to the meaningful nature of the learning environment and activities" (Kearsley & Shneiderman, 1998, p. 2). They may not have the intrinsic motivation to worry about their future at 11-years-olds, but it is

important that they understand how to use their prior knowledge as well as understanding what information they will need to know for the future. Giving students the opportunity to engage in something that interests them will hopefully build their confidence which will lead to a higher success rate.

Student engagement is the time and effort students devote to activities that are linked to desired academic and educational outcomes and what teachers do to encourage students (Kuh (2009). Coates (2007) describes engagement as "a broad construct intended to encompass salient academic as well as certain non-academic aspects of the student experience" (p. 122). This includes active and collaborative learning, participation in challenging academic activities, formative communication with academic staff; involvement in enriching educational experiences, and feeling legitimated and supported by learning communities. Research indicates that student engagement declines as students progress from upper elementary grades to middle school, reaching its lowest levels in high school. Some studies estimate that, by high school, 40 to 60 percent of youth are disengaged (Marks, 2000).

Freishtat (2016) made five suggestions for innovating teaching practices for student engagement. First, change up the comfort level. The research suggests that getting into too much of a pattern can lead to monotony and eventually boredom for the teacher and students. Secondly, collaboration is important. Teachers should talk with colleagues who may have similar ideas or give brand new ideas all together. Even if things are not exact, it can give a starting points to add one's own teaching styles. Innovation can rarely be done on one's own. Also, make time to prepare for teaching and for learning new idea. This research suggests 10% of time be given to allowing yourself

to be inspired by new ideas. Teachers should also be flexible when it comes to teaching. It is necessary to have a plan in place, but it is ok if improve happens. Lastly, allow students to be a part of the search for innovation.

Best Practices to Engage Students in their Own Learning

Student engagement is widely recognized as an important influence on achievement and learning in higher education and as such is being widely theorized and researched (Kahu, 2013). Taylor and Parsons (2011) looked at some of the "best practices" in terms of student engagement, and then looked at how those current ideas of engaging students may need to change as time continues and students are being exposed to different idea and ways of learning. To engage students in learning, new educational curriculum and activity must include interaction, exploration, relevancy, multimedia, and instruction. Students require a learning experience rich in oral language, and schools are being asked to educate them for work that requires analytic competence and collaborative interactive skills. A revised curriculum and new teaching strategies are crucial to meeting this challenge (Adger, 1995).

The focus on student engagement has shifted from focusing on the students who are disengaged, to creating even more engagement for students who are actively engaged already in their learning. There are many types of engagement: academic, cognitive, intellectual, institutional, emotional, behavioral, social, and psychological. Teachers must take all of these into account when engaging students in their own learning.

Keeping Students Involved in Education with Active Learning

In my study, I actively looked at whether the technology being used by the teachers in my school is used to drive the instruction. The University of California, Berkeley's Center for Teaching and Learning (2019) created a website for their professors with multiple resources to help them better teach their students. They also incorporated literature to go with their ideas for teaching. I specifically looked at the section under engaging students about incorporating technology into the classroom. This gave information as to why technology is important as well and giving ideas and suggestions for incorporating technology into a classroom. Although this source is a little different because it was created specifically for the professors at Berkeley, it continued to support the theory that innovations in technology do not necessarily lead to innovation in teaching when not driven by pedagogy. It also discussed the importance of active learning from students and how students actively engage in the material they study through reading, writing, talking, listening, and reflecting which can come from the use of technology.

Electronic portfolios are a strategy to increase engagement and use technology. Research by Barrett (2005) discusses learning, engagement, and collaboration through the development of electronic portfolios. Portfolios are supposed to support reflection that can help students understand their own learning and to provide a better picture of student work that documents growth over time. Portfolios can also be used as a means for assessment of student learning. An electronic portfolio uses electronic technologies as the container, allowing students/teachers to collect and organize portfolio artifacts in many media types (audio, video, graphics, text, blogs, digital storytelling, Wikis, etc.). Barrett's

research also shows that students feel as though an “assessment” is something that is given to them to complete. Portfolios are a way for students to *show* their understanding. Students can benefit from an awareness of the processes and strategies involved in writing, solving a problem, researching a topic, analyzing information, or describing their own observations. The level of available technologies makes possible an international study about the role of electronic portfolios to support student learning, engagement and collaboration.

Students Communication and Collaboration Among Peers

Dabba (2019) explored the recommendations that can be made (in regards to technology) to post-secondary students to help with retention and options for a diverse population of students. Colleges are using technology to improve the quality of student learning; make active and engaging learning available throughout institutional offerings; and help students become more successful learners. This study gives specific recommendations for supporting learning through the effective use of technology and focuses on promising uses of technologies associated with improving postsecondary student learning outcomes.

Dabba’s (2019) “practice guide” makes five evidence-based recommendations around how to use technology to support learning.

1. Use communication and collaboration tools to increase interaction among students and between students and instructors.

2. Use varied, personalized, and readily available digital resources to design and deliver instructional content.

3. Incorporate technology that models and fosters self-regulated learning strategies.

4. Use technology to provide timely and targeted feedback on student performance.

5. Use simulation technologies that help students engage in complex problem-solving.

Kearsley and Shneiderman, (1998) discusses the importance of the engagement theory which says that students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks. It claims that technology can facilitate engagement in ways which are difficult to achieve otherwise. Engagement theory is intended to be a conceptual framework for technology-based learning. The role of technology in the theory is to facilitate all aspects of engagement. Technology provides an electronic learning environment that supports the kind of creativity and communication needed for engagement. This study shows that learning and teaching can be better applied by emphasizing the positive role that technology can play in human interaction with others in allowing for collaboration.

Watson (1999) looked at how educators want new programs and methods aimed at integrating new technologies with classroom curriculum. Many discussions have centered around attempts to determine the most effective uses of technology in the classroom. Questions of interest include:

a.) How can we harness this technology for educative purposes?

b.) How can this technology enhance middle school education?

c.) What are the most effective approaches to integrating technology with curriculum so that it provides the greatest benefit for students?

Ineffective Use of Technology

Technology is not automatically useful in classrooms just by being available. “In a national survey conducted in the U.S.A. less than 50% of the teachers were found to often apply technology during instructional time but technology was utilized more in their completing administrative tasks” (Gray & Lewis, 2010, p. 107). Results of a study by Fried (2007) showed that students who used laptops in class spent considerable time multitasking and that the laptop use posed a significant distraction to both users and other students. Users reported that they multitasked (did things other than take lecture noes) for an average of 17 minutes out of each 75 minutes class period. The primary purpose of this study was to examine the relationship between laptop use and student learning. It looked at the argument over whether in-class laptops aid or hinder learning. While some research shows that laptops can be an important learning tool, other evidence suggests more and more faculty are banning laptops from their classrooms because of perceptions that they distract students from learning.

Fried’s research study looks at in-class laptop use in a large lecture course and how that use is related to student learning. The level of laptop use was negatively related to several measures of student learning, including self-reported understanding of course material and overall course performance. Teachers cannot allow this to become the case if they want to truly benefit the students which is why student engagement is so critical when it comes to technology usage.

Bogard, et al. (n,.d.) conclude that "instructional technologies inhibit learning because they focus on teaching and learning how to use computers rather than learning education content buy using technology" (p. 2). Their argument stems from those teachers who teach technology classes. They are stating that those teachers are not necessarily doing their jobs. Instead of teaching content, they are teaching courses on how to use the technology rather than doing something constructive with it. A second argument Bogard et al. make is how technology provided at young ages can hinder their learning processes. Bogard et al. state that introducing children to technology at early ages is not beneficial since The Alliance for Childhood and Huitt say so (Alliance for Childhood; Huitt as cited in Bogard et al.). Their third argument stems from how educators are not allowed by technology to effectively implement teaching strategies.

Summary

In this literature review, I examined the research and literature surrounding my problem of practice (PoP) of teachers effectively using technology in the classroom to align to English/language arts teaching objectives. I began by addressing the historical perspective of technology in the classroom and how it has evolved since the 1920s. I then supported my theoretical framework with scholarly literature to support the ideas Social Efficiency and Technological Pedagogical and Content Knowledge (TPACK) while discussing the backwards design as well as student engagement. I explored Bobbitt's (1913) idea of Social Efficiency and how students must be able to lean and master 21st century technology skills in order to be contributing members of society. The TPACK framework aims at adding technology to the classroom which can increase student engagement. As part of the TPACK framework, teachers must look at their own

competence and experiences. Collaboration among teachers to support technological integration is also important. The Understanding by Design backwards design component is important for teachers to determine when technology is appropriate. This can lead to better student engagement where students take ownership of their own learning and collaborate with others. The use of technology is also important for personalized and differentiated instruction for students which can lead to an overall better learning experience.

Chapter 3

Research Design and Methods

Overview of Study:

For this research study, I focused on effective technology integration in the middle school (grades 6-8) English/Language Arts (ELA) classroom to support student engagement and mastery of standards. I specifically looked at the teachers' perspective and comfort when it came to technology and how their own experiences play a role in their use of technology in their classroom. In addition, I strived to understand how teachers' with varying comfort levels and technology integration perceive the use of Wiggins and McTighe's (2011) theory, "Understanding by Design" (UbD) to more effectively meet learning objective. This theory looks at a backwards design where teachers consider the end product/assessment and goal of their lesson with teaching objectives, and then determine how they can incorporate technology to help support those goals. Another area of inquiry related to technology integration is student engagement and especially at the middle school level, this is an important component of getting students to commit to their own learning and truly take an active and engaging part in their own understanding.

Research Design:

Of Merriam and Tisdell's (2016) six common qualitative research designs, my problem of practice within my action research design most aligns with narrative inquiry.

My problem of practice aligns with narrative inquiry because I am going to be using first-person accounts and experiences as my form of data to understand teachers' beliefs and practices related to technology integration. Kennedy-Lewis, et al. (2016) cites "when working with early adolescents, we acknowledge how the rapid development of the brain's emotional centers, as well as the increasing importance of peers, play vital roles in these participants' narratives" (p. 1). This is going to play a large role in my own problem of practice because my main narratives will be coming from middle-school teachers who base their thoughts on their own experiences and on their experiences with the adolescents with whom they work. My research question allowed me to better understand these teachers' perceptions about universal design and using technology to support the mastery of objectives and student engagement in the process.

How can using a universal design and the intentional alignment of formative and summative assessment with lesson learning objectives support the process of selecting and effectively integrating technology into the classroom to meet the objectives for the students and while keeping students engaged?

"Action research involves a systematic process of examining the evidence. The results of this type of research are practical, relevant, and can inform theory. Action research is different than other forms of research as there is less concern for universality of findings, and more value is placed on the relevance of the findings to the researcher and the local collaborators" (Riel, 2020, p. 1)

According to Paul Gorski (2018), action research for educators meet several qualifications. There is a non-traditional and community-based form of educational evaluation. It is carried out by educators, not outside researchers or evaluators and

focused on improving teaching and learning, but also social and environmental factors that affect the nature and success of teaching and learning. The action research is formative, not summative and an on-going process of evaluation, recommendation, practice, reflection, and reevaluation. It is also change-oriented, and undertaken with the assumption that change is needed in a given context (Gorksi, 2018).

Riel (2020) also states that action research is often practiced by teachers who remain in the middle of the research process. They are looking for ways to improve the specific situation for their students. Statistics may be collected but they are not the point of the research. In action research, findings emerge as action develops and takes place; however, they are not conclusive or absolute, but ongoing (Koshy, 2010, p. 1). Action research is meant "to produce practical knowledge that is useful to people in the everyday conduct of their lives and to see that action research is about working towards practical outcomes" (Koshy, 2010, pg. 2).

Participants

Participants for this study included a selection of the English/Language Arts (ELA) teachers at Warner Middle School in Xenia, Ohio. At our school, there are three ELA teachers for each of the three grades- sixth, seventh, and eighth. For this action research, I collected data from three seventh-grade teachers and one-sixth grade teacher. These teachers have different levels of experience when it comes to technology but all used technology in the classroom as required by Xenia Community Schools.

Maximum variation sampling occured to include four teachers (50% of total population) who are more likely to have differing beliefs and practices related to technology integration. Of the teachers selected, some of these participants were already

using an abundant amount of technology whereas other participants are using less. This will be a purposeful, sample that sought to identify teachers who use technology differently and thus may be more indicative of teachers in a variety of settings. Teachers were asked to give their personal opinions, share experiences and narratives and give input on how to effectively engage students with the use of technology.

The participants included a 6th-grade teacher, Mrs. Poe, with 20 years of experience within the district and three 7th-grade teachers with between 18 and 29 years of experience within the district. All participating teachers have spent their entire teaching career in the current district.

Mrs. Poe is a 6th grade ELA teacher at Warner Middle School. She has been teaching for 20 years all in the current school district and has always taught 6th grade ELA. For a few years, she taught Social Studies in addition to ELA. Mrs. Poe has a bachelor's degree in Elementary Education grades for 1-8. She has completed post-graduate hours in ESL and English Literature. Mrs. Poe currently co-teaches several classes with students on Individualized Education Plans, which is a strength of hers. In the classroom, Mrs. Poe "uses technology everyday because we post everything on Google Classroom. We do several assignments on paper, but even those are posted online so that our students who require read-aloud as an accommodation can access the material." Mrs. Poe had already felt like she was moving toward using technology more but the Covid pandemic has required her to incorporate technology faster in or to teach remotely as well as provide instructions for those students who are absent or medically excused.

Seventh- grade ELA teacher, Mrs. Brown, has been teaching for 18 years all in the current school district. Mrs. Brown teaches both regular and advanced/gifted classes. Mrs. Brown received her bachelor's degree in Middle Childhood Education and is pursuing a gifted endorsement this summer. Mrs. Brown feels like she uses technology "80% of the time" but also utilizes paper and pencil assignments which she feels is beneficial to students. She uses her SmartBoard daily for presentations, videos and class assignments. Mrs. Brown feels as though using technology in the classroom is not only a beneficial option for students, she feels as though it also prepares them for a job in the future. She tries to use it when needed but not all the time as it is easy for students to have too much screen time. "It is important for students to develop their handwriting skills as well as typing skills. I think some students prefer handwriting but some prefer typing so sometimes I give them an option." When Mrs. Brown is trying to engage students, she knows that simply typing on the computer is not engaging so tries to incorporate videos, games, or websites into her teaching.

Mr. Car is a 7th grade ELA teacher at Warner Middle School. He has been teaching for 22 years in the current school district. Mr. Car has a master's of education degree in English Language Arts, and at the time of the study was enrolled in coursework through Udemy to be certified in Cognitive Behavioral Therapy (CBT). He believes "furthering my knowledge and education in this area will help me better address students' concerns of trauma and anxiety in the classroom as well as support students' social and emotional learning (SEL)—two factors that directly impact each child's academic success." Out of all of the teachers at the school, Mr. Car is one of the teachers who uses technology most frequently for his lessons, activities and assessments. He is very familiar

and comfortable with different forms of technology and how to best incorporate that knowledge into the classroom to best teach his students. Since Mr. Car is the only male participant, he is informed and provides agreement to be included knowing that he may be identifiable.

Mrs. Chap is a 7th grade ELA teacher at Warner Middle School. She has been teaching for 29 years all in the current school district. Mrs. Chap has a bachelor's degree in Elementary Education (grades 1-8). Her master's degree is in Computers and Technology. Mrs. Chap uses Google Classroom frequently to make grading easier and as a tool for communication. "I know there are a lot of other technological platforms I don't know a lot about that are available". Most commonly, Mrs. Chap uses Progress Book, Google Classroom, and YouTube clips to establish background for different lessons. Mrs. Chap feels like one of the most beneficial reasons for technology usage in the classroom is to be able to give students feedback on their writing. On a personal note, she feels that kids are highly addicted to playing on their computer. "It's scary. They zone out."

All four teachers use technology on a daily basis while some use it more than others. It is apparent that while student usage is important in the classroom, teachers also need just as much technology to access the lessons for their students and best relay the information to students. There are several platforms that are created by the district for teachers to use and access- Progress Book, Google Classroom, etc. Teachers have their own likes and dislikes when it comes to their preference of technology.

Data Collection Methods:

Four qualitative data collection methods were used in this study. Initially, an open-response questionnaire (Appendix A) was distributed to the four participants. Participants also participated in individual interviews. “In most forms of qualitative research, some and occasionally all of the data are collected through interviews” (Merriam & Tisdell, 2016 p.108). This allowed me to ask the teachers their thoughts, feelings and opinions when it comes to their comfort with integrating technology into the classroom and their willingness to make change by using technology-integrated lesson planning. I completed observations using a protocol as a type of data collection so that I could see the impact that technology was playing in these teacher’s classrooms. Finally, teachers participated in a focus group to allow for the construction of data from the perspective of all participants. Each data collection tool is explained in detail.

Questionnaire:

A brief open response item questionnaire was distributed to all teachers gauging their beliefs and practices related to technology and standards/backward design at the beginning of the study. This questionnaire was e-mailed to individuals about two months after the 2021-2022 school year began. Participants answered the questions and then sent their responses back to me electronically.

1. In general, how often would you say you use technology in the classroom during a 45 minute class period? What are the biggest factors that determine if you will use technology?

2. How confident do you feel in your ability to integrate multiple technologies into your instruction? Explain.

3. Do you feel you have a variety of ideas and lessons for integrating technology into your teaching? If yes, please explain. If no, what could help you gain better ideas in incorporate?

4. Do you have the technology skills to support the students when they use technology for a project? Explain.

5. How does technology change your teaching?

6. In general, what technology do you use the most in your classroom? Why did you choose these? (ease, comfortability, etc.)

7. How do you determine when/why/how to use technology in your classroom?

Interviews:

In order to collect data to answer the question, "how can using a universal design and the intentional alignment of formative and summative assessment with lesson learning objectives support the process of selecting and effectively integrating technology into the classroom to meet the objectives for the students and while keeping students engaged?" I interviewed the four selected participants in a one-on-one setting with just the participant and myself as the researcher. These interviews lasted approximately 45 to 60 minutes in length and occurred in-person with the exception of Mrs. Chap who was quarantined during this time. Her interview was conducted via Zoom. I used a semi-structured interview protocol including four overarching questions aligned to my research questions. Merriam & Tisdell (2016), suggest asking questions that "relate to experience

and behavior, take into account opinions and values, feeling questions, knowledge and sensory questions and background questions" (p. 19). The interview questions were as follows:

1. How do you determine when to use technology for a lesson or assignment? How do the ELA standards and your expectations of student mastery shape the use of technology?

2. How do you think the use of technology impacts and influences the students' engagement during your instruction?

3. Do you believe that integrating technology into your curriculum is important for student success? Explain.

4. How do you think students feel about using technology? How do those feelings align with their success?

Observations:

Observations allowed me to better understand and contextualize the data from the questionnaire and interviews. Observations, using a semi-structured protocol, were conducted in each participant's classroom during a lesson that integrated technology. When conducting an observation, it is important for the researcher to keep in mind their research questions and theoretical framework and focus on observations that relate to their problem. This type of data collection tool allows the researcher to see first-hand experiences. Also, the researcher must have determined what they are planning to observe and how to best record these observations.

When our school began using the one-on-one Chromebook initiative, a form was created by administration to use on unplanned walkthroughs to determine only if teachers were using technology is their classroom during the time of the walkthrough. It was a simple "yes" or "no" type of data that was collected. The results were never shared with the teacher so it was unknown how this was affecting us as a school. I have taken part in this walkthrough template to keep with the initiatives of our school but have adapted the information to best fit my data collection and research. The focus of the observations included the following areas:

- What technology-methods were used during the lesson?
- What other teaching practices/strategies were used during instruction?
- What activities/tasks were students asked to do to demonstrate their learning? How did the teacher monitor student progress during the class?
- How are students collaborating with one another?
- How can we determine if students engaged in learning?
- How are teachers utilizing district adopted curriculum and materials?
- In what way(s) did the teacher seem to have prepared for the use of technology during instruction?

Focus Groups:

The four participants were invited to participate in a focus group on Zoom where they shared their thoughts, opinions, etc. with myself as well as the rest of the group toward the conclusion of the data collection. First, I anonymously shared with the individuals the data that was collected from the initial interview. Participants were able to share their thoughts regarding the information gathered from their colleagues. At this

time, I went back to some of the questions that were asked during the original one-on-one interview and updated the questions based on the feedback already received to allow for more narratives and discussions to occur. When using a focus group, it is more of a "conversation" taking place among a group. However, since multiple people were engaged in this conversation, data can be socially constructed because of other members' input in the group. Taylor (2016) discussed how participants in a research study are susceptible to being influenced by the way questions are asked or how they are worded.

Interview Questions and Focus Group Questions

Original Interview Question: In general, how often would you say you use technology in the classroom during a one-hour class period? What are the biggest factors that determine if you will use technology?

- Original Interview Question Reworded for Purpose of Focus Group: In general, how often would you say you use technology in the classroom during a one-hour class period? What are the biggest factors that determine if you will use technology? Most of you commented that you use technology at least part of the time on a daily basis in your classroom. How do you determine what time of the class is best? (beginning, middle, end)
- Original Interview Question: How do you determine when to use technology for a lesson or assignment?
- Original Interview Question Reworded for Purpose of Focus Group: What would you say is the single biggest factor for when students use technology?
- Original Interview Question: How do you think the use of technology impacts and influences the students' engagement during your instruction?

- Original Interview Question Reworded for Purpose of Focus Group: How do you think the use of technology impacts and influences the students' achievement during your instruction?
- Original Interview Question/Same for focus group to allow discussion among participants: What are some of the biggest challenges for implementing technology into your classroom?

Data Analysis Methods:

From the onset of data collection, I began creating narratives of each participant. Narrative inquiry is, first and foremost, a way of understanding experience. It is also a research methodology. It is, then, both a view of the phenomena of people's experiences and a methodology for narratively inquiring into experience (Clandinin & Caine, 2013). Wells (2011) cites that narrative inquiry allows for a detailed examination of the structure and content of a story and its significance in relation to psychological, sociological, or historical frames of reference.

Merriam and Tisdell (2016) suggest the idea of simultaneously collecting data and analyzing data. "Data analysis is one of the few aspects of doing qualitative research- perhaps the only one- in which there is a preferred way and the final product is shaped by the data that is collected and the analysis the accompanies the entire process" (p. 197). As researchers start to collect their data, they first code the information. "All researchers make editorial choices; data are reduced to a form which can be represented in a readable way" (Byrne 2017). As the data collection continues, researchers are able to see similarities (or themes) as they continue their data collection and data analysis. "You begin with detailed bits or segments of data, clustered data units that seem to go together,

then “name” the cluster (p. 210). Lapadat, et al. (2005) remind us that is critical throughout the data collection and data analysis process that the researcher remains unbiased and remembers our role in the process.

First, I used the data from the questionnaires to guide the thoughts and outline for the interviews. Then I used the interview and observation data to compile a list of similarities and differences that I was seeing among the four participants. After rewording the focus group questions based on previous responses, I used that data to continue analyzing similarities among the four participants. Based on data collected through the multiple sources, the narratives continued to evolve to reflect the beliefs and experiences of the participants. Each participants had some similar and unique aspects related to their beliefs related to using technology in the classroom to enhance student understand and increase student engagement. Narratives are designed to reflect and honor the specific experiences of the individuals as well as allow for comparison among the narratives to identify common and disparate themes.

Reliability

When dealing with research work, it is important to have information that is trustworthy and reliable. Trustworthiness or rigor of a study refers to the degree of confidence in data, interpretation, and methods used to ensure the quality of a study. In each study, researchers should establish the protocols and procedures necessary for a study to be considered worthy of consideration by readers (Connelly, 2016).

Criteria outlined by Lincoln and Guba (1985) are accepted by many qualitative researchers. These criteria include credibility, dependability, confirmability, and transferability. Credibility of the study, or the confidence in the truth of the study and

therefore the findings, is the most important criterion. Dependability refers to the stability of the data over time and over the conditions of the study. Confirmability is the neutrality or the degree findings are consistent and could be repeated. The nature of transferability, the extent to which findings are useful to persons in other settings, is different from other aspects of research in that readers actually determine how applicable the findings are to their situations

To put time and effort into a study that is questioned when it comes to its accuracy based on personal biases, could be determined as "meaningless". "There is a general consensus, however, that qualitative inquirers need to demonstrate that their studies are credible" (Creswell, & Miller, 2000, p. 2) In order to make the research trustworthy and reliable, it must be conducted in an ethical manner; which involves paying careful attention to the data that is collected, how it is analyzed and interpreted and the way that the final outcome is presented. Because qualitative research is based on others' assumptions, it is important to understand the primary reasoning for the investigation and the criteria used for trusting the study. Merriam and Tisdell (2016) share the work from Patton (2015) which gives seven "alternative sets of criteria for judging the quality and credibility of qualitative inquiry" (p. 240). These questions center around the validity or reliability of the qualitative research conducted.

Merriam and Tisdell (2016) share several different strategies when it comes to enhancing the validity and reliability of research. First, is the concept of triangulation which involves cross-checking data that is collected at different times and in different places. Member checks are another strategy for ensuring validity of the data. This is important to interpret what participants have said. In this study, narratives for each

participant were developed using interview, focus group, and observational data thus triangulating the data to gain a better understanding of the participant's experience. In addition, each participant was provided results from the interviews to allow for member checks and to enhance questioning techniques for focus groups.

Summary

For the data collection, I used questionnaires, interviews, classroom observations and a focus group to look at the perspective and comfort when it came to technology and how their own experiences play a role in their use of technology in their classroom. I wanted to better understand how teachers with varying comfort levels and technology integration perceive the use of UbD when integrating technology into their classroom and determine if student engagement played an active role in the learning.

Chapter 4:

Presentation and Analysis of Data

Overview of Study:

The problem of practice on which this study focused is the intentional role that lesson planning takes when integrating technology into the classroom. It focused on when technology provides value in meeting an objective and is not just a distraction. This study examined and investigated how to appropriately integrate technology into a successful classroom. The significance of this action research project is to generate a connection between the effective use of technology in the classroom that is aligned to curriculum and engages students and teachers' own belief and experience.

The research question that guided this study was related to effectively using technology in the classroom. How can using a universal design and the intentional alignment of formative and summative assessment with lesson learning objectives support the process of selecting and effectively integrating technology into the classroom to meet the objectives for the students and while keeping students engaged? This also related to teachers' attitudes, beliefs and experiences integrating technology into their instruction.

Main data collection methods were interviews and questionnaires with the participants. This allowed me to ask the teachers their thoughts, feelings and opinions regarding their comfort with integrating technology into the classroom and their

willingness to make change by using technology-integrated lesson planning. I also completed observations as a type of data collection to evaluate the impact that technology is playing in these teacher's classrooms. The final data collection method was a focus group to allow all participants to come together and share their ideas.

Narrative Inquiry:

Josselson and Hammack (2021) introduced the concept of narrative analysis, a qualitative method that investigates how people make meaning of their lives and experiences in both social and cultural contexts. This method offers researchers a window into how individuals' stories are shaped by the categories they inhabit, such as gender, race, class, and sexual identity, and it preserves the voice of the individual through a close textual analysis of their storytelling. Narrative analysis interprets richly detailed life stories obtained from interviews or written documents. It goes beyond description of the text to analyze meanings conveyed by the content and structure of the discourse and always contextualizes the participant in social and historical terms. Narrative analysis allows for a careful, systematic review of meanings embedded in the language of the text and carefully tied to an analytic framework. The analytic process searches for patterns of meaning in the narratives and reflects on the role of the interpreter in constructing these meanings. A key benefit of narrative analysis is that it preserves the individual as a unit of analysis, which is surprisingly uncommon in most psychological research methods (Josselson and Hammack, 2021).

The data gathered during this study was used to develop individual narratives for each participant. Narratives are presented that highlight the overall experiences and stories of the participants as gathered and interpreted by the researcher.

Mr. Car

Out of the four participants, Mr. Car is the teacher who uses technology the most in his classroom. Since Mr. Car is the only male participant, he is informed and provides agreement to be included knowing that he may be identifiable.

The findings show that Mr. Car relies heavily on the use of technology both from the teacher aspect and the students' ability to use their own technology. Mr. Car makes sure that all assignments are posted online including links, videos, an online version of the textbook and other materials as appropriate to the course. Due to Covid, he says "the need for an effective, easy-to-use remote-learning experience has caused tech companies to engineer their platforms so they can offer schools, teachers, students and parents, easy and effective solutions for completing work online." He uses the technology to differentiate his instruction to students who may need additional support or enrichment opportunities due to the interactive applications that make reading and writing personalized for the students. Mr. Car understands that technology is part of an expanding 21-century and therefore thinks it is important that students are learning the importance of technology for the real-world and future career choices. The Language Arts Common Core Standards also have their own set of technology standards that can be addressed while simultaneously meeting ELA objectives.. During his lesson planning, Mr. Car plans for students to complete their reading and writing digitally. He then uses a point-based rubric to grade the assignments since they are all completed online. The data gathered shows that Mr. Car feels as though technology overall has made things easier in the classroom by allowing students to share work, have online discussion, complete work more quickly and allows students to feel more comfortable and confident in their

assessments. During my observation in the classroom, it was expected that the daily lesson was to be completed with the use of technology and it was expected that students came ready and prepared for class. On the day that I was observing, all students were prepared with their Chromebook but Mr. Car made it clear to me, during a side conversation while students were logging into their Chromebook, that he makes little accommodations for students who are unprepared for class. Mr. Car also commented to this that this is a frustrating part of using technology in the classroom because almost daily he has at least one student or more who comes to class without their Chromebook charged or without it entirely.

Mrs. Chap

Since the Covid pandemic began in 2020, Mrs. Chap feels as though she uses technology now more than ever due to her personal preference and the district's requirement to post all assignments online. "In the past several years, my confidence in my ability to integrate technology into my instruction has grown. I feel like I have a solid amount of ideas and lessons using technology." During previous years, Mrs. Chap would use technology during a class period, but found benefit in allowing students to complete some assignments using paper and pencil. She would try and balance the use of technology with the students' need for hands-on learning and movement in the classroom. Mrs. Chap feels likes one of the main benefits of using technology in the classroom is the students' ability to write multi-paragraphs essays in a timely manner. Students are able to go back into the document and quickly makes changes and edits without having to re-write the entire text. This allows for Mrs. Chap to focus on content of the essay and not mistakes that can be easily fixed on the computer. Since the

Common Core State Standards also include their own set of technology standards, Mrs. Chap doubles up to meeting multiple learning objectives as a time. Mrs. Chap feels it is also beneficial to have "access to books and read aloud for students on IEPs" (Individualized Education Plan). During the research collection, Mrs. Chap took a personal leave of absence and was gone for several months. She relied on technology to relay information to her students and for them to complete assignments while at school so that she could grade and give feedback from home. When planning lessons, Mrs. Chap uses the district's common assessment to decide what objectives she is going to teach and in what order.

Mrs. Chap believe that any objectives can be introduced with video clips from YouTube or Flocabulary, practiced through technology games like Quizlet or Kahoot!, or assessed with Google slides or forms. Therefore, she feels it is not necessary to align objectives to integrate intentional technology to engage middle school ELA students. It would be necessary to be intentional with type of technology- always being on the lookout for new apps- and the amount of technology versus human interaction in daily and week plans. As with anyone (but especially middle schoolers), novelty is engaging, so it is important to look for new technology possibilities for the lesson. In addition, switching up the selection of technology (and not over-relying on one type) keeps students engaged. Middle school students also are most interested in interactions with their peers. According to Mrs. Chap, intentionally planning time away from technology so that students can discuss ideas and build meaning together is equally as important and engaging as technology use.

Mrs. Brown

Through the data collected, Mrs. Brown feels as though there is benefit to allowing students to complete assignments on paper without the use of technology. She has had personal experiences where students seems excited and more engaged when they are able to move around the classroom and have hands-on materials (highlighters, card sorts and other physical materials). "Students are on their Chromebooks a lot during a school day in almost all of their classes. While this is a great way for students to express their ideas quickly, students who are too device-driven seem to like a change every now and then." Mrs. Brown is not against technology and knows there are benefits for students to become comfortable and familiar with technology now so that it can help them in their career and later in life. When lesson planning, she makes sure to include specific time for technology so that she is using it to enhance delivery and assessment opportunities. "The biggest factor for me [in deciding to use technology] is if I feel like it is going to enhance my lesson and if I feel like I can accomplish the same goal by using technology. I am making sure I am using it to address student's comprehension and not just because I have it available." Mrs. Brown also integrates the Common Core technology standards into her lessons to meet those objectives. She also includes some of the Common Core public speaking standards by allowing students to record videos and share those online. When it comes to planning lessons, Mrs. Brown, takes the objectives and examines which ones just naturally lead to using technology. For example, any type of writing naturally leads to using technology.

During my observation in Mrs. Brown's classroom, students were working in pairs on a WebQuest to build background knowledge regarding the setting of the story,

"A Christmas Carol". Due to the fact that Mrs. Brown used the backwards design in planning for this unit, she knew that students needed to understand this background information before continuing on in the lesson so as not to cause misconceptions down the road regarding the setting of Victorian England.

Mrs. Poe

Out of the four participants, the data shows that Mrs. Poe uses technology less in her class that the other participants but is very intentional when it comes to when she is going to use it. "Our purpose weighs heavily on our decision making concerning computers. It's a must for research, but not for reading and practicing comprehension. I have found that kids are getting so used to doing everything on the computer that they can evade doing paper/pencil assignments. I am trying to find a good balance of both." Mrs. Poe knows that technology makes things much quicker for students especially when it comes to writing. The ease and convenience allows her to quickly grade and give feedback on assessments because some of the technology apps used can give immediate feedback and can drive her instruction with that data. Mrs. Poe teaches three (out of four) co-teach classes and so the technology allows her to differentiate her instruction and assessments. It can provide read aloud in the classroom instead of being pulled out by a teacher to read.

When I observed Mrs. Poe's classroom, it was towards the end of a unit. It was clear that Mrs. Poe was using Wiggins and McTighe's backwards design because students had been keeping track of evidence all throughout the unit rather than getting to the end of the unit and having to go back to each text that had been read. Due to the fact that Mrs. Poe knew what was expected of students at the end of the unit and knew what

assessment technique she would be using, students were able to quickly access the information that had already been gathered in previous lessons.

General Findings/Results:

Upon the initial data collection with the questions that the participants answered, it is clear that all four teachers are using technology often in their classroom. Especially during this time of remote learning and the need to provide home instruction to students who are quarantined, teachers have been required to implement more technology than before. Overall, the participants feel as though overall technology helps facilitate learning and creates more opportunities for students. This data shows that teachers also use technology as a combination of direct instruction and allowing students to learn on their own while also being able to personalize learning for each student. "The underlying pedagogical strategy- direct instruction- is well-defined and well accepted." (Norris and Soloway, 2016, p. 62). Teachers noted that they are using technology related to their objectives, often multiple objectives including technology-specific objectives. The four teachers feel as though they are providing a variety of learning tools, making the learning experience more engaging, and differentiating the learning experience as needed.

Table 4.1 *Common Themes among Participants*

Participant:	Lesson Planning	Assessments	Meeting Objectives	Student Engagement
Mr. Car	• All reading and writing • Pandemic • Student collaboration	• Point-based rubrics	• Interactive apps • Personalized • Annotate text	• More confident and comfortable • Easily side-tracked/ distracted

	• Multiple types of technology at once • Real-world setting • Career • Diverse learners • Visual • Scaffolding • Easier to share work			
Mrs. Brown	• Multiple types of technology simultaneously • Time for technology? • Real-world • Career • Background knowledge	• Quick assessment/ grade • Immediate feedback	• Enhancing delivery • Lots of content in apps • Addresses comprehension • Writing • Public speaking/ technology standards	• Familiarity with apps • More connected • Comfortable and familiar • Device-driven • Still like paper/pencil assignments • Completion vs. off-task • Express ideas
Mrs. Poe	• Purpose • Ease and convenience • Sharing work with absent students (due to pandemic) • Real lives • Special education/ differentiation • Faster	• Quick assessment/ grade • Immediate feedback • Data driven • Rubrics • Re-teacher • Differentiated assessment	• Interactive activities • Ease to meet standard • Faster	• Sharing technology from other classes • Balance technology with paper/pencil • Burnout • Student preferences

				• Enhances the lesson with visuals
Mrs. Chap	• Pandemic- using Google Classroom • Daily agenda • Interactive experiences/ graphics • Special education students- read aloud • Enhancing background knowledge • Interactive/ hands-on first	• Balance of assignments and assessments	• Mainly writing • Technology standards are their own objectives • Multi-paragraphs in an allotted time • Annotate text • Can re-watch and pause videos for clarification	• Increase engagements • Quick videos • Students love computers • Gaming activities interactive lessons more willing to participate • More comfortable

Analysis of Data Based on Research Questions:

During this research collection, I witnessed first-hand during my observation and by using the other data collection methods that the participants were aligning the learning objectives to intentionally integrate engaging technology in their classroom. The participants were using technology when it was beneficial to enhance the learning. The participants were using the UbD framework to identify what students needed to be able to do for the final assessment, and worked backwards to make sure that goal was achieved.

Technology provides students with easy-to-access information, accelerated learning, and fun opportunities to practice what they learn. When incorporated properly in the classroom, tools such as computers, video conferencing, and even artificial

intelligence can be used to supplement children's education, provide support to students with disabilities, and have a wide variety of additional applications and benefits. It enables students to explore new subjects and deepen their understanding of difficult concepts. By using the UbD framework that was noticed during classroom observations, teachers are incorporating technology into their classroom by planning effecting technology, how much and when it will be used, and how to assess. In turn, this leads to a better understanding of objectives and keeping students engaged.

Additionally, technology in the classroom should make teachers' jobs easier without adding extra time to their day. By integrating technology into existing curricula, teachers can harness online learning as a powerful educational tool. The benefits of educational technology lies in what educators do with it and how it is used to best support their students' needs. Educators need to be able to develop and weigh in on online educational content, especially to encourage students to consider a topic from different perspectives. Most students typically demonstrate confidence in using technology when they have the resources. The benefits of technology in education, include increased collaboration and communication, improved quality of education, and engaging lessons that help spark imagination and a search for knowledge in students. Not only can teachers engage with students during lessons, but students can also communicate with each other. At the same time, technology enables one-on-one interaction with teachers. Students can ask classroom-related questions and seek additional help on difficult-to-understand subject matter. At home, students can upload their homework, and teachers can access and view completed assignments using their laptops. Teachers can create lessons based on student interests and strengths. An added benefit is that students can learn at their own

pace. When they need to review class material to get a better understanding of essential concepts, students can review videos in the lesson plan.

However, while technology is being utilized more and more frequently in classrooms, many teachers are still struggling with integrating it in their classrooms. Many teachers face obstacles that prevent them from using technology that they can use to enrich their students' educations. There are a number of factors that must be considered when teachers make a decision of how, when, and if they should introduce new technology. With the integration of technology into the classroom, teachers are bound to encounter students attempting to misuse it, largely for entertainment purposes instead of educational ones. Many students do not have regular and reliable access to the internet outside of the school day. Inconsistent internet access makes it extremely difficult for instructors to integrate technology into existing lesson plans. Some of the issues teachers can face relate to the technology itself. Others relate to student or parent expectations. If a student is expected to bring their charged Chromebook to school with them, and they do not have it, it leads to difficulty for the teacher to quickly and efficiently make other arrangements for that student.

Summary

I used the data collection methods of questionnaires, interviews, classroom observations and a focus group to analyze how using a universal design and the intentional alignment of formative and summative assessment with lesson learning objectives support the process of selecting and effectively integrating technology into the classroom to meet the objectives for the students and while keeping students engaged. I then used the data gathered during this study to develop individual narratives for each

participant regarding their overall experiences. The narratives demonstrate that all four ELA teachers who participated in this study use technology to some extent to engage students and meet objectives with some integrating it more than others based on experience and personal preference. In addition, most teachers indicated that their technology skills are strong or have improved due to the COVID-19 pandemic and the need to connect during closures, quarantines, or leaves of absence. Some teachers indicated that they may shift activities to include technology-based and non-technology-based assignments and interactions to engage students and reduce technology burnout based on their use of technology throughout the day.

Chapter 5:

Discussion, Conclusions, and Recommendation

Overview of Study

This study looked at teachers' experiences using lesson learning objectives and assessment techniques and their impact on selection and effective integration of technology into the classroom to meet the objectives for the students while keeping students engaged. Data was gathered from four participants who all teach English/Language Arts (ELA). Three participants teach 7th grade and one teaches 6th grade at the same school. Data was collected through individual questionnaires and interviews, classroom observations and a focus group with all four participants. To begin my research, an open-response questionnaire was distributed to the four participants via e-mail. I then conducted individual interviews with each of the four participants in regards to their use of technology in the classroom. I completed observations as a type of data collection so that I could see the impact that technology was playing in these teacher's classrooms. To complete my data collection, I hosted a focus group to allow the four participants to come together to have a conversation and share ideas.

Overall, research suggests that teachers who intentionally planned to use technology in their classrooms, were more effective than teachers who used technology just because it was available. When planning lessons, it is critical that the teacher plan to use technology for student collaboration and interactive experiences. This allows for the learning to be personalized and differentiated for students. Having a variety of

technology available leads to better students understanding and engagement. The four teachers feel as though they are providing a variety of learning tools, making the learning experience more engaging, and differentiating the learning experience as needed.

Using technology meaningfully and purposefully in the classes requires one to ask a few questions about why the technology is being used and what purpose it will serve.

- What is the technology for?
- What are your learning objectives and outcomes?
- What are the hardest, or most failure-prone, aspects of what you're teaching?

Don't use technology just for the sake of using technology or because it's easy or fun. Instead, technology should be used to focus on the biggest teaching problems in student comprehension or performance. Use the backward design to identify learning objectives and create lessons and activities using technology that align with those objectives or use tools or applications to help reinforce thinking skills or practical application in an interactive way. Technology is not an end in itself but a tool to help enrich student learning and meet classroom goals and objectives (Miller, 2019).

My research showed that selecting and using appropriate technology can be of benefit to both the teacher and the students. Being familiar with selected technologies allows teachers to integrate technology seamlessly into teaching and students' learning. Careful planning along with continued training and acceptance of new technologies will assist as teachers continue to improve their teaching and learning experiences.

Participants agreed that educational technology tools must be selected with a clear focus on student outcomes and applied with intent and purpose in order to realize their potential to help all students. The best use of technologies is when their capabilities align with our advising goals

Results Related to Existing Literature

The results of this study confirm Braunschweig (2019) research that in order to optimize students where they are, we much take advantage of student's natural need and desire for technology. The teachers in this study focused on if technology was necessary for the lesson's objective, or if it was simply being used because it was an available resource. Wiggins & McTighe (2011) argue that teachers should "begin with the end in mind" and always think about their end results when planning a lesson. My data confirmed that the teachers who effectively integrated technology, planned the use of technology in their lesson plans based on the lesson objectives and what student should know. By using this theory, it created a path to creating lessons and activities that ensures better learning and a more engaging experience for students.

While three of the participants were unfamiliar with Wiggins and McTighe's term "understanding by design," the use of backwards design is what all participants used in order to plan their lessons with the incorporation of technology. Intentionality is a critical component in the UbD curriculum development model. By determining the essential learning outcomes, teachers can also stress the importance of better aligning them to the final assessment and help students achieve mastery on those objectives. Technology is integrated when it is used in a seamless manner to support and extend curriculum objectives and to engage students in meaningful learning. It is not something one does

separately; it is part of the daily activities taking place in the classroom. For example, one participant who was studying themes during a lesson, gave students a digital camera to take pictures of common theme seen around the school on posters and signs. Then she asked students to compose a multimedia slideshow explaining each theme that they came across and how that theme could be related in literature they had previously read. The primary goal was not the actual use of technology; rather, the goal was to engage students in meaningful learning and assess their understanding of common themes. Technology enriched the activity and enabled students to demonstrate what they know in new and creative ways.

One teacher indicated using a rubric and planning for the desired outcomes from students as they were developing lesson plans integrating technology. This is aligned with Wiggns & McTighe's (2011) concept of backward instruction and indicates the purposeful use of technology in lesson design to meet outcomes. Other teachers indicated the importance of technology for the ultimate goal of career readiness but may not connect them as directly to their course objectives and assessments.

Choosing a technology based on specific learning goals allows teachers to select the best fit for the activity and leads to more successful outcomes. While teachers in this study indicated that technology is a useful too, they felt it was not required to learn, Jason Frand (as cited in Kvavik, 2005) noted that today's youth take technology for granted but that they also feel as though it is a necessity in their lives. However students also show positive traits when given options that do not involve technology. The data I collected confirms that students need and want technology. According to the teachers, some

technology was engaging to students, but they also perceived burnout related to technology.

Practice Recommendations

This research based on the narratives of four teachers suggest that technology is a helpful tool that can save valuable time, engage students and assist with lessons but is not critical to the success of students. This is valuable to understand when providing support and professional development related to technology use.

One recommendation, that I plan to proceed with, is to organize a follow-up with these four participants where I share the information and data that I gathered. I think this will help all of us get a sense of what was successful and areas that we feel are weak. This will allow others to share their successes. For instance, Mr. Car uses technology more than any of the other participants, so he could share why he chooses that and how it benefits his students. While, Mrs. Poe is more traditional with paper/pencil and she could share the benefits with Mr. Car. Teacher collaboration is an important element for school improvement and student success. Allowing teachers to collaborate together on what does and does not work for them in the classroom when it comes to technology, can help them learn from each other in highly contextualized ways that are immediately applicable to their practice. In general, when educators work together, they form important professional and personal relationships. Teachers often draw support from each other and can delegate tasks in ways that help them collectively be more effective.

Another recommendation is to share these results with the entire ELA department at this school which makes up a total of nine teachers. Teacher collaboration occurs when members of a learning community work together to increase student learning and

achievement. Based on the similarities between these four participants, my prediction would be that the data would be the same amongst the other teachers who were not a part of this study. However, some of the other teachers (not involved) are close to retirement and therefore I am not certain they are using as much technology. By sharing this information, it could help to support those teachers who don't feel as comfortable with the growing amount of technology. This collaboration would give all of the teachers an opportunity to share successes and challenges with one another in regards to the classroom technology they use. By sharing ideas, this could increase their effectiveness and resource knowledge and increase their students' chances for academic success. When teachers communicate and share ideas, they also share an enlarged repertoire of instructional strategies that encourage creative instruction. Colleagues may be influenced to try different approaches or have opportunities to help a peer with a new approach. The level of ownership teachers feel about the process determines how much time and energy they really put into collaborating. Having a shared vision and mutual goals, that align with the district goal of integrating technology, can lead to the buy-in required for teachers to have a genuine sense of ownership.

Another recommendation would be to hold professional development opportunities for teachers to collaborate and share ideas in regards to technology. This would be an opportunity for teachers to share what types of technology they are using in the classroom and how they find it beneficial. Teachers could then ask questions in relation to how it is being used in the classroom and could share ideas with one another. This would be more beneficial than what it done in some districts or sitting through a presentation from a representative from that website's company. Desimone (2011) claims

that during effective professional development, teachers should have opportunities to get involved, such as observing and receiving feedback, analyzing student work, or making presentations, as opposed to passively sitting through lectures. This professional development opportunity would also be best to allow for collaborative participation. "Groups of teachers from the same grade, subject, or school should participate in professional development activities together to build an interactive learning community" (Desimone, 2011, p. 69).

Based on the experiences of these four teachers, planning effective technology integration takes the use of intentionally planning to use technology in the classroom before teaching and instruction begins. The use of UbD is essential to creating curriculum units and assessments that focus on developing students' understanding of important ideas to guide curriculum, assessment, and instruction. The TPACK framework, which aims to integrate technology into the same framework as pedagogy and content, produces the types of flexible knowledge needed to successfully integrate technology use into teaching. As communities of teachers collaborate either by subject or grade level, the experience and preferences of these teachers can determine how the TPACK framework can be integrated to ensure high-quality pedagogy. It is critical to honor the preferences and perceptions of teachers while providing opportunities to grow and learn.

Since the required use of technology is a district-wide initiative, the district should offer special professional development opportunities on a wide range of selected technologies to facilitate learning. These opportunities should provide consultation, guidance, tips, and techniques for best practice in technology-supported teaching activities. Technology is always changing and therefore, students and administration need

to be prepared for the changes caused by technology integration. Some educators do not have local training options available or the time to attend training. Teachers also need time to learn how to use both the hardware and software, time to plan, and time to collaborate with other teachers.

Limitations or Suggestions

This study involved middle school teachers in one content area in one school in the midwestern region of the United States. One limitation is that I included a small, purposeful sample of participants. While this allowed me to gain and in depth look at these teachers and their classrooms, more participants may have provided different data. Also, the participants were all English/Language Arts teachers in 6^{th} or 7^{th} grade and the data may be different for elementary or high school teachers. Perhaps a study of other subjects would have altered the results of this study as well.

Maximum variation was used to identify participants with differing levels of technology integration. While this allowed me to better understand difference among a few teachers in their technology use and practices associated with selecting technology, it did not allow for breadth in teachers with similar views and integration of technology. Additional studies may find that seeking teachers with high rates and high-quality integration of technology to meet objectives and engage students would better identify how these teachers reached that level.

While the study sought teachers' interpretations of effectiveness in meeting course objectives and engaging students through technology integration, student input was not collected. The purpose of this study was to gain an understanding of teacher experiences to provide more effective professional development and support in

technology integration, but future work would benefit from gathering student perceptions and outcomes as well.

Recommendations for Future Research

Future research, could explore the use of technology in other subject areas; specifically those where writing is not as heavy since the participants in this study used technology as a main tool for writing. Subjects like Math, Social Studies and Science may result in different data results. A larger teacher sample could affirm or contradict claims of the impact of the common themes found in my research, as well as identify other factors that may be related. Also, studies could be conducted about the time students were on task while using their technology compared to students who were off task, playing games, etc. and how that relates to the overall achievement of the student and the learning objective.

This study sought to better understand the perspectives and experiences of teachers in integrating technology to meet standards and engage students. Future qualitative studies focused on document analysis and observations may provide more details on teachers' development and use of lesson plans that integrate technology. In this study, teachers reported on their use of backward design in technology integration and their preferences related to technology integration, Observations were used as a secondary data collection tool to triangulate the results from the interviews and focus group. It may be valuable to conduct multiple observations over time and analyze lesson plans related to these observations to more fully identify types of technology integrated and strategies employed in the classroom.

One aspect that I did not address in this research is the perspective of the student. My participants were all teachers and they may view things differently than a middle school student. Future research could address the student's perspective on technology and the use of it in the classroom. In-depth exploration of how students are using technology in the classroom versus their teachers' thoughts, would make an interesting study when compared to the data I collected from the teacher participants.

A future study could aim to determine the relation between TPACK levels of teachers and their self-efficacy in integrating technology. It was detected in my data collection that the prediction of TPACK levels was teachers' technology integration self-efficacy. From this, it can be argued that in teacher education for achieving effective technology integration, it may be useful to explicitly encourage teachers' own beliefs and focus on developing their own beliefs in practices for technology integration.

A future study could look at how the financial impact of technology benefits or challenges teachers. In my current data collection, the district's finances were approved to purchase Chromebooks for all of the students in the district (K-12). However, money was not spent on any training or support for the teachers or students on the types of technology that could be used with the Chromebooks. It was up to the teachers to find training and resources that were available. A study by Salazar (2020) recognized a serious need to provide staff with training and ongoing support for effective classroom technology integration -- yet professional development budget are not nearly as adequate as technology budgets.

Summary

Overall, the data collected provides insight into how and why teachers integrate technology into English/Language Arts middle school classrooms. Some teachers tended to integrate more technology than others, but all teachers use technology to some extent in their classrooms. There is evidence that these teachers use backward design in their integration of technology, and some teachers intentionally mix strategies that include technology and those that do not rely on technology to increase engagement and reduce burnout. These data also suggest that as knowledge of technology increases, integration of technology also increases; however more studies are needed to fully understand this link.

In the 21st century, students have a desire to use the most relevant and up to date resources which includes technology, but ultimately the integration of technology is most successful when teachers have though through the process of why they are using the technology or decide not to use technology if that is what needs to be done for the particular lesson. Based on narratives of these four teachers, professional development and communities of practice are recommended that value the experience and perspectives of teachers related to technology integration and provide opportunities to enhance their technology use through frameworks such as TPACK and support from other teachers or teacher teams. Future research focused on more fully understanding technology integration in a variety of grade levels and content areas and gaining student perspectives on technology integration is suggested.

References

Adger, C. T. (1995). *Engaging Students: Thinking, Talking, Cooperating*. Corwin Press, Inc., 2455 Teller Road, Thousand Oaks, CA 91320-2218 (paperback: ISBN-0-8039-6231-2; $18; hardbound: ISBN-0-8039-6230-4).

Baek, Y., Jung, J., & Kim, B. (2008). What makes teachers use technology in the classroom? Exploring the factors affecting facilitation of technology with a Korean sample. *Computers & Education*, *50*(1), 224-234.

Barak, M. & Doppelt, Y. (2002). Pupils Identify Key Aspects and Outcomes of a Technological Learning Environment. The Journal of Technology Studies. 28(1/2), 22-28. Retrieved July 2020 from https://files.eric.ed.gov/fulltext/EJ670883.pdf

Barrett, H.C. (2005). White Paper: Researching Electronic Portfolios and Learner Engagement. Retrieved July 2020 from https://www.electronicportfolios.org/reflect/whitepaper.pdf

Becker, H. J. (1994). *How exemplary computer-using teachers differ from other teachers: Implications for realizing the potential of computers in schools*. Journal of Research on Computing in Education, 26, 291– 321.

Becker, H. J., & Riel, M. M. (1999). *Teacher professionalism, school work culture and the emergence of constructivist-compatible pedagogies*. Center for Research on Information Technology and Organizations.

Becker, J. D. (2006). Digital equity in education: A multilevel examination of differences in and relationships between computer access, computer use, and state-level technology policies. Education Policy Analysis Archives, 15(3), 1-38.

Bergen, T. J. (1981). David Samuel Snedden: The ideology of social efficiency. *Journal of Thought*, 91-102.

Berkeley Center for Teaching & Learning. (2019). *Incorporating Technology into Your Teaching*.

Bitner, N. & Bitner, J. (2002). Integrating Technology into the Classroom: Eight Keys to Success. *Journal of Technology and Teacher Education, 10*(1), 95-100. Norfolk, VA: Society for Information Technology & Teacher Education. Retrieved July 2020 from https://www.learntechlib.org/p/9304/

Bogard, Y., Crouch, J., Mestas, J., & Schiff, J. (nd.) The ineffectiveness of instructional technology.

Braunschweig, Christopher (2019). *Tech-savvy*. Newton Daily News.

Byrne, G. B. (2017). Narrative inquiry and the problem of representation: 'giving voice,' making meaning. *International Journal of Research & Methods in Education, 40(1)*, 36-52.

Clandinin, D. J., & Caine, V. (2013). Narrative inquiry. In *Reviewing qualitative research in the social sciences* (pp. 178-191). Routledge.

Coates, H. (2007) A Model of Online and General Campus-Based Student Engagement. Assessment and Evaluation in Higher Education. 32 (2), pp. 121–141.

Cochran-Smith, M., & Lytle, S.L. (2009). Inquiry as stance: Practitioner research for the next generation. New York, NY: Teacher College Press.

Connelly, L. M. (2016). Trustworthiness in qualitative research. *Medsurg Nursing*, *25*(6), 435.

Creswell, J., & Miller, D. (2000). Determining validity in qualitative inquiry. *Theory Into Practice*, *39*(3), 124-130.

Dabba, N. (2019) *Using Technology to Support Postsecondary Student Learning*. The Institute for Education Sciences.

Desimone, L. M. (2011). A primer on effective professional development. *Phi delta kappan*, *92*(6), 68-71.

Eberly Center for Teaching Excellence (2019.) *Why should assessments, learning objectives, and instructional strategies be aligned?* Pittsburgh, PA: Carnegie Mellon University. Retrieved from https://www.cmu.edu/teaching/assessment/basics/alignment.html

Efron S. & Ravid, R. (2013). *Action Research in Education*. The Guilford Press.

Ertmer, P. A. (1999). Addressing first-and second-order barriers to change: Strategies for technology integration. *Educational technology research and development*, *47*(4), 47-61.

Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educational technology research and development*, *53*(4), 25-39.

Flinders, D. J., & Thornton, S. J. (2017) (Eds.) The curriculum studies reader (5th ed.). New York, NY: Routledge.

Freishtat, Richard (2016). *Innovate (Your) Teaching*, Berkeley Center for Teaching & Learning.

Fried, C. B., (2007). In-class laptop use and its effects on student learning, Computers & Education. Retrieved July 2020 from https://www.winona.edu/psychology/media/friedlaptopfinal.pdf

Fullan, M. (2007). *The new meaning of educational change*. Routledge.

Gorski, P. C. (1995-2018). *Teacher Action Research*. Critical Multicultural Pavilion. Retrieved March 16, 2022 from https://www.edchange.org/multicultural/tar.html

Graham, C. R., Borup, J., & Smith, N. B. (2012). Using TPACK as a framework to understand teacher candidates' technology integration decisions. Journal of Computer Assisted Learning, 28(6), 530-546.

Gray, L., Thomas, N., & Lewis, L. (2010). Teachers' use of educational technology in US public schools: 2009 (NCES 2010-040). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Retrieved from https://nces.ed.gov/pubs2010/2010040.pdf

Hannafin, R. D., & Savenye, W. C. (1993). Technology in the classroom: The teacher's new role and resistance to it. *Educational Technology*, *33*(6), 26-31.

Harmes, J. C., Welsh, J. L., & Winkelman, R. J. (2016). A framework for defining and evaluating technology integration in the instruction of real-world skills. In *Handbook of research on technology tools for real-world skill development* (pp. 137-162). IGI Global.

Herr, K. & Anderson, G. (2015). *The Action Research Dissertation.* SAGE Publications.

Hutchings, Pat. 2016. *Aligning Educational Outcomes and Practices.* National Institute for Learning Outcomes Assessment. Retrieved from http://learningoutcomesassessment.org/documents/Occasional%20Paper%2026.pdf

Josselson, R., & Hammack, P. L. (2021). Essentials of narrative analysis.

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in higher education*, *38*(5), 758-773.

Kearsley, G & Shneiderman, B. (1998). *Engagement Theory: A Framework for Technology-Based Teaching and Learning.* Educational Technology.

Kennedy-Lewis, B. L., Murphy, A. S., & Grosland, T. J. (2016) *Using narrative inquiry to understand persistently disciplined middle school students*. International Journal of Qualitative Studies in Education, 29(1), 1-28.

Kohl, Herbert (1994). *I Won't Learn from You*. Milkweed Editions. Retrieved from https://curriculumtoolkitbrendaboylan.files.wordpress.com/2016/05/i-wont-learn-from-you.pdf

Koehler, M. J., & Mishra, P. (2005). Teachers learning technology by design. *Journal of computing in teacher education*, *21*(3), 94-102.

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)?. *Contemporary issues in technology and teacher education*, *9*(1), 60-70.

Koshy, E., Koshy, V., & Waterman, H. (2010). *Action research in healthcare*. Sage.

Kuh, G.D. (2009a) What Student Affairs Professionals Need to Know about Student Engagement. Journal of College Student Development. 50 (6), pp. 683–706.

Kurt, S. "Planning for Educational Technology Integration," in Educational Technology, September 19, 2017. Retrieved from https://educationaltechnology.net/planning-educational-technology-integration/

Okojie, Mabel. (2006). *The Pedagogy of Technology Integration.*

Lapadat, J. C., Motus, T. G., & Fisher, H. (2005). Role relationships in research: Noticing an elephant. *International Journal of Qualitative Methods*, 4(2), 1-16.

Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. *Review of Educational Research, 77*(4), 575-614.

Lehtinen, A., Nieminen, P., & Viiri, J. (2016). Preservice teachers' TPACK beliefs and attitudes toward simulations. *Contemporary Issues in Technology and Teacher Education, 16*(2).

Lemke, C., Coughlin, E., Thadani, V., & Martin, C. (2003). *enGauge 21st century skills: Literacy in the digital age*. Los Angeles, CA: The North Central Regional Educational Laboratory/the Metiri Group.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Liu, Ping. (2017). *Technology Integration in Elementary Classrooms: Teaching Practices of Student Teachers*. California State University.

Machi, L.A., & McEvoy, B.T. (2010). *The literature review: Six steps to success* (3rd ed). Thousand Oaks, CA: Corwin.

Marks, Helen (2000) “Student Engagement in Instructional Activity: Patterns in the Elementary, Middle, and High School Years,” American Educational Research Journal 37, no. 1: 156.

Martin, Johnathan & Torres, Amanda. (2016). *What is student engagement and why is it important?* National Association of Independent Schools. Retrieved July 2020 from https://www.nais.org/Articles/Documents/Member/2016%20HSSSE%20Chapter-1.pdf

Merriam, S. B., & Tisdell, E. J. (2016). Qualitative research: A guide to design and implementation (4th Ed). San Francisco, CA: Jossey-Bass.

Miller, M. (2019). How to make smart choices about tech for your course. Retrieved from https://www.chronicle.com/interactives/08262019-adviceguide-tech-choices

Niess, M. L. (2011). Investigating TPACK: Knowledge growth in teaching with technology. *Journal of educational computing research*, *44*(3), 299-317.

Norris, C., & Soloway, E. (2016). Uberizing K-12: Use Software... But Keep the Teachers, Too!. *Educational Technology*, *56*(1), 61-63.

Oblinger, D. & Oblinger, J. (Eds), Educating the Net generation (pp. 5.1-5.16). Boulder, CO: EDUCAUSE. Retrieved July 2020 from https://www.educause.edu/ir/library/PDF/pub7101.PDF.

Okojie, Mabel. (2006). *The Pedagogy of Technology Integration.* Retrieved June 2020 from https://files.eric.ed.gov/fulltext/EJ847571.pdf.

Parsons, J., & Taylor, L. (2011). Improving student engagement. *Current issues in education*, *14*(1).

Rennie, L. J. (2001). Teacher collaboration in curriculum change: The implementation of technology education in the primary school. *Research in Science Education*, *31*(1), 49-69.

Riel, M. (2020). Understanding action research. Center For Collaborative Action Research, Pepperdine University. Retrieved January 31, 2021 from the Center for Collaborative Action Research.

Riley, R. W. (1996). *Application for state grants under the Technology Literacy Challenge Fund*. Washington, DC: United States Department of Education.

Saettler, P. (2004). *The evolution of American educational technology*. IAP.

Salazar, Teresa. (2020). *We Had Tools in Hand, But Who Knew What to Do With Them?.*

Schiro, M. S. (2008). *Curriculum theory*. Los Angeles, CA: Sage.

Schiro, M. S. (2013). Social Efficiency Ideology. *Curriculum theory*. (2nd ed., pp. 57-98). Los Angeles, CA: Sage.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard educational review*, *57*(1), 1-23.

Smeets, K., & Ponte, P. (2009). Action research and teacher leadership. *Professional development in education*, *35*(2), 175-193.

Stanford, P., Crowe, M. W., & Flice, H. (2010). Differentiating with technology. *TEACHING exceptional children plus*, *6*(4), n4.

Stevenson, Heidi (2004) Teachers' Informal Collaboration Regarding Technology, Journal of Research on Technology in Education, 37:2, 129-144, Retrieved July 2020 from https://files.eric.ed.gov/fulltext/EJ690964.pdf.

Stover, S., & Veres, M. (2013). TPACK in higher education: Using the TPACK framework for professional development. *Global Education Journal*, *2013*(1).

Strong, Silver, & Robinson, (1995). Strengthening Student Engagement: What Do Students Want, Retrieved from http://www.ascd.org/publications/educational-leadership/sept95/vol53/num01/Strengthening-Student-Engagement@-What-Do-Students-Want.aspx.

Taylor, L. & Parsons, J. (2011). Improving Student Engagement. Current Issues in Education, 14(1). Retrieved from file:///C:/Users/Jessica/Downloads/745-Article%20Text-2766-1-10-20110506.pdf.

Taylor, S. (2016). The evidence of "ordinary" people. National Centre for Research Methods. Available: https://www.ncrm.ac.uk/resources/video/

Trowler, V. (2010). Student engagement literature review. *The higher education academy*, *11*(1), 1-15.

Venezky, R. L. (2004). Technology in the classroom: Steps toward a new vision. *Education, Communication & Information*, *4*(1), 3-21.

Walsh, Kelly (2015). *8 Examples of Transforming Lessons Through the SAMR Cycle.* EmergingEdTech.

Warschauer, M. (2004). *Technology and social inclusion: Rethinking the digital divide*. MIT press.

Watson, K. (1999). WebQuests in the Middle School Curriculum: Promoting Technological Literacy in the Classroom. Retrieved July 2020 https://www.oerafrica.org/FTPFolder/resources/guyana/CCTI%20CD/CCTI%20CD/infomanagement/documents/meridian_webquest.pdf

Wells, K. (2011). *Narrative inquiry*. Oxford University Press, USA.

Wiggins, G., & McTighe, J. (1998). *The Understanding by Design.* Alexandria, VA: ASCD. Retrieved July 2020 from https://www.sabes.org/sites/sabes.org/files/resources/Backward_design.pdf

Wiggins, G., & McTighe, J. (2011). *The Understanding by Design guide to creating high-quality units*. Alexandria, VA: ASCD.

Winn, W. (2002). Research into practice: Current trends in educational technology research: The study of learning environments. *Educational psychology review*, *14*(3), 331-351.

Appendix A

Questionnaire from Participants

Responses from Mrs. Poe

1. In general, how often would you say you use technology in the classroom during a 45 minute class period? What are the biggest factors that determine if you will use technology?

We typically use the computers for 10-15 minutes of class, unless we are working on an extended writing assignment. Our purpose weighs heavily on our decision making concerning computers. For example, it's a must for research but not for reading and practicing comprehension. We have found that kids are getting so used to doing everything on the computer that they then evade doing paper/ pencil. We are trying to find a good balance of both.

2. How confident do you feel in your ability to integrate multiple technologies into your instruction? Explain.

I'm pretty confident with my abilities until our platforms change, are discontinued, or are upgraded to what seems like a new program. Then, I feel like I'm starting all over again.

3. Do you feel you have a variety of ideas and lessons for integrating technology into your teaching? If yes, please explain. If no, what could help you gain better ideas to incorporate?

I was feeling like I had quite a variety of ideas regarding technology, but students have brought some programs and sites to my attention that they enjoy using in other classes. If they are engaging the students enough to say something, they are worth checking out.

4. Do you have the technology skills to support the students when they use technology for a project? Explain.

I am certainly not the person with the most skills in the building, but I have enough that I am comfortable using the technology required for the project. Otherwise, I would pick something else. I do learn quite a bit through the students, and I message our tech specialist or Google search for pointers, when needed.

5. How does technology change your teaching?

It's easier for me to do quick assessments and sometimes to grade. As a language arts teacher, I love that students have support in editing their work and can do so without starting completely over, as they would on paper. I, myself, struggle with not having the paper copy because it's so much easier to add editing symbols than writing out comments for every mistake.

6. In general, what technology do you use the most in your classroom? Why did you choose these? (ease, comfortability, etc.)

Google Classroom makes it easy to get immediate feedback for pre- and post-assessments and exit tickets. That has been a huge help. I can spend my time letting the data lead my next move rather than calculating the data.

7. How do you determine when/why/how to use technology in your classroom?

Often, we use technology for ease and convenience (which is crucial since losing the block), for research, and for word processing. Having computers has also made it possible to share work with absent students, communicate with students, and to incorporate more video clips and interactive activities into lessons.

Responses from Mrs. Chap

1. In general, how often would you say you use technology in the classroom during a 45 minute class period? What are the biggest factors that determine if you will use technology?

The biggest factor determining my use of technology has been the pandemic. We are required to load all assignments and directions on Google Classroom. Therefore, I use Google Docs, Slides, and Forms quite a bit. During a typical 45 minute class, I refer to Google Classroom as an opening each day. I have the daily agenda on the chat stream. Students use a doc, slide, or form for the guided practice or assessment. In fact, I usually work to have an instructional piece that is not technology. This is usually a hands-on, active practice time. In conclusion, 30 minutes of class uses technology and 15 minutes does not.

2. How confident do you feel in your ability to integrate multiple technologies into your instruction? Explain.

In the past several years, my confidence in my ability to integrate technology into my instruction has grown. I have moved from simply using Progress Book and having students type up papers on a Word document, to using the Google Classroom platform,

linking videos and docs to lessons, leading Google Meets virtually, and creating Screencastify instructional videos.

3. Do you feel you have a variety of ideas and lessons for integrating technology into your teaching? If yes, please explain. If no, what could help you gain better ideas to incorporate?

I feel like I have a solid amount of ideas and lessons using technology. There is much I can learn- Flip Grid for example. There are also more sophisticated interactive graphics I could use to create lessons. The best way to gain new ideas is to talk with colleagues and see what other teachers are doing on social media.

4. Do you have the technology skills to support the students when they use technology for a project? Explain.

I have a basic level of understanding to support students using technology for projects. However, many of my middle school students have knowledge and experience way beyond my own. I usually call out, "Who knows what to do when…?" and someone almost always knows.

5. How does technology change your teaching?

Technology changes my teaching by opening up the classroom. This can be both positive and negative. Positively, I can meet and interact with students outside of a class period. We can bring in a world of information and fun visuals. We have access to books and read alouds for my students on IEPs. Negatively, students have open access to googling answers and cheating. They are open to the distractions of playing games and searching around off task. In some ways, having everyone safe in my classroom is easier.

6. In general, what technology do you use the most in your classroom? Why did you choose these? (ease, comfortability, etc.)

I use Progress Book and Google Classroom the most. These are the platforms our school uses, so we have been trained to use them. I do like both of these applications. I also project small video clips and pictures to establish background knowledge before reading. I have used other "fun" programs like Quizlet and Flocabulary.

7. How do you determine when/why/how to use technology in your classroom?

I try to balance the required use of Google Classroom for assignments and assessments with the students' need for hands-on learning and movement in the classroom. I also determine my level of understanding of the technology. If there is a new program (for example a colleague just shared the grammar program Quill), I will ask someone who is knowledgeable to walk through the basics with me.

Responses from Mr. Car

1. In general, how often would you say you use technology in the classroom during a 45 minute class period? What are the biggest factors that determine if you will use technology?

The students and I both use Chromebooks each day to complete classwork. As a Language Arts class, we complete our reading and writing digitally. We engage in discussions face-to-face during a sessions; however, during remote learning we use the chat feature of Google Meet to conduct class discussions. Since all of the reading and writing assignments are completed online, I grade the assignments using point-based rubrics.

2. How confident do you feel in your ability to integrate multiple technologies into your instruction? Explain.

The need for an effective, easy-to-use remote-learning experience during Covid-19 has caused tech companies to engineer their platforms so they can offer schools, teachers, students, and parents easy and effective solutions for completing work online. Even before the coronavirus hit, I have been incorporating technology in the classroom for 5+ years. From student response systems (like Kahoot!) to student-collaboration tools (like Google Drive), I feel confident in my ability to integrate multiple technologies during instruction.

3. Do you feel you have a variety of ideas and lessons for integrating technology into your teaching? If yes, please explain. If no, what could help you gain better ideas to incorporate?

The internet offers extensive suggestions on using technology in the classroom.

4. Do you have the technology skills to support the students when they use technology for a project? Explain.

I am not trained or certified in tech. All of my knowledge comes from trial-and-error experiences over the years. Because I use technology for my own work, I am able to guide students with tips and tricks for using technology to complete their own work. I also have learned how to trouble-shoot tech problems that arise because I have experienced many of the same problems that the students might run into. I also use the students' own knowledge and experience to help trouble-shoot problems

during classtime because many of the students are critical thinkers and problem solvers when it comes to tech.

5. How does technology change your teaching?

As a Language Arts teacher, technology has improved my teaching because there are so many interactive applications that make reading and writing personalized and engaging for the students.

6. In general, what technology do you use the most in your classroom? Why did you choose these? (ease, comfortability, etc.)

The students and I use Google Classroom daily to complete our work--most often using Google Docs, Google Slides, and Google Forms. Google products make it easy for users to store, edit, save, and share information online.

7. How do you determine when/why/how to use technology in your classroom?

In most real-world work settings, technology is being used for various functions. For this reason, I believe it is important to use daily tech tools to complete the work we do in our Language Arts class. By the time they are in a career, the practice using and problem-solving with technology will be second nature.

Responses from Mrs. Brown

1. In general, how often would you say you use technology in the classroom during a 45 minute class period? What are the biggest factors that determine if you will use technology?

I use technology at least 70% of the time in my classroom. The biggest factor for me is if I feel like it is going to enhance my lesson and if I feel like I can accomplish the same goal by using technology.

2. How confident do you feel in your ability to integrate multiple technologies into your instruction? Explain.

I feel pretty confident with integrating multiple technologies into my instruction. I feel confident because I have had multiple professional development on the subjects and I also I have done some research on my own especially after we switched to digital learning during the pandemic.

3. Do you feel you have a variety of ideas and lessons for integrating technology into your teaching? If yes, please explain. If no, what could help you gain better ideas to incorporate?

Yes, with every lesson I do I tend to see if I incorporate technology into the lesson.

4. Do you have the technology skills to support the students when they use technology for a project? Explain.

Yes, normal I feel like I have the technology skills to support my students. I also tend to use technology that I am efficient in so if they need assistance I'm able to assist.

5. How does technology change your teaching?

Technology has not really changed my teaching but more the way I deliver my lesson to the students. I feel it has enhanced the delivery of my lessons for my students.

6. In general, what technology do you use the most in your classroom? Why did you choose these? (ease, comfortability, etc.)

The technology I use the most is the Google products, Quill, Flocabulary, NEWSELA, and YouTube. I chose them for the content they provided and or the ease of the use of the product. They are also programs the students are familiar with.

7. How do you determine when/why/how to use technology in your classroom?

I determine the use of technology when I am planning my daily lessons. I see if the technology will enhance the lesson and by adding it will I still have time for the content I need to deliver. For that reason I try to use programs a lot that do both.

Appendix B

Interviews from Participants

Responses from Mrs. Chap- During the time of this data collection, Mrs. Chap was quarantined due to a positive Covid diagnosis so the interview was conducted virtually.

1. How do you determine when to use technology for a lesson or assignment? How do the ELA standards and your expectations of student mastery shape the use of technology?

I mainly use technology for writing. ELA writing standards require the use of technology and multi-paragraph responses. The more practice with typing essays will (hopefully) lead to mastery. With other lessons, I determine if the use of technology will increase their background knowledge and/or engagement with the learning. I try to not use technology until students have had a literal hands-on experience or learning activity first.

2. How do you think the use of technology impacts and influences the students' engagement during your instruction?

Overall, technology engages students. Quick videos- or even videos of me going over information- seem to hold their attention more than teacher talk. They also enjoy anything that has a gaming or competition quality.

3. Do you believe that integrating technology into your curriculum is important for student success? Explain.

I do not think technology is necessary for student success; it is a tool. The tool helps teachers readily provide more visuals and interactive experiences for lessons, and a tool for students to write more efficiently and practice in a more individualized and entertaining way.

4. How do you think students feel about using technology? How do those feelings align with their success?

Students love computers when they choose what to do. They don't enjoy academic tasks any better on the screen than in the book. Their feelings of success comes when they see they are mastering the material. Gaming activities like Quizlet can produce positive feedback. However, I see the most smiles from mastery during in-class activities and check-ins.

Responses from Mrs. Brown

1. How do you determine when to use technology for a lesson or assignment? How do the ELA standards and your expectations of student mastery shape the use of technology?

I look to see if it is going to add something to my lesson so I ask myself "Am I using it just to use it or am I using it to address student's comprehension?" Especially when it comes to being able to type paragraph and essays, I make sure that they have the typing skills for that standard. I am using more technology for the public speaking standard instead of always standing in front of the class- Screencatify, Flipgrid and especially the Google Slides for presentations where the students create.

2. How do you think the use of technology impacts and influences the students' engagement during your instruction?

I feel like it makes them feel like they are more connected to the lesson. They are more engaged because that is what they are comfortable and familiar with. They are very devise-driven (During this interview, there were a few students in the room who stay with Mrs. Brown after school and she points out that all five of the students who were in the room were either on their Chromebook and/or phone). The old way of learning is gone and they need to use the methods and the things that they connect to and are comfortable with.

3. Do you believe that integrating technology into your curriculum is important for student success? Explain.

Yes, because we have to prepare them for the real world. Even if they don't go to college or don't have a career where they are at a computer, if they are in the auto industry, the need technology. Every job now there is some technology. If we don't train them to use it, are we really preparing them for their future lives? So in order to be success, they have to feel comfortable with technology.

4. How do you think students feel about using technology? How do those feelings align with their success?

I feel like the pendulum has swung. When we first started using technology they were excited, but now they enjoy doing things on worksheets. They get tired of always using Google Docs. Today, I gave them a paper Venn Diagram and they seemed excited to write and highlight with a highlighter and were almost more engaged because it was something different. Students who truly care, they enjoy the innovative stuff on technology. The Flipgrids, and presentations but there are some

that it doesn't matter if I gave them a computer or paper pencil, they don't care. So the ones that care I feel like they enjoy it and they like that we are trying new things.

Responses from Mr. Car

1. How do you determine when to use technology for a lesson or assignment? How do the ELA standards and your expectations of student mastery shape the use of technology?

If there is an opportunity for students to use technology to make language arts assignments like real-life experience or to enhance lessons to meet the needs of diverse learners (e.g. learning styles), then I will try to incorporate technology with those purposes in mind.

2. How do you think the use of technology impacts and influences the students' engagement during your instruction?

Today's learners are native to the digital world. How students use the tech tools available to them, however, creates an added aspect to classroom management that educators did not face before, say, the year 2000. While working, students like many adults can become distracted by the divergent nature of technology, in particular, the danger of being distracted by too many tools like the internet and social media apps. This balancing act that today's teachers face is a part of classroom management that can be a daily concern, especially if the teacher offers learning opportunities online and does not set clear limits and expectations for the students' work.

3. Do you believe that integrating technology into your curriculum is important for student success? Explain.

I believe that it is important that students use technology in their work today because the work they will be doing in real life will likely involve some aspect of using digital tools. I believe students benefit from working with digital technology and especially problem-solving issues that inevitably arise.

4. How do you think students feel about using technology? How do those feelings align with their success?

Because today's students are native to digital technology, I see many of them who are both confident and comfortable working on assignments using different tech tools offered by so many companies eager to make work easier or more efficient for students and teachers. I am continually aware of my need to manage students' tech use in order to prevent some from being sidetracked by the many different technology apps available to them.

Responses from Mrs. Poe

1. How do you determine when to use technology for a lesson or assignment? How do the ELA standards and your expectations of student mastery shape the use of technology?

The biggest thing is one that we can do really quick assessment and have feedback immediately and for our kids who are quarantined we have to use online things. My co-teacher and I use less than we usually do because we have to have a balance of paperwork and online work because the kids will start refusing if they are online using computers all day. We have things that are in our standards that make more sense using technology (essays in 45 minutes) because then they have the editing software. That's beneficial for everyone but makes our special-ed kids more independent because they can accomplish things on their own. If there is anything we know the kids will struggle with

reading wise, then we use the online read-aloud for everyone so it doesn't single anyone else who is behind on reading.

2. How do you think the use of technology impacts and influences the students' engagement during your instruction?

The use of videos and interactive lessons/games gets them a lot more interested but so many teachers are relying on that that the students are experiencing burnout. When we are using those things, then we have to watch the kids even more because they want to get on others games or YouTube so it comes with a new level of responsibility and monitoring from the teacher.

3. Do you believe that integrating technology into your curriculum is important for student success? Explain.

I think that having technology does enhance how successful students are and there are parts of it that are required for their real lives someday but I think they could manage without. If we didn't have technology (specifically computers) I would still be able to find and do other things to help students be successful. I've been teaching long enough that I would go back to what I did before technology. It would leave a gap with some things (like typing paragraphs in a time periods) but I would still make headway.

4. How do you think students feel about using technology? How do those feelings align with their success?

It kind of a split. Some kids prefer to do everything online and some kids would rather not touch the computer all day. I think that when they are burnt out, and

they don't want to do it, then they aren't putting forth effort or paying attention so we have lost whatever gain or benefit we were trying to achieve. It's lost to it.

Appendix C

Use of Technology Classroom Observation

Teacher's name: Mrs. Brown

Date of observation: Tuesday, November 30

Question:	Response:
Brief summary of the lesson:	The class is beginning a mini unit on the Charles Dickens classic A Christmas Carol. To build background on the author and the setting of Victorian England the students are conducting a webquest as learning partners.
What technology-methods were used during the lesson?	The students are using a variety of websites to discover the answers to the webquest questions.
What other teaching practices/strategies were used during instruction?	The students participated in partner work while completing the webquest and the class also watched a Brain Pop about Charles Dickens before they began their webquest.
What activities/tasks were students asked to do to demonstrate their learning? How did the teacher monitor student progress during the class?	The students were asked to go to various websites to explore Charles Dickens and Victorian England. The information they gather will help them answer the webquest questions. Teacher walked around to monitor the students' progress, assisted if they were struggling, and engaged in conversations about the material they were reading.

How are students collaborating with one another?	Students worked in pairs to complete the webquest.
How can we determine if students engaged in learning?	The completion of the webquest in the time allotted to complete the webquest.
How are teachers utilizing district adopted curriculum and materials?	The students are using their school issued Chromebooks. They are also going to use the information gathered to assist them in their reading comprehension of the A Christmas Carol play adaptation in their SAVVAS (district approved textbook) My Perspectives textbook or the original text (advanced classes).
In what way(s) did the teacher seem to have prepared for the use of technology during instruction?	Teacher made sure all the links were accessible for the students and not blocked. She also provided charging stations for the students that were unprepared with uncharged Chromebooks.

Teacher's name: Mr. Car

Date of observation: Tuesday, November 30

Question:	**Response:**
Brief summary of the lesson:	This is the class' second novel. The students will continue to use Kami as they read. This time teacher will scaffold by releasing a degree of independence to students as they read in small-group stations, with each group focused on one of the following literary elements: • Key Events • Setting • Vocabulary

	• Tone • Theme • Figurative Language • Characterization
What technology-methods were used during the lesson?	The students access reading material through Google Classroom and use the Kami extension on Chrome to mark up the text as they read.
What other teaching practices/strategies were used during instruction?	The students were taught mark-up features that Kami has to offer, but there are other features that can aid students as they read, including text-to-speech and dictionary.
What activities/tasks were students asked to do to demonstrate their learning? How did the teacher monitor student progress during the class?	Students used Learning Logs to respond to comprehension and analysis questions that required them to go back to the text and their Kami mark-ups for supporting evidence. Teacher modeled, observed, and assessed throughout the students' reading and writing practice.
How are students collaborating with one another?	The students will continue to use Kami as they read, but teacher will release a degree of independence to students as they read in small-group stations.
How can we determine if students engaged in learning?	Teacher will assess the students' reading comprehension using their responses to the Learning Logs' questions. Teacher will also assess their learning as they cite textual evidence from their Kami mark-ups.
How are teachers utilizing district adopted curriculum and materials?	The district has pushed for every classroom to use Google Classroom as the designated learning platform. They have also purchased Chromebooks and chargers for every student to use at school and at home. In addition, classrooms at Warner Middle

	School include students with a wide range of reading levels--from high school to elementary. Students use a reading and math program called MyPath by Edgenuity to meet the learning needs of each student at his or her level to "catch up, keep up, and get ahead" in an individualized learning path.
In what way(s) did the teacher seem to have prepared for the use of technology during instruction?	The Learning Logs were created by the classroom teacher using Google Forms. The teacher will use assessment data to organize small groups of readers for the upcoming station work.

Teacher's name: Mrs. Chap

Date of observation: Tuesday, November 9

Question:	**Response:**
Brief summary of the lesson:	Reviewing parts of speech using a color-coded shapes system (Montessori).
What technology-methods were used during the lesson?	Recorded Screencastify video lessons to free up teacher to circulate and help. The notes for all the shapes are on a slide stack in Google Classroom.
What other teaching practices/strategies were used during instruction?	Students used colored markers to draw the corresponding part of speech above each word in practice sentences. The video has movable shapes to go over answers. Students also have a paper chart of notes to refer to as they work.

	Teacher circulates and assists during the guided practice. Students get feedback from the video to correct any mistakes.
What activities/tasks were students asked to do to demonstrate their learning? How did the teacher monitor student progress during the class?	See above After guided practice, the next lesson is independent practice.
How are students collaborating with one another?	Discussion and seatmate clarifications happen naturally and are allowed.
How can we determine if students engaged in learning?	Observation The markers help keep students engaged.
How are teachers utilizing district adopted curriculum and materials?	Grammar standards Writing standards- example: during conjunction lesson we discuss why we don't start sentences with conjunctions. During pronouns- you must name the noun before using a pronoun and never use a pronoun in a topic sentence or thesis.
In what way(s) did the teacher seem to have prepared for the use of technology during instruction?	Screencastify made Marker sets in basket Projector on

Teacher's name: Mrs. Poe

Date of observation: Monday, December 13

Question:	Response:
Brief summary of the lesson:	Students have taken down evidence, in regards to the essential question, as they read through Unit 2 and are now composing a five paragraph end-of-unit essay.
What technology-methods were used during the lesson?	The class used Pearson's online platform to access the audio version of several stories to accompany the textbook. Several supplementary videos from the internet were used and posted on Google classroom for absent students and/or for students to access to watch again. Rubrics for the evidence log and essay, as well as, a graphic organizer and editing checklist were also posted on Google Classroom. Students are composing papers on Google Docs, some with speech-to-text assistance.
What other teaching practices/strategies were used during instruction?	Class discussion of the stories and review of evidence Mini-lessons to assist with the graphic organizer and construction of the introduction, paragraphs with details and conclusion.
What activities/tasks were students asked to do to demonstrate their learning? How did the teacher monitor student progress during the class?	Students made notes in evidence logs which were then shared out and discussed as a class prior to beginning the essay.

How are students collaborating with one another?	During this lesson, there was no student collaboration other than the class discussion.
How can we determine if students engaged in learning?	Students who were not engaged in learning were evident because they wrote nothing in their evidence logs even after the discussion and posting of notes on the board. Because students really enjoy the content of this unit, there was no shortage of engaged students volunteering to share the evidence they had gathered to support the essential question.
How are teachers utilizing district adopted curriculum and materials?	Most of the stories we used were from the district adopted textbook.
In what way(s) did the teacher seem to have prepared for the use of technology during instruction?	Selecting and reviewing stories prior to use Reminding students to bring computers Setting up Go Guardian for online monitoring.

Appendix D

Focus Group Discussion

Tuesday, December 7 at 2:10 pm via Zoom

6th grade- Mrs. Poe

7th grade- Mrs. Brown

7th grade- Mr. Car

7th grade- Mrs. Chap

1. **Based on previous responses, most of you commented that you use technology at least part of the time on a daily basis in your classroom. How do you determine what time of the class is best? (Beginning, middle, end). Is there a certain factor to determine when the best time to use technology during a class is?**

Mrs. Poe: We usually do an intro activity that is usually paper/pencil and then we might do a video for the lesson either on the teacher's computer or by posting videos on the student computers and then if we are taking an assessment or doing an exit slip, we will do a Google Form or something similar because it makes it so much easier to grade and give immediate feedback.

Mrs. Chap: I tend to stick with the traditional teacher, then guided practice, then independent practice. Most of the teacher technology is up front so if I'm showing a video that I have made, that would be during the teacher instruction early on and then if they are working on something independent or typing an essay, it would be more towards

the end. More just where it seems best. Sometimes that's an opening activity to get their attention.

Mr. Car: We do Edgenuity every day (Monday-Thursday) for the first 20 minutes of class which is on the student's computers. I don't tell the kids to just "do it", I sit down and talk with them while other students are watching videos, doing lessons or doing the assessment. As they get correct answers, they can show me so I can confirm them. Since the students are doing it in class, and I am available for them to ask questions to, I feel like it has been a really beneficial use of our time. I have students reading at the 3rd grade level and students working at the high school level but Edgenuity meets them where they are and gives them automatic feedback. In a classroom where I have 20 or so kids, I can monitor them and conference with them when needed.

2. What would you say is the single biggest factor for when you plan for <u>students</u> to use technology?

Mrs. Brown: When it enhances the lesson and gives students another way to express their ideas besides just paper and pencil all the time.

Mrs. Poe: I like that- enhances the lesson- but only because that encompasses so many things. In the past when we had to do an essay rough draft on paper and all of their editing, we can do a paragraph and polish it now in a matter or 10-15 minutes. We can get a 5 paragraph essay done now, with research, in a matter of a few days. The time component is huge. They're still doing the same work but in less time. It's the same with the grading- I'm getting the same information in a much shorter amount of time.

Mrs. Chap: I think it's the interpersonal aspect of technology. The fact that students are more willing to participate with the use of technology where a class discussion might be the same students volunteering to share their ideas out loud. Or if I set it up where they can send me a chat message with questions, they might be more apt to ask where they might not be willing to approach me in class. They are so comfortable being online.

Mr. Car: I would agree with Mrs. Poe that it's a time saver and I would agree with Mrs. Chap that it's so easy for students to share their work online. If a student is having trouble, I can pull it up on the Smartboard and we can look at the specific problem together as a class and students can chime in. It makes it possible for things to go more fluently and it allows the visual aspect for students.

3. What are some of the biggest challenges for using technology into your classroom- either technology we already have in place or implementing new technology?

Mrs. Brown: Today we read part of "A Christmas Carol" and then students took a quiz on CommonLit. The entire server was having issues so they couldn't do anything. It wasn't anything on my end that I could fix. When that is your lesson for the day, and the technology is not working, you have to quickly come up with another lesson, which probably also involves technology. Another issue is on the student end- not having their Chromebook charged or not bringing their charger to school. Any then sometimes the copier is down so it's not like you can print off a copy for the student who doesn't have their worksheet. Sometimes the computer issues make you not want to use technology.

Mr. Car: Isn't one of our rules to "be responsible"? The kids not only don't charge their Chromebook but they don't bring it at all and then think they can sit and do nothing. The

gaming is also a big issue! GoGuardian has made such a difference in monitoring students on the computers during class to make sure they are on task and not playing random games. It has made such an impact since all of us using it! Students get distracted by all of the availability and access they have on the internet.

Mrs. Chap: While GoGuardian is great for monitoring, it's like you have to still be a lifeguard. If you go to help a student for a minute and take your eyes off of the monitoring site, students are quick to try and do other things that they aren't supposed to.

Mr. Car: When I got to sit down and conference with a student one-on-one, I can only imagine the gaming that is going on around me because I can't sit and watch all of them.

Mrs. Chap: I saw a video somewhere recently that if students are using Google Forms, they can add something to the words in the web browser which bring up and access the teacher's answer key to that form. I learned the hard way last year that students would try and access the materials before class to look up answers before they got to my room because they knew I would be watching that class period but I would not know if they were looking up the answers to my test while they were in math class.

Mrs. Brown: On a side note, my husband just text me that technology is down all over right now and Amazon is down and the newspaper program that most main stream media uses are all glitching right now. So it's not just us as teachers- technology can screw everybody's life up!

Mrs. Poe: One of the issues I'm having with technology right now is that students are supposed to completely reboot their computers every night for updates to load, and when they don't do it, then the technology doesn't work properly. It's really frustrating because

it's such a simple thing that they are told to do and so it messes up the timing of my lesson when I am having to take teaching time to allow them to do it in class so the programs work properly. We also have a handful of kids who don't have internet at home and that's a struggle especially for the kids who are absent and need to be on Google Classroom to stay caught up on the work. Technology only works if you have access to it and some of them don't. When something is a paper/pencil assignment, I can make sure everyone has that.

4. How do you feel like technology plays a role in student achievement (aside from the challenges we already previously discussed)? Or do we feel like technology does play a role in achievement or is it just a way to make things faster and easier? Is it actually helping to teach our students better when it comes to the standards needing to be addressed in ELA?

Mrs. Poe: I don't know that technology necessarily achieves better scores for students but it helps me to be able to do re-teach and gives students different ways to see and hear the same topic. We might watch a video one day, do an EdPuzzle the next day, use Kahn Academy the following day and they all say the same things just a little different so kids can have an "ah ha" moment. They might not have gotten it when I said something but by using different types of resources, I might have reached more kids who now understand the content.

Mr. Car: What we have available to us and the students have available to them, is so much. It's more than I could ever be able to do on my own.

Mrs. Chap: Overall, our kids struggle with achievement and they need lots of repeating which seems impossible for just myself. Having the ability to record myself and replay it or have students re-watch it on their own, allows me time for clarification for other students. If I can use videos and other resources, then that is less time I am having to explain things over and over again myself. If they didn't understand me the first time, saying the time thing repetitively isn't going to be very beneficial. I feel like this helps achievement but certainly doesn't guarantee high achievement as well all know.

Mr. Poe: My first year teaching, I didn't even have a teacher computer! Everything was paper/pencil for everything and even for grades and you would have to add them up and divide everything by hand. I never could teach all of the curriculum I needed to in a year. I can't imagine teaching right now without technology and still being able to fit in everything I do in a single class period. I don't know how I would make it happen. I have three inclusion classes and for the students who need certain accommodations, they don't need to be pulled out of the classroom to have something read to them. They can just pull up an extension on their Chromebook that will read it aloud for them which allows me to also help other students who aren't using this tool. I feel like we have become really reliant on technology. Maybe too much.