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Teachers' Perceptions of Technology Integration and Pedagogy in Kindergarten–Grade 5

Megan Alessandra Bailey
Walden University

Walden University

College of Education and Human Sciences

This is to certify that the doctoral study by

Megan Alessandra Bailey

has been found to be complete and satisfactory in all respects,
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Review Committee
Dr. Michelle McCraney, Committee Chairperson, Education Faculty
Dr. Glenn Penny, Committee Member, Education Faculty
Dr. Esther Javetz, University Reviewer, Education Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

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Abstract

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by

Megan Alessandra Bailey

EDS, Walden University, 2018

MA, University of Phoenix, 2012

BS, University of Northern Colorado, 2007

Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

At a small, suburban elementary school in the western United States, teachers in kindergarten through fifth grade (Grades K-5) were not consistently implementing technology within instruction. The purpose of this basic qualitative study was to explore the perceptions of Grades K-5 teachers at the elementary school regarding barriers and challenges of technology integration within classroom instruction. The study's conceptual framework consisted of Mishra and Koehler's framework of technological pedagogical content knowledge (TPACK) and Bandura's conceptualization of self-efficacy. The research questions concerned the perceptions of teachers who teach within a 1:1 classroom where there is one device for every student, regarding their ability to consistently integrate technology within classroom instruction and what pedagogical practices they perceive as necessary to do so. Purposeful sampling was employed in the selection process and in order to accomplish this, inclusion criteria, was used in the selection of participants. Interviews and sentence completion were then used to gather data from the 11 participants. Participants' responses were coded and categorized into themes. The results found that participants believed formal training and collaboration would give them the skills and knowledge necessary to integrate technology into their classroom instruction. The study may promote positive social change in districts by influencing professional development (PD) practices to support technology-integrated instruction. Teachers will be better able to integrate technology into instruction on a continuous basis, and school administration will be able to provide better ongoing support, which will better prepare students for the 21st-century.

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Dedication

This study is dedicated to my husband, David, who has been a constant source of support and encouragement during the challenges of pursuing this degree. I am truly thankful for having you in my life. To my children, Hunter and Elizabeth, whose encouragement has made sure that I finish this endeavor and who have been affected in every way possible by this quest. This study is also dedicated to my parents, Don, and Melissa Fowler, who have always loved me unconditionally and whose good examples have taught me to work hard for the things that I aspire to achieve. Thank you. My love for you all can never be quantified.

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First and foremost, I am extremely grateful to my chairperson, Dr. Michelle McCraney, and my second committee member, Dr. Glenn Penny, for their invaluable advice, continuous support, and patience throughout my study. Their immense knowledge and plentiful experience have encouraged me in my academic research and daily life. Finally, I would like to express my gratitude to my husband, my children, and my parents. Without their tremendous understanding and encouragement over the past few years, it would have been impossible for me to complete my study.

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Section 1: The Problem

For teachers in kindergarten through fifth grade (Grades K-5) classrooms, better preparing students with 21st-century skills is a key aim. Their expectations change as technology advances, increasing the need to understand their perceptions of technology's role in teaching. According to O'Neal et al. (2017) the integration of technology within the curriculum aids in developing the skills necessary for success in the modern world. Still, the purpose of technology in 21st-century teaching has yet to be identified in Grades K-5.Common Sense Media (2019) conducted research indicating that approximately one third of U.S. teachers who were provided technology products by either their school or district did not regularly use the technology. Further substantiating the need for more investigation of barriers to teachers' use of technology, Mouza (2019) found that most teachers perceive digital technologies as helpful to students' education. They face a challenge, though, in using technology to create a learner-centered classroom. Teachers are not necessarily provided with the correct professional development (PD) and technological tools to integrate technology consistently and effectively within their classroom.

Although most Grades K-5 educators agree that technology is vital within teaching, they struggle to consistently integrate technology across the curriculum. Technology integration continues to be a separate activity from instruction, and in classrooms, technology is provided as an independent activity or used as an incentive or reward (Zipke, 2018). Furthermore, the literature reveals that technology is not being integrated into pedagogy and instead is used for necessary activities such as displaying

information to students (Regan et al., 2019). The implementation of technology within instruction requires PD. Despite rapid technological advancements, teachers have been slow to adopt technologies due to a lack of technological resources and PD. Technological pedagogical content knowledge (TPACK) is a conceptual framework for integrating technology within classroom instruction. A study conducted by Zipke (2018) indicated an absence of pedagogical knowledge (PK) on how best to implement technology within education. The study found that many teachers have the ability to use devices, otherwise known as technical knowledge (TK). However, due to a lack of PD, many teachers do not have technological content knowledge (TCK) to understand how technology can change the content area taught and how to build technological pedagogical knowledge (TPK) and integrate technology into instruction within their pedagogical practices.

A large body of literature indicates that a substantial gap exists between conceptual understanding and the application of technology within classroom instruction. Regen et al. (2019) found that U.S. teachers face barriers to consistently integrating technology within instruction, which include lack of constant access to technology and being afforded little to no appropriate PD leading to teachers questioning the value of technology. The use of technology within instruction has the potential to have social implications since it has the capacity to operate as a window outside the four walls of the traditional K-5 classroom.

The Local Problem

Technology integration within classroom instruction is a new concept to both teachers and students. Hutchison and Woodward (2018) noted that expectations of what students should know and do and what instructional learning experiences teachers should provide have changed and there has been an increasing importance given to, and focus on, technology in classroom instruction. However, there were barriers to technology integration at a small, suburban elementary school in the western United States. Specifically, the problem was that teachers in Grades K-5 were not implementing technology within instruction consistently at the study site. This issue affected the elementary school under study because developing consistent and effective pedagogical practices when integrating technology into K–5 classroom instruction is a vital component of a systematic approach to instruction (Hutchison and Woodward, 2018).

Leaders at the elementary school under study acknowledged that teachers' pedagogical practices should be effective for all students and reflected in the data from year to year and indicated that teachers should use the adopted program resources, specifically the online components, in classroom instruction. Success would be when students are engaged in higher-level rigorous learning in all subjects that reflected their grade-level expectations. However, the principal from the elementary school under study described the attitudes of teachers as angst-ridden about the implementation of technology within instruction, stating that “teachers have expressed anxiety over using technology within their instruction and do not feel confident in its implementation.” Data from the Colorado State Model Performance Management System (Colorado Department

of Education, 2021) showed inconsistencies in how students at the study site used technology programs or software for learning and teachers for classroom instruction.

Despite having comparable technology equipment, access to district PD, and similar digital curriculum resources, teachers faced challenges in using technology for classroom instruction. Further evidence of the problem across Grades K-5 was communicated in the meeting minutes for grade-level professional learning communities (PLCs). According to the principal, during PLC meetings, teachers had expressed that they "do not know how to use technology within their instruction and that they would rather leave the computers charging than try to mess with them." The principal added that teachers at the school had indicated that their students are "too young, not developmentally ready, or would just play." Teachers were not using technology consistently within the classroom despite having the technology accessible within their classrooms.

Rationale

Harrell and Bynum (2018) established that self-efficacy plays a significant role in teachers' desire to use technology tools within classroom instruction; therefore, when teachers are not confident in using these tools, they tend to have a lower perception of their value. Effective use of technology within instruction hinges on modifying pedagogical practices efficiently and overcoming barriers integrating technology into existing pedagogical beliefs and practices. Further research conducted by Burke et al. (2018) established that the modification of pedagogical approaches in technology integration within the classroom was influenced by individual perceptions and attitudes

toward technology, and the pedagogical practices used with integrating technology into the classroom instruction were not always coherent with teachers' existing pedagogical beliefs.

The purpose of this basic qualitative study was to explore the perceptions of teachers in Grades K-5 at the elementary school under study regarding the technology integration within classroom instruction. I sought to understand why teachers were not consistently implementing technology within instruction. This study may contribute to the body of knowledge on teachers' use of technology as well as provide the building leadership team with insight into current pedagogical practices applied by the building's K-5 teachers to integrate technology within classroom instruction. I used the results to design a PD (see Appendix A), which I further discuss in Section 3.

Definition of Terms

This subsection includes definitions of terms and abbreviations that are particular to this study.

Blended learning: "The strategic integration of in-person and virtual learning to personalize instruction" (Greene & Hale, 2017, p. 136).

Content knowledge (*CK*): A term that is part of the TPACK framework and refers to the knowledge of subject matter (Kali et al., 2019).

1:1: A term that stands for "one-laptop-per-student" (Luo & Murray, 2018, p. 87).

Pedagogical content knowledge (*PCK*): A term that is part of the TPACK framework and according to Johnson (2017) refers to "the blending of content and pedagogy into an understanding of how particular topics, problems or issues are

organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (p. 20).

Pedagogical knowledge (*PK*): A term that is part of the TPACK framework and according to Inpeng and Nomnian (2020) refers to "the approach to teaching, including students' learning, class management, lesson planning, and learner assessment; all of which are also emphasized simultaneously" (p.372).

Technological content knowledge (*TCK*): A term that is part of the TPACK framework and refers to "knowledge of the reciprocal relationship between technology and content" (Park & Hargis, 2018, p. 5).

Technological knowledge (*TK*): A term that is part of the TPACK framework refers to "knowledge of the reciprocal relationship between technology and content" (Park & Hargis, 2018, p. 5).

Technology leadership: A school leaders' capacity to "select efficacious technologies to support student learning and create effective opportunities for teachers to learn to integrate them" (Dexter & Barton, 2021, p. 368).

Technological pedagogical content knowledge (*TPACK*): A conceptual framework for "knowledge about the complex relations among technology, pedagogy, and content that enables teachers to develop appropriate and context-specific teaching strategies" (Park & Hargis, 2018, p. 6).

Technological pedagogical knowledge (*TPK*): A part of the TPACK framework that refers to "knowledge and content that enable teachers to develop appropriate and context-specific teaching strategies" (Park & Hargis, 2018, p. 5).

21st-century skills: 21st-centuryA learning framework that "identifies the skills, knowledge, and expertise required by students to be successful in the current digital economy" (Goradia, 2018, p. 47).

Significance of the Study

This study was needed to address the problem of teachers in Grades K-5 at the study site not implementing technology within instruction with consistency, despite having comparable technology equipment, access to district PD, and similar digital curriculum resources. This study addressed an emerging question concerning current pedagogical practices and integrating technology within classroom instruction consistently in the new age of technology use within the K-5 classroom. The knowledge gained from this study could be used in educating future preservice teachers in preparation to instruct and meet the needs of 21st-century students. Specifically, teacher educators may be able to use the study findings to impart education students with the proper skills and expertise to implement technology in their pedagogical practices before entering a classroom.

Research Questions

The purpose of this basic qualitative study was to explore the perceptions of teachers in Grades K-5 at the elementary school under study to better understand better why they did not consistently integrate technology within instruction. I designed the research questions (RQs) to explore the perceptions of teachers who teach within a 1:1 classroom. The RQs were as follows:

RQ1: What pedagogical practices do teachers perceive as necessary to integrate technology consistently within classroom instruction?

RQ2: How do teachers perceive their ability to integrate technology consistently within classroom instruction?

Review of the Literature

The literature review consists of the conceptual framework for the study and three sections relating to teachers' perceptions on technology integration and pedagogy in the K-5 classroom. PD is also addressed. In the literature review, I first discuss the conceptual framework of TPACK and self-efficacy I used to guide this study. Focusing on technology integration, I discuss integrating technology within the classroom, including 21st-century skills, values, and beliefs of educators, and the self-efficacy, potential barriers, or limitations of teachers regarding technology integration. The second section of the review emphasizes the pedagogical practices necessary within the 1:1 classroom or blended learning environment to consistently integrate technology within classroom instruction. Finally, in the third section of the review I concentrate on the perceived PD provided to K-5 teachers to create blended learning environments or a 1:1 classroom and teachers' willingness to accept technology training.

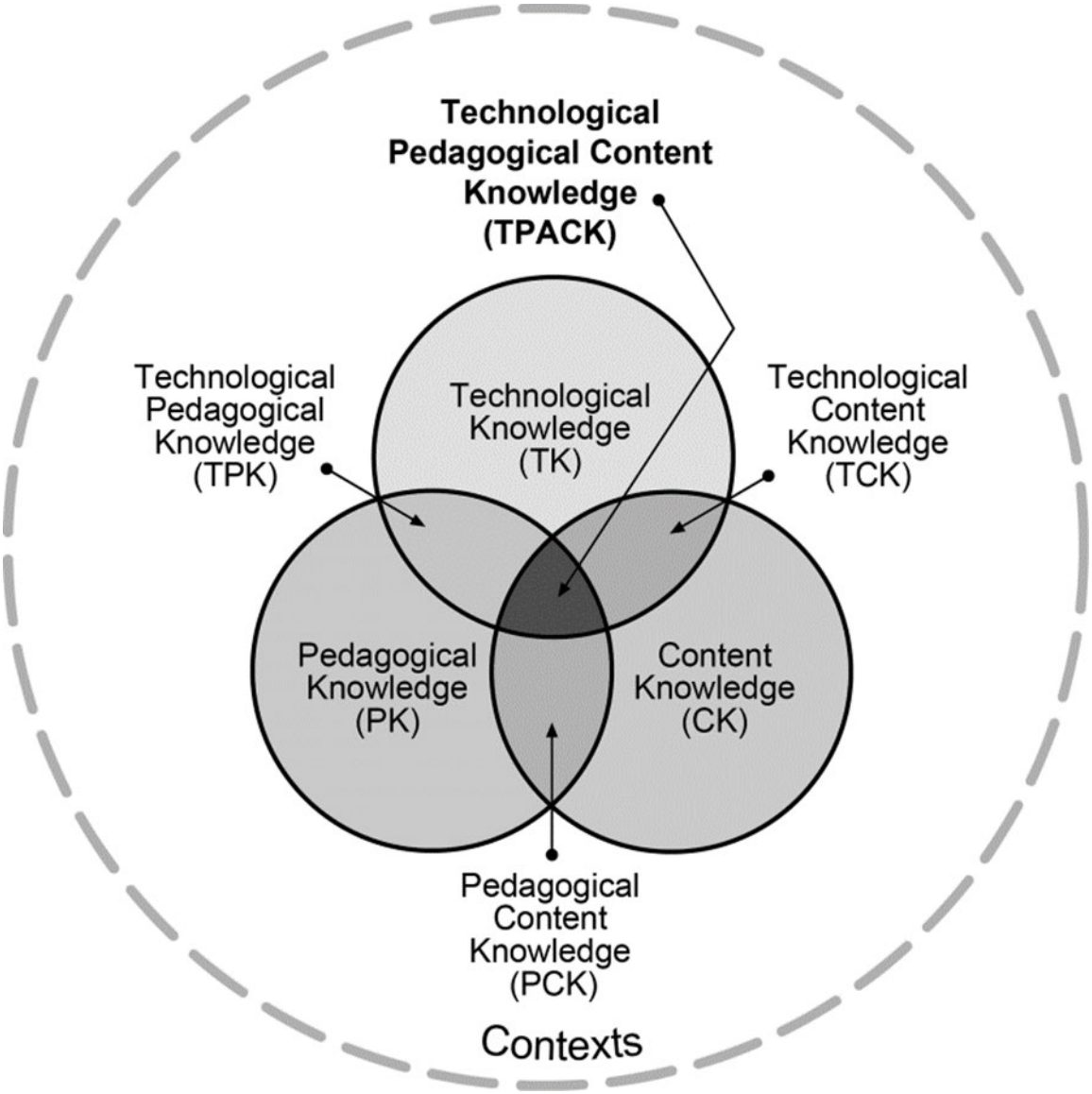
Conceptual Framework

This section of the literature review includes peer-reviewed articles relating to TPACK and self-efficacy, which constituted the conceptual framework for this study. As technologies have become more readily available, there has an increase in digital discourse in education on how these technologies can change the current classroom

(Mishra & Koehler, 2006). Mishra and Koehler (2006) developed the initial description of the TPACK framework by adding to Shulman's (1986) design of PCK. PCK integrates pedagogical practices and CK with a focus on how teachers blend the two to create powerful representations of subject matter through pedagogical practices. Building upon PCK, the TPACK framework adds technology to build upon the relationships and interactions of content, pedagogy, and technology within instruction, as seen in Figure 1. Use of the framework aids instructors in integrating technology to provide effective teaching that intertwines content, pedagogy, and technology knowledge (Park & Hargis, 2018).

Figure 1

The Technology, Pedagogy, and Content Knowledge (TPACK) Framework



Note. From *Using the TPACK Image*, by M. Koehler, 2011, TPACK.org (http://tpack.org). Copyright 2012 by TPACK.org. Reprinted with permission.

Proficiencies and skills for the 21st-century need to be established as digital technologies enter the classrooms. The TPACK framework is a valuable tool to incorporate digital technologies into the classroom (Goradia, 2018). The framework focuses on three core components: CK, PK, and TK. There are four more interrelationships between these three core components, including TCK, PCK, TPK, and TPACK.

Koehler et al. (2013) clarified the seven different components of TPACK and the interrelationships created. CK is the subject matter taught and the teacher's knowledge of that subject matter. Goradia (2018) concurred that CK is the educator's comprehension of specific subject matter and is specific to content-specific area practices. PK is the teacher's understanding of teaching involving specific procedures, routines, and activities that comprise the subject matter's educational purpose (Koehler et al., 2013). TK is ever-changing as technology is fluid with new technologies frequently emerging. Therefore, TK applies to any technological resources or tools used in teaching. PCK integrates pedagogical practices and CK and how teachers blend the two to create powerful representations of subject matter through pedagogical practices (Mishra & Koehler, 2006). TCK is the collective understanding between content and technology and the relationship developed over time between content and the technology used within that content area (Park & Hargis, 2018). TPK is the knowledge that learning and teaching methods can change depending upon the type of technologies being utilized and how they are being used (Koehler et al., 2013). Finally, Mishra and Koehler (2006) termed the ultimate component *technological pedagogical content knowledge* (*TPACK*), which is the

joining of all the components to form the conceptual framework in which the foundation of teaching with technology is interwoven through CK, pedagogical practices, knowledge of students and their prior experience, and knowledge of technology and ways to utilize technology within teaching contexts.

Many pedagogical practices, such as the use of pencil, paper, and whiteboards, have remained stagnant, not changing a great deal over time. The arrival of the computer and the internet and other technologies has resulted in educators reevaluating their pedagogical practices, creating a new dynamic relationship between technology and pedagogy (Koehler et al., 2013). Although many U.S. teachers have incorporated technology into their classrooms, many still do not embrace or welcome technology and Mishra and Koehler (2006) suggested an assortment of reasons, including lack of support, time, and fear of change, for this hesitancy.

Mishra and Koehler (2006) assert that teachers do not adopt technologies either because of their self perceived-efficacy or they do not see the value of technology within the learning context. The framework of self-efficacy used for this study was first devised by psychologist Albert Bandura in 1977 and is a collection of beliefs regarding how effectively a person can carry out a plan of action in a given circumstance. Individuals' perceptions about their talents have a significant impact on their ability. Ability is not a fixed characteristic; performance is highly variable. Individuals with a strong sense of self-efficacy rebound from failure; they approach situations with an eye toward how to manage them rather than worrying about what could go wrong.

Performance accomplishments, vicarious experience, verbal persuasion, and physiological conditions are the four main sources of information that contribute to self-efficacy (Bandura, 1977). As Bandura (1977) noted, because performance accomplishments are founded on personal mastery experiences, they are particularly significant. Successes increase mastery expectations; setbacks, especially those that occur early in the course of events, decrease them. The negative effect of periodic failures is likely to be minimized when high efficacy expectations are established via recurrent success. Vicarious experience occurs when individuals do not depend only on experienced mastery to determine their degree of self-efficacy. Observers may develop expectations that they, too, would improve if they increase and persevere in their efforts after seeing others conduct risky activities without adverse repercussions. Verbal persuasion is frequently utilized due to its simplicity and accessibility. Through suggestion, individuals are taught to think they are capable of effectively coping with whatever has previously overwhelmed them. Efficacy expectations created in this way tend to be less robust than those generated by one's own achievements, since they lack a genuine experience foundation. Finally, physiological conditions may influence perceived self-efficacy in the face of a perceived threat. Individuals make judgments about their anxiety and susceptibility to stress in part based on their physiological stress response. Because excessive stress often impairs performance, people who are not plagued by unpleasant stress indicators are more likely to anticipate success than those who are tight and profoundly distressed (Bandura, 1977)

The TPACK and self-efficacy frameworks can be used to identify the barriers to technology integration, how teachers' self-efficacy and values affect their ability to integrate technology within their lessons consistently, and what PD is needed to integrate technology consistently within a classroom. Mishra and Koehler (2006) argued that the TPACK framework is a helpful tool because PD needs to be reimagined into a learning-technology-by-design approach where the emphasis is placed on learning versus the traditional sit and lecture-style PD that is typically provided. The TPACK and self-efficacy frameworks provided a guide for the development of the RQs. The focus of the RQs was on understanding teachers' perceptions of (a) the pedagogical practices that are necessary for them to consistently integrate technology in the classroom and (b) their ability or self-efficacy to consistently integrate technology within classroom instruction.

By using the TPACK and self-efficacy frameworks, I was able to create comprehensive interview questions to collect data. Mishra and Koehler (2006) explained that the TPACK framework is an approach to understanding a teacher's knowledge within multiple contexts. Bandura (1977) argued that perceived self-efficacy may not only have a direct impact on the activities and situations that people choose, but it can also have an impact on the coping strategies that people use because of the expectations that have ultimate success. The study's conceptual framework provided a means of understanding teacher knowledge and self-efficacy within technology integration. The TPACK and self-efficacy frameworks help establish a straightforward approach to teaching technology with learning-by-design.

Review of the Broader Problem

In this review, I examine the topics related to the problem at a small, suburban elementary school in a western state where teachers in Grades K-5 were not consistently implementing technology within instruction. A review of the literature was fundamental to understanding teachers' perceptions regarding technology integration and pedagogy in K-5 education. The following three sections focus on the three key areas that emerged from the research: technology integration, pedagogy, and PD. Information to complete this literature review was obtained using an assortment of Walden University online library databases, including Education Source, ERIC, ProQuest Central, ProQuest Ebook Central, and SAGE. The primary databases used in conducting the research were Education Source and ERIC. Specific keywords were used to locate the literature, including *blended learning*, *online*, *elementary*, *technology integration*, *pedagogical practices*, *TPACK*, and *1:1 classroom*. Information for this literature review originated from 43 peer-reviewed journal source articles.

Technology Integration

In this subsection, I discuss technology integration in the classroom, including educators' 21st-century skills, values, beliefs, and self-efficacy about technology integration. I also address challenges or shortcomings. Integration of technology is a process in which technology is used to prepare and deliver instruction, thereby adding value to the curriculum (Liu et al., 2017). Technology integration must be integrated throughout all content areas (Masullo, 2017). It is worth noting that Gherardi (2017) predicted that technology may result in instruction moving away from the antiquated

methods of teaching, communication, and learning that are presently seen in U.S. educational institutions. Researchers Parrish and Sadera (2020) discovered that 21st-century skills gained via 1:1 technology integration had a positive impact on students' subject skill development. In a study that included both quantitative and qualitative data. To develop an inventory of the knowledge and skills that classroom teachers must possess to implement learner-centered learning in 1:1 classrooms, Parrish and Sadera (2020) used a classic Delphi method, which included iterative development of the inventory as well as statistical group response, anonymity, and controlled feedback, among other techniques. They found that when learner-centered teaching is coupled with a 1:1 technology ratio, the 1:1 teacher's capacity to improvise, respond flexibly to meet students' needs, and capitalize on teachable opportunities significantly improves. When it comes to implementing learner-centered learning in 1:1 classrooms, the study highlighted the knowledge and abilities that instructors must possess and show. Teachers' PD and growth were identified as areas of focus in the inventory, which indicated that the need to operationalize effective instructional practice. The inventory also revealed that educational researchers and leaders need to outline essential instructional practices and create areas of focus for teachers' PD and growth. The inventory may also be useful to reveal information about teacher competencies that are required to be prepared for 1:1 learning environments.

21st-Century Skills. The advancement of technology has altered many aspects of individuals' daily lives. Technology advancements have often altered how they live and read, including how they learn. Holen et al. (2017) asserts that technological instruments

are now accessible in various formats, transforming the modern classroom into an area that is incompatible with the conventional classroom of the past. As technology has increased, the future workforce's skill set has needed to adapt because the skills of the past no longer match the technical skill set that students of the 21st-century need to possess (Holen et al., 2017).

Holen et al. (2017) suggests that laptop integration on a 1:1 basis, where each student is provided with a technology device, has prevailed in schools worldwide. In the study the results indicated the greatest overall rating from students, while teachers were more likely to be neutral. The students believed that the availability of technology made it easier for them to acquire and research information on the subject under study. 1:1 initiatives are adopted for various purposes, including improved student participation and accomplishment, enhanced instructional excellence, and the desire to train future generations for the 21st-century.

Sauers and McLeod (2020) found that the quality of a student's access to and usage of technology during teaching is a positive predictor of students' reading and math scores, with a significant connection ($p < .001$) established between student performance in math and reading and students' access to technology during teaching. The researchers examined the effect of technology on two teacher behaviors, comparing how teachers in 1:1 school rated their technology integration to their colleagues in non-1:1 schools and how teachers self-assessed their technological competence in both 1:1 and non-1:1 schools. Propensity score matching was used to identify participants, and data were analyzed using a multilevel model. The data analysis revealed that 1:1 educators had

higher levels of technology knowledge than their peers, and the findings suggest that 1:1 educators may perform better than their peers on one component of the TPACK model, which has implications for their ability to deliver effective instruction (Sauers & McLeod 2020). Students and instructors may expand their learning in this era of technology, which helps to further substantiate the findings of the study.

Pierce (2017) suggested that the contemporary age of technology allows instructors to divert instruction away from textbooks and involve students in a range of current resources and technologies. Students in today's society are said to be "digital natives" because they have immediate access to information with only a few clicks (Harrell & Bynum, 2018). They are connected via different interactive platforms in their everyday lives, which has changed the way students engage with one another and learn at school in the 21st-century (Hur et al., 2016).

Learners now need 21st-century skills and knowledge to compete in today's technology-driven environment. Twenty-first century abilities must be incorporated into the academic experience for students to become successful citizens (Nelson et al., 2019). The industrial age classroom has started to be modernized to meet the demands of a 21st-century community of learners. To achieve this transition, teachers' learning, and skills must also improve (Hall et al., 2019). However, further study is necessary to train teachers to transform their pedagogical practices and skills to foster 21st-century learning in their classrooms (Chai et al., 2019). When classroom education becomes more dependent on technology, requirements for teacher-designed environments change, affecting the kind of skills and knowledge that students may show to their teachers. Via

the use of appropriate technologies, instruction in the 21st-century classroom enabled students to create queries, explain their responses, and challenge the viewpoints of other students (Thomas & Edison, 2019).

Schools across the United States have adopted standards that include technical capabilities, emphasizing the importance of technology incorporation for 21st-century learners (Hutchison & Woodward, 2018). Reaffirming the critical importance of technological convergence as the 21st-century progresses, everyone must be adept at managing the online environment and technological tools used in education and culture at large (Kuehl, 2018). Research has indicated that access to CK from the instructor to the learner could be accomplished via various communication types (Foulger et al., 2017). Closing the gaps between what teachers present and what students already know, on the other hand, suggests the need to expand technology leadership knowledge and skills beyond the fundamentals. Technology leadership is also critical for effectively transmitting 21st-century abilities inside the classroom, particularly when it comes to determining the best ways to use these technologies to enhance learning (Masullo, 2017). Through 1:1 incorporation and the advancement of 21st-century skills, we will extend learning into the classroom. This growth in 21st-century skills and knowledge necessitated a school atmosphere based around learner-centered classroom models that were technologically advanced (Varier et al., 2017). It was further discovered that teachers who integrated technology into their teaching trusted in the potential of technology to change instruction and themselves and that leadership demonstrated the value of 21st-century technology expertise within a school community (Heath, 2017).

Technology advanced at a rapid pace in the twenty-first century. The proliferation of technology tools allowed educators to educate outside of textbooks and engage learners globally through on-demand resources (Pierce, 2017). Students could complement what they studied in class with a more significant source of information from our global community (Geer et al., 2017). This increased access to more relevant knowledge and technology prompted Kuehl (2018) to advise educators that to train students for a mostly online society, they must remain persistently informed regarding technical developments and advances. Nevertheless, schools are responsible for educating children for the 21st-century by allocating services to the 1:1 classroom. They emphasize the importance of promoting teaching and instructor training through effective professional growth (Parrish & Sadera, 2020).

Individual empowerment in learning is feasible in today's society (Greene & Hale, 2017). 21st-century learners can collaborate through multiple devices, share information, and have higher-order discussions that lead to higher-order thinking through the utilization of technology to build upon discussions and create new knowledge when technology was implemented into the curriculum (Goradia, 2018) and expanding on this idea Greene and Hale (2017) have asserted that technological integration in the 21st-century would respond to the individual requirements of each learner. However, learning environments must evolve and be redesigned to accommodate a learner-centered global knowledge format. For this to work, teachers must be involved in technology adoption decisions in the 21st-century 1:1 classroom (Varier et al., 2017).

Values and Beliefs. Values and beliefs have a significant impact on how educators conduct themselves in the classroom , in a recent mixed methods study Mills et al. (2019) indicated that instructor use of technology in teaching varied according to personal and external perceptions. The findings exposed that teacher belief did not result in a shift in pedagogical practice. Individuals' beliefs guided their capacity to identify and comprehend both themselves and the world in which they lived and operated daily.

Interestingly, Tondeur et al. (2017) further substantiated this idea through qualitative analysis that teachers hold beliefs in either teacher-centered or learner-centered pedagogical views or both. These views have been established over time and across various interactions, resulting in possible resistance to reform. Educators' attitudes and perspectives have influenced the creation, implementation, and sustainability of technology transformation initiatives within school systems. Teachers interact with technology regularly in the classroom, and instructor values and beliefs about technology are the most critical indicators of sustained technology adoption (Lawrence et al., 2018). Teacher beliefs are critical during the technology integration process, but Heath (2017) using a transcendental phenomenology case study suggested that teachers' voices are often overlooked during implementation discussions and added that while teachers' perspectives are excluded from the debate around school technology change, adoption often falls short of addressing the demands of students and teachers.

Additionally, Varier et al. (2017) discovered through an exploratory qualitative investigation that, although teacher attitudes about technology can vary, teachers' values and priorities have a significant impact on the performance of technology integration in

the classroom. Technology integration occurs as teachers see technology as a natural part of their everyday lives and are involved in networks of experience that educate them about the value of technology in classroom teaching. Nonetheless, according to the findings of a study conducted by Voihofer et al. (2019), using both descriptive statistics and regression analysis, it was discovered that teachers who do not regularly use technology in their personal or professional lives must demonstrate the benefits of technology use more clearly than teachers who do. When teachers have a basic understanding of technology, they become more aware of the content-specific pedagogical potential that technology has to offer for student learning. However, when teachers do not use technology consistently, they are not necessarily able to transfer their pedagogical knowledge and skill to technological teaching approaches, and simply knowing how to use technology is not the same as knowing how to teach with technology.

Both student and professional needs shape teachers' beliefs and values. Teachers' values influence technology integration, and what defines technology's value in a teacher's classroom is more potent than their technical skills (Kimmons & Hall, 2016). Teachers' values or mindsets influence their willingness to learn and acquire technical skills. This effect was discovered to be trepidation-inducing due to educators' conflicting perspectives on employing technology effectively in the classroom (Park & Hargis, 2018). Nevertheless, in order for technology to be meaningful in classrooms and promote pedagogical reform, teachers must be empowered and motivated to develop constructive

attitudes about technology and recognize the importance technology can bring to teaching (Heath, 2017).

The integration of technology and the teachers' own perspectives on the importance of technology informs pedagogical practices. Technology integration and instructor values are inextricably linked (Kimmons & Hall, 2016). Confirming this strong association between teacher expectations and integration, Burke et al. (2018) concluded that teachers' beliefs and values about technology have a direct effect on their usage of technology in teaching, and Heath (2017) reasoned that a significant impediment to technological integration is teachers' values and beliefs. With the development of teachers' technical expertise and skills, the teachers' ability increased, potentially resulting in a shift in their technology adoption beliefs. This claim was further substantiated by the findings of Nelson et al. (2019), who conducted a quantitative study and discovered that teachers' values and beliefs about technology integration and classroom pedagogical practices differ depending on the content area they teach in math, English language arts, science, and social studies. The findings of the study made recommendations for providing PD opportunities and supportive environments that promote teacher educators to experiment with technologies in ways that are situated within their context area, thereby ensuring that teachers receive PD that is relevant to their context, thus influencing their pedagogical values within content specific areas. The pedagogical values held by teachers had an impact on their teaching activities. Teacher-selected teaching strategies and technological tools were chosen in accordance with their own personal values and beliefs. In contrast to teachers with learner-centered beliefs,

teachers with teacher-centered beliefs preferred to include technology in their pedagogical practices that were oriented toward open-ended questions and teamwork for conversation extensions toward the learning goals rather than teachers with learner-centered beliefs. Teachers' pedagogical methods and technological use were inextricably linked to their pedagogical values, which was previously asserted.

Considering values and beliefs from the TPACK framework's perspective, Park and Hargis's (2018) research suggested that a teacher's beliefs affected the relationship between TK and a teacher's ability to progress towards TPACK. Further substantiating this claim, Nelson et al. (2019) built upon the TK idea and added that a teacher's perception that their organization supported them impacted their technology integration beliefs, contributing significantly to TK and the movement towards TPACK. An influential concept in TPACK was identifying the knowledge and skills needed for 21st-century lesson design. However, Chai et al. (2019) contended that studies showed that, amid the introduction of TPACK, classroom technology integration has remained stable. A teacher's familiarity with classroom technology adoption may significantly affect their understanding of technology's value in classroom teaching. Teachers who place a high premium on technological integration are more inclined to incorporate it into their lessons. Additionally, teachers with strong convictions may reach a point where complete integration appears difficult due to individual experiences with technology integration or the use of technology in the classroom that have shaped their perspective on the importance of technology in the classroom. One-to-one integration should be

implemented in a way that respects teacher voice, established teacher beliefs, and the realities of a teacher's daily life in the classroom.

Teachers expressed significant reservations about the ways in which 1:1 computing technology would affect them personally, as well as about the ways in which students would be impacted by the initiative. They proposed that, to counteract these negative beliefs, teachers should be given a say in the development and implementation of 1:1 initiatives from the beginning. According to the findings of this study, teachers who have a positive belief in technology as well as a sense of professional agency can successfully implement technology in their classrooms. As a result, it is recommended that policymakers and school leaders empower teachers by building capacity and assisting in the development of positive teacher beliefs well in advance of technology implementation initiatives. PD should also take into consideration teacher input and existing beliefs, while also providing opportunities for teachers to take risks when using technology (Heath, 2017).

The desire of teachers to incorporate technology into their existing pedagogical activities in the classroom has been demonstrated to enhance those activities; however, the smooth application of technology integration processes should not be used to close the gap between the instruction of novice and veteran teachers through technological interactions. As a result, both novice and experienced teachers must rely on one another to make sound pedagogical decisions about the use of technology while also acknowledging the diversity of pedagogical approaches. Thus, technology integration processes are treated as a human process guided by beliefs and behaviors of teachers as

well as by their interactions with students (Kimmons & Hall, 2016). However, Christensen and Knezek (2016) concluded that as teachers' years of experience grow, the perceived advantages or benefits of technology in the classroom diminish. The application of technology in the classroom is linked to the technology used in the teacher's everyday career. Suppose teachers cannot incorporate technology into their daily tasks. In that case, they would lack an appreciation for the importance of technology in classroom teaching and would struggle to implement technology into their pedagogical practices (Liu et al., 2017).

Technology access has improved, and teachers already have easy access to technology in their schools and classrooms. Despite this access to technology, teachers have historically been viewed as skeptics. It has been argued that this characterization of teachers' technology integration is compounded by teachers' negative perceptions and beliefs of how much time it takes to implement technology and how much time it takes to prepare and incorporate technology into the curriculum (Harrell & Bynum, 2018). Despite the misleading portrayals, teachers who had a constructive attitude about technology and a passion for good technology adoption would succeed in the classroom. Both lawmakers and school leaders wanted to consider teachers' perspectives, traditions, and convictions. Within classroom pedagogical methods, risk-taking of technologies can be seen positively (Heath, 2017). However, it is still cautioned that instructor beliefs and values, whether positive or negative, may significantly impact technology adoption in the classroom (Georgiou & Ioannou, 2019). The extent to which technology is used in classroom teaching is positively related to teachers' beliefs and values about technology.

Increased technological usage is often associated with teachers who feel that incorporating technology into pedagogical activities has a beneficial effect on student learning (Hur et al., 2016). Although both believe that positive ideals and principles are beneficial when using technology in teaching, Heath (2017) asserted that although teachers might have positive beliefs regarding technology, they lack the skills, access, and trust in their self-efficacy to apply technology consistently in their classrooms.

Self-Efficacy. When it comes to technology use, the self-efficacy of teachers is a critical factor in integrating technology into the classroom. Efficacy expectations influence the amount of effort individuals would invest and the duration of their persistence in the face of difficulties and unpleasant experiences. The more self-efficacy one perceives, the more proactive the attempts. Those who continued to engage in subjectively risky activities that are actually safe would accumulate corrective experiences that support their sense of effectiveness, ultimately removing their protective behavior. Those who prematurely abandon their coping attempts would maintain their self-debilitating expectations and anxieties for an extended period of time (Bandura, 1977).

One-to-one technology is transforming classrooms into flexible, dynamic, and ever-changing 21st-century learning environments. Teaching in this context necessitated strongly defined capacities for instructional preparation and selection of appropriate technological tools, resulting in technology alignment that promoted student preference and the teacher's capacity to encourage digital technology integration when teaching (Parrish & Sadera, 2020). A correlation was discovered between teachers' beliefs and

self-efficacy and how they used technology. The greater teachers' self-efficacy, the more optimistic their views on bringing technology into their classroom (Hur et al., 2016). Due to the broad age range of teachers in today's education system, classrooms contain diverse technical abilities. Due to this disparity in capability, when technology is integrated into the classroom, the success varies according to teachers' perceived self-efficacy. Qualitative research based on student survey data using a Likert scale found that teachers need to understand how they are seen when dealing with technology. Teachers should consider how their technology use is regarded. They may assume they are being innovative in their use of technology, however students, for example, may not view the use of slides as innovative (Hoffman & Ramirez, 2018). The study suggests that even though teachers have valued integrating technology within classrooms, it is still intermittent that technology is integrated within the classroom consistently. Hoffman and Ramirez (2018) conclude that based on survey data teachers had an optimistic attitude on the use of technology yet provided inadequate access to technology for students. Learner-centered technologies have not only improved student motivation and academic achievement, but interactive technologies can also lead to differentiated instruction, which has resulted in increased motivation among students. Technology is changing the philosophy of technological and pedagogical instruction by allowing teachers to adapt their lessons to the unique needs of students. Even though students have limited access to technology, it has been discovered that emphasizing learner-centered technology in the classroom increases the likelihood of technology being used in the classroom. Teachers' expectations were influenced by this usage, which was shown to be linked to their current

technological self-efficacy as well as their professional growth in technology integration. A mixed-methods study conducted by Hall et al. (2019) backs up this assertion, finding that career learning focused on increasing teachers' self-efficacy in technology integration had a strong positive relationship with technology integration. The research found that after receiving training, instructors' views of their competence to utilize technological tools and self-efficacy in utilizing technology in the classroom increased substantially. Teachers having their unique needs addressed enabled the teachers to advance toward their learning objectives despite their starting levels of teaching, academic, and technological self-efficacy. Furthermore, the results of this mixed-methods study revealed that the more optimistic one's expectations of a teacher's ability to integrate technology resources into pedagogical practices, the more positive one's perceptions of the teacher's ability to integrate technology tools into pedagogical practices. Despite the favorable effect from perceived values and teachers' self-efficacy on technology integration Kimmons and Hall (2016) concluded that successful technology integration requires a supportive atmosphere and encouragement for teachers to maximize their self-efficacy and perceived values while incorporating technology into the classroom.

Students in Grades K-5 in the 21st-century are digital natives, and teachers should use technology's ability to connect students outside the classroom walls. This technology-based exploration beyond the textbook engaged students and inspired them to learn the material being taught (Dinc, 2019). Harnessing teachers' abilities to leverage technologies creatively and efficiently in the classroom is a modern challenge. Teachers could use technology for secretarial duties such as attendance or testing. However, there

is a disconnect between teachers' pedagogical views about technology integration and their supposed self-efficacy to use technology in a pedagogical rather than task-oriented fashion (Hall and Trespalacios, 2019).

Teachers' self-efficacy roles are difficult to change once they have been formed. When it came to technology adoption, teachers who had low self-efficacy were more resistant to increasing their knowledge of technology and were much less inclined to integrate technology into their classroom teaching practices (Hall & Trespalacious, 2019). However, it is possible for teachers to increase their technological skills if they have certain expectations that are met, regardless of how confident they are in themselves (Hall et al., 2019). According to the findings of the research, conventional PD approaches that are one size fits all do not offer teachers with the particular information and support they need to achieve their unique learning goals. The research suggests that the connections between PD, teacher knowledge and beliefs, classroom practice, and student results be examined in order to get a comprehensive picture of what makes effective PD for teachers.

According to Hur et al. (2019) teachers' interest or self-efficacy in utilizing technology in the classroom increased as a consequence of effective PD that was tailored to individual teachers' needs. While school leaders' guidance did not statistically correlate with an increase in classroom technology use, it had a direct effect on teachers' observed self-efficacy, resulting in teachers developing increased confidence in testing students' technology skills and delivering instructional materials to students via the use of technology in the classroom. Teachers who believe that technology is critical for student

learning or that technology integration is a criteria for effective teaching are more likely to include technology into their own teaching methods, the study found. Additionally, teachers who are familiar with technology are more likely to recognize and use it in their teaching. Along with belief and confidence, long-term PD has a positive impact on teacher technology usage. As findings showed, after 2 years of PD, instructors with limited abilities and confidence adapted their teaching methods to incorporate technology.

The current age disparity for teachers in Grades K-5 classes ranges significantly. It can vary from teachers who grew up with technology to older educators who have had to change and study technology as adults. In classroom teaching, the instructor is the one who determines which equipment is utilized in conjunction with pedagogical methods. This age gap results in differing degrees of self-efficacy and the amount of technology utilized during teaching (Hoffman & Ramirez, 2018). Regardless of the age gap, Hur et al. (2016) discovered that the greater a teacher's perceived value of technology, the more technology was used in the classroom and pedagogical activities.

Teachers' perceived importance of technology was closely linked to their confidence in the utility of technology for student learning. Two factors driving a teacher's confidence in technology were the teacher's presumed self-efficacy in technology and the availability of suitable technology-focused professional growth. A strong association between teachers' self-efficacy and the amount of technology adoption in the classroom was discovered. A positive correlation related explicitly to professional learning that addressed individual teachers' perceived shortcomings in implementing technology

resulted in teachers improving their technical self-efficacy and gaining the ability to use technology in more pedagogical activities during classroom teaching (Hall et al., 2019).

Teachers are being challenged to rethink the ways in which supervision, planning, instructional delivery, and assessment are structured in their classrooms as 1:1 mobile devices become more widely available. Even though some teachers are enthusiastic about exploring the range of opportunity that emerges with the integration of technology, not all teachers are interested in integrating devices because of the large number of considerations and expectations that come with them, such as changes to classroom management and pedagogical practice. To ensure the effectiveness of these changes, it is essential to assist teachers in developing their pedagogical, technical, and instructional self-efficacy. According to the findings of a longituinal, corhort survey methodology study, conducted by Hall and Trespalacios (2019) one of the most important factors influencing the acceptability and effectiveness of technology integration to enhance student performance is the level of preparation teachers get prior to implementing this pedagogical change. If the aim of technology integration is to customize student learning, then it is necessary to personalize teacher PD as well. In order to be effective in the classroom, teacher PD must serve as an example for what is anticipated. Researchers have discovered that teachers' self-efficacy, particularly their ability to utilize technology integration tools and their instructional efficacy in their capacity to manage the classroom and teaching, is a significant predictor of intentions to incorporate technology in the classroom.

Barriers. Technology integration involves a diverse range of stakeholders. When incorporating technologies, it is necessary to understand the participants' values, beliefs, and perceptions; yet teachers' perspectives are often ignored when considering such priorities and opinions (Kimmons & Hall, 2016). Proponents of existing learning platforms often demonstrate an aversion to complete application adoption. Due to schools' scarce infrastructure funding, integration tends to be supplementary rather than a genuinely incorporated structure of customized learning. Another often missed hurdle is infrastructure within classrooms and education systems (Varier et al., 2017). Until purchasing hardware for complete implementation, school districts must prioritize future networking requirements. If the school system's infrastructure is not equipped for technology and the school system lacks a roadmap for how technology can be used in the classroom, a lack of infrastructure results in a reluctance to use and usability issues within the classroom setting (Harrell & Bynum, 2018). Before adopting 1:1 on a broad scale within a school system, infrastructure should be addressed; Varier et al. (2017) found that instructors valued freedom in access to material that school systems may limit due to safety concerns. Teachers also highlighted the need for greater flexibility in district regulations when it comes to educational content on non-district websites and applications. Teachers regard YouTube (www.youtube.com) as an important learning tool, but they also recognize the need to restrict inappropriate content. Some teachers added links to other websites in their lesson preparations just to find out that they were prohibited from using them during class. Students reported similar concerns regarding

limited content, which, when coupled with learning how to use the device, resulted in classroom confusion.

Promoting technological adoption in K-5 classrooms is difficult due to teachers' lack of experience and self-efficacy (Mouza et al., 2017). Expanding on this argument, Foulger et al. (2017) reported that teachers lacked the necessary technical expertise to integrate technology into teaching. Teachers reported feeling unable to integrate technology efficiently when entering the classroom and feel unprepared to embed technology effectively. Numerous factors contribute to technological acceptance resistance, and Burke et al. (2018) identified both first order (external) and second order (internal) barriers. These barriers are constantly changing due to rapid technological advancements; Dinc (2019) described first-order barriers as external factors such as time, access to assistance or instruction, and technology accessibility. On the other hand, second-order barriers are internal factors, such as a teacher's self-efficacy, ability to integrate technology, and understanding of the advantages of technology adoption within classroom instruction.

Among the main barriers to technology integration were a scarcity of training resources and equipment. Without appropriate training or resources, teachers may be unable to adopt technology-enhanced instructional practices and may be unable of assessing the benefits of technology integration within instruction; interestingly, these factors have remained constant over time (Nelson et al., 2019). Internal and external factors also had a role in the development of technical obstacles. While principals or school officials have a far greater impact on how their schools use technology, school

leaders often struggle with technology (Heath, 2017). The United States Department of Education (2017) agreed, saying that successful technology integration requires school leaders to place a high priority on technology education, while Massullo (2017) added that school administrators are unaware of teachers' challenges. These same school leaders are technologically illiterate and incapable of effectively incorporating or understanding new advances. When school leaders sought to provide an example of appropriate technology use and assess the usefulness of technology in classroom instruction, Liu et al. (2017) found that school leaders' support was a key predictor of successful technology adoption across three recent studies.

In comparison, Massullo (2017) proposed that funding is critical but discovered that principals were primarily uniformed in accessible technologies and technology uses. Many were excluded from the integration process, leaving it to the students. The results indicated that it was essential for successful implementation that school leadership was provided to teachers to use technology within classroom instruction, and Harrell and Bynum (2018) reported 62% of students desired to utilize technology in class but lacked the school or instructor tools to participate in this digital learning environment outside of the classroom. This process of personalizing teaching using interactive technologies and materials is not without challenges. 1:1 instruction is a novel idea for both teachers and students, and traditional pedagogical methods must adapt to the evolving demands of the world. According to Andersson et al. (2016), teachers lacked the requisite experience to effectively incorporate 1:1 into classroom teaching. Students' usage of social media and games diverted teachers and students away from studying. Since the advent of 1:1, this

diversion has been consistently identified as a negative influence, and Holen et al. (2017) concurred that distraction is a problem for principals, staff, students, and parents. When technology is not integrated into the content, it has an inescapable effect on classroom learning. Amid the distractions involved with technology, instructional activities can be transformed, and classrooms that continue to incorporate technology and transition to 1:1 classrooms can impact teachers' pedagogical practices as the technology evolves (Thomas & Edison, 2019).

Pedagogy Related to Technology Integration

The way students and teachers interact in the classroom environment evolve as technology advances. Technology can be used to foster creativity and inventiveness, creating an opportunity for educational reform. It is becoming more common for teachers to integrate technology into their classes, and research has shown that integrating technology to assist instructional preparation and planning has a greater effect on teaching and teacher expertise than introducing technology to facilitate instruction (Thomas & Edison, 2019). It is possible that technology integration may be a strong instrument for promoting creativity in teaching and learning, and that the shift to digital resources has the potential to be transformative. Through this mixed-methods study, it was demonstrated that techniques that emphasize instructional planning with technology had a greater impact on teaching and teacher knowledge than approaches that do not emphasize instructional planning with technology and that teachers' PD should assist them in choosing, developing, and implementing technology that may enhance student learning and be integrated into successful teaching methods. It was discovered that

emphasizing planning with digital resources had a greater impact on teaching and TPACK than other approaches. Instead, then integrating technology just for its own purpose, technology integration must be utilized to enhance teaching and learning across all subject areas as a consequence of this realization.

Technology has enabled a shift toward learner-centered collaborative pedagogy, however based on an observational time study Andersson et al. (2016) found technology requires teachers to support collaborative learning through innovative methods. According to the results of the research, the use of 1:1 technology in the classroom promotes cooperative group work rather than collaborative work to a greater extent than previously thought. It was discovered that when students worked in groups, they often divided the work cooperatively among themselves and that the only contact that occurred was when they discussed the job at hand face-to-face over the top lids of their computers. This suggests that the most collaborative elements of their group work activities did not always include the use of technology to communicate with one another. In fact, the results indicate that the laptop is more effective at facilitating cooperative group work than at facilitating collaborative group work.

The implementation of technology aims to create a genuine learning experience between students and teachers and open previously unattainable opportunities for creativity and collaboration (Kuehl, 2018). While these opportunities exist, Park and Hargis (2018) asserted that there is still a need to understand how technology can be effectively integrated into instruction and what pedagogical practices are required to assist teachers in implementing technology effectively in the classroom. Teachers' lessons

and instructional methods are now expected to incorporate technology. This process is distinct from previous methods of curriculum adoption in that the number of digital devices and internet services is growing (Thomas & Edison, 2019). Teachers experiment, introduce, and develop modern teaching methods that incorporate technology, and the process of learning to teach with technology is cyclical: Beliefs influenced behaviors, which resulted in cemented or new beliefs, and teachers should incorporate technology into classroom instruction regardless of their pedagogical beliefs (Tondeur et al., 2017). As a result, technology should be presented in ways that are compatible with teachers' current pedagogical methods, to appeal to their ideas and increase the likelihood that instructors would incorporate and use technology in their classes. The findings of this study indicate that the relationship between pedagogical beliefs and technology use is crucially significant. This is demonstrated by participants' wide range of beliefs and approaches to technology use. Tondeur et al. (2017) found that many teachers do not have a single pedagogical orientation; rather, they shift their educational views depending on the circumstances they find themselves in at any given time. As a result of the findings, some educational beliefs are correlated with different types of technology use. When students access course materials electronically, teachers are frequently more receptive to using devices in the classroom. The findings of a mixed methods study using a Likert scale survey by Lawrence et al. (2018) demonstrated that, despite widespread use of technology in the classroom, substituting an online version for traditional lessons is ineffective. In fact, the frequency with which students used computers had a detrimental

effect on their academic performance, and classroom instruction must undergo a complete pedagogical transformation.

Geer et al. (2017) added to the discussion by utilizing a multiple-setting case study approach to arrive at their conclusions, which they elaborated upon by stating that how teachers integrate technology into classroom education influences student performance. Students and teachers from four metropolitan U.S. schools participated in the study, which concluded that technology had no effect on students' academic achievement. Rather than that, incorporating technology into the classroom required a paradigm shift in current pedagogical practices. The use of technology alone will not result in increased student accomplishment; rather, how teachers use and integrate these tools into their instruction will decide their effects on learning. The incorporation of new technologies into the classroom necessitates the modification of present pedagogical practices. Combining emerging technologies with learner-centered pedagogies and real learning creates new learning opportunities and the potential for increased academic achievement.

Researchers Sauers and McLeod (2018) found that technology integration had an impact on student performance or achievement only when it allowed students and instructors to complete learning that would not have been feasible without incorporating technology into instructional practices. School administrators are always attempting to raise academic achievement levels through enhancing teaching in their schools. In education, the emphasis has shifted from subject knowledge to pedagogical expertise. Achieving a balance between teaching methodology and subject matter expertise is

becoming more important for successful education. The TPACK framework expanded on the previous paradigm by including the significance of technology as well as the interactions between technology, pedagogy, and content knowledge (Koehler & Mishra, 2013). For successful teaching, the TPACK model emphasizes the significance of pedagogy, subject matter knowledge, and technological knowledge, as well as the connections between those three components. Despite the extensive use of modern technologies in classrooms, data analysis revealed that teachers have been slow to adjust their pedagogical techniques to accommodate technology.

However, technology integration into schools is progressing at a rapid pace and is being applied throughout the United States. The types of technology integration and blended learning are not so much about the device within the classroom as they are about the shift in pedagogical methods that culminates in a learner-centered collaborative pedagogy (Greene & Hale, 2018). Further research found that while instructional resources influenced teachers' pedagogy, preparation for activity-based technology integration transformed education into a more learner-centered practice (Thomas & Edison, 2019). Nonetheless, there needed to be a balance between high-quality instruction that incorporated technology and the quantity of technology used in a lesson. When teachers possessed the necessary capabilities for comprehending and utilizing technology, Voihofer et al. (2019) found teachers developed an awareness of the extent to which technology could aid student learning. When teachers acquire a working knowledge of technology, they develop an awareness of the subject-specific pedagogical material that technology provides for student learning. According to the study,

experienced teachers are not always able to adapt their pedagogical expertise and skills to technologically mediated instruction. Simply being able to utilize technology does not equate to being able to teach with it. It was established that improved teacher technology practices were facilitated by access to technology, administrative assistance, support personnel, and training. Teachers integrate technology when they view it as a natural part of their lives and see the importance of technology in enhancing learning. This offers a recommendation for teacher educators to engage in PD activities that demonstrate how technology may enhance their instruction, enrich their lives, and better prepare them as teachers for their classrooms and the children they teach. Knowing how to use technology is not synonymous with knowing how to integrate technology into instruction and is further substantiated by the study conducted by Mills et al. (2019) whose aim was to explore factors that impact pedagogical decision-making as teachers integrate technology into classroom teaching and learning. The findings indicated that teachers must improve how they promote learning opportunities to incorporate technology into their pedagogical practice better. Teachers have a critical role in how students interact with technology in the classroom, as they integrate technology into daily teaching instruction and learning. The results of the study indicate that PD should include chances for teachers to reflect on their own practice with technology integration and examine external variables that contribute to pedagogical change in addition to PD. The teacher's pedagogy is important to how students participate in learning. Integrating technology effectively into classroom teaching and learning involves the development of teacher knowledge and beliefs to facilitate the creation of experiences that complement the inquiry-based ones found in the

digital world. The teacher's pedagogy has a significant impact on how students engage in learning. However, teachers face difficulties integrating technology into their classrooms.

As technology usage has increased over time to become ingrained in daily life, Geer et al. (2017) discovered that educators are looking to these technologies to transform the educational learning space. However, despite educators' desire to use technology to enhance learning experiences, the pedagogical value of technology use has become a point of contention. Despite the controversy, the study's findings support the importance of integrating new technologies with learner-centered instructional pedagogies, which enabled new opportunities for motivational learning in the classroom.

There are advantages to using technological tools that might help students become more motivated and autonomous. Nonetheless, they are unlikely to have a considerable influence on student learning and accomplishment unless there is a shift in pedagogical practices. The study conducted by Geer et al. (2017) concluded that the characteristics of the technological tools, as well as the way the teachers integrated them in the classroom, allowed the students to utilize them for research, communication, and the creation of new work products. There was evidence of enhanced cooperation, communication, self-reliance/autonomy, and authenticity in the classroom because of this practice. The use of technology alone will not result in increased student achievement; rather, it is the way teachers adopt and integrate these technologies into their classrooms that will decide their influence on student achievement.

Educators must be tasked with designing classrooms that foster collaboration in both synchronous and asynchronous environments while also encouraging individual

exploration. Student engagement in education is one of the 1:1 technology initiative's potential benefits. A critical component of integrating technology into classroom instruction is learning how to effectively utilize technology resources so that students can interpret material knowledge mindfully and transform it into desired outcomes (Holen et al., 2017). However, simply knowing how to use technology is insufficient (Hur et al., 2016). Before requiring technology integration in a classroom, it is necessary to understand the pedagogical beliefs and teachers' perceptions of the value of technology.

Further, to assist teachers in integrating technology into their pedagogical practices, teachers' trepidations must be acknowledged and understood to accurately support teachers' implementation processes (Georgiou & Ioannou, 2019). Nonetheless, teachers have recently been inundated with new and rapidly evolving technology options for use in the classroom. Teachers should not be concerned with the tools themselves but with how they are used instructionally to create meaningful learning experiences (Hutchison & Woodward, 2018).

As technology advances, it enables educators to create interactive learning experiences. This opportunity has altered how pedagogical practices can be integrated into technology, enabling teachers to differentiate instruction for all students (Hoffmann & Ramirez, 2018). Technology-enhanced instruction enables learning to take place outside of the brick-and-mortar structures of traditional schools. Blended learning, which incorporates technology into instruction, tailors learning to each student's unique needs. It enables students to collaborate and develop critical thinking skills to develop lifelong abilities for 21st-century learners (Greene & Hale, 2018). Currently, new modes of

instruction, assessment, presentation, and accessibility for students are constantly being devised and developed. Parrish and Sadera (2020) found that students were reported to use their resources more creatively to provide better access to knowledge and advance their learning when technology was integrated into instruction.

Expanding upon this idea, Lawrence et al. (2018) agreed that students benefit and that teachers reported a significant increase in the value added to their teaching practices and increased the depth of student understanding. This study used quantitative and qualitative research methods. A Likert scale survey was utilized to obtain data on teacher and administrator views and opinions of student learning prior to, during, and after the implementation of 1:1 technology. The research concluded that the benefit is not determined by the device used within the classroom but by the teacher's technology implementation into classroom instruction. During the implementation of a 1:1 computing program, the researchers sought to understand educators' perceptions of the quality of student learning. The findings of the study revealed that the benefit is not determined by the device used within the classroom, but by the teacher's integration of technology into instructional strategies. According to the research, teachers feel that the implementation of a 1:1 technology program has resulted in a moderate improvement in student learning.

One-to-one technology integration enables learner-centered classrooms. When 1:1 initiatives are integrated into classroom instruction, the collaboration between students and teachers increases, research indicates (Varier et al., 2018). The teacher's role shifted from that of leader to that of facilitator, and students took on a more active role in the

learning process. Simultaneously, technology was utilized to facilitate pedagogical approaches to learning, and Geer et al. (2017) found that as educators' roles have evolved, they have recognized that digital technologies can be used to facilitate pedagogical practices and foster student collaboration. However, it is argued that devices do not transform learning or pedagogical practices in and of themselves. Even with the best device, the device alone does not transform learning (Varier et al., 2018). However, the teacher's pedagogical practices and the device serve as a medium for delivering the instruction.

Implementing technology into instruction is not a matter of day-to-day planning; instead, it requires long-term planning over a school year in accordance with the curriculum. Teachers must establish the purposes for incorporating digital tools into instruction and how they would aid in student learning (Hutchison & Woodward, 2018). However, when planning the long-term use of technology within the curriculum, teachers must be mindful of using technology as a vehicle for incorporating pedagogical practices and not overusing technology to the point where critical aspects of the curriculum are overlooked (Kuehl, 2018).

Technology is an expected addition to classroom instruction in today's 21st-century classroom. Teachers are expected to be knowledgeable about the content they teach. They develop technology skills and their integration into instruction to help students improve their problem-solving and critical-thinking abilities, according to a qualitative study in which Masullo (2017) collected data using structured data-collection instruments. However, according to Christensen and Knezek's (2016) research, teachers

who lacked technical skills or access to technology could not effectively integrate technology into their current pedagogical practices. Even more so, the study concluded that teachers must receive adequate pedagogical training and a paradigm shift in their understanding of how students learn in a 1:1 environment, as previous pedagogical approaches are ineffective for the 21st-century learner. Teachers must integrate effective instructional strategies with subject-matter expertise and appropriate technology, which requires a diverse set of knowledge and skills.

Additionally, it has been suggested that subject-specific teacher knowledge may influence teachers' ability to learn and use technology. It was discovered that self-reported TPACK levels varied across subject levels. However, according to studies, instructional technology is more frequently used to maintain and support existing practices than to transform them. While there is the potential to improve teaching and learning via the use of pedagogically sound technology, this promise has proven elusive at times. According to the findings, teachers often employ technology to supplement rather than modify their established methods. Teacher educators have a considerable influence on how teachers use and do not utilize technology in the classroom. Nonetheless, teachers are not always provided with the necessary support, training, and experiences to incorporate technology in ways that result in enhanced academic achievement (Carpenter et al., 2020). While technology has the potential to transform current pedagogy, Loong et al., (2018) contended that teachers must possess both content and pedagogical knowledge to integrate technology effectively into current pedagogical practices. Additionally, according to the Educational Technology Plan (US Department

of Education, 2017), teachers must use technology appropriately and intelligently in the classroom.

PD Related to Technology Integration

Opportunities for PD are critical for the growth of technology integration into classroom instruction. While the field is still developing practical strategies for PD that promote technology integration, evidence indicated that high-quality PD includes elements such as long-term support, just-in-time assistance, collaboration with other teachers, opportunistic learning, alignment with school activities, and opportunities for teachers to develop comfort with technology (Mills et al., 2019). PD assisted teachers in selecting, preparing, and implementing technology to facilitate student learning of rich content that can be integrated into effective pedagogical practices. While Thomas and Edison (2019) agreed that technology could enhance teaching-learning, the study's analysis revealed several themes, including a consistent indication of a shift away from using technology to project or display static, or frequently textual, images toward using visual and interactive technologies to reshape teaching practice, as well as a noticeable shift away from teacher-centered to learner-centered instruction.

PD for teachers involving technology integration consists of small, focused workshops focused on a particular digital tool or platform rather than on how to use the technology to accomplish instructional goals. These workshops do not address the difficulties that teachers may encounter when integrating technology into their classroom instruction. Teachers' lack of formalized PD in instructional practices that incorporate technology has resulted in research on technology integration in instruction, indicating

that educators must use pedagogically appropriate digital tools rather than simply digitizing existing work or relying solely on engaging learners. The results suggest that teachers should first determine their instructional objectives before adopting digital technologies. This focus on defining the instructional objectives is aimed to guarantee that instructors' technological utilization is consistent with their curricular objectives. Teachers must determine the value of the digital tool, the possible obstacles produced by the tool, and other instructional factors that may shift because of technology use, such as assessment, physical space, and the role of the teacher (Hutchison & Woodward, 2018). Further substantiating this recommendation, Voihofer et al. (2019) found that technology can assist teachers in developing their practice of integrating technology into instruction, which necessitated a well-thought-out strategy that included training, technology access, and, in some cases, multi-level support.

Today's classrooms incorporate technology into daily instruction, but there is a disconnect in activity engagement and school support (Jones & Dexter, 2018). Much of the research has concentrated on PD experiences provided by districts or individual schools. However, emerging research indicated that teachers frequently engaged in informal learning activities that were not formally organized or supported by their schools or districts. Teachers gained much of their PD through informal and self-directed interactions with technology. Teachers' education was primarily informal, taking place outside of contracted hours before or after school and on occasion during scheduled planning times (Jones & Dexter, 2018). Teachers reported that they learned technology from their students, indicating that students have a better grasp of the technological

devices used in the classroom than the instructors do. The teacher morphed into the student, who was developing into an informal teacher of technology instruction.

Teachers collaborated with coworkers on-site, typically an instructional coach or specialist who could assist with classroom and technology instructional strategies. Although this is a formal arrangement, Jones, and Dexter (2018) conveyed that it is frequently reported as informal communication initiated by a teacher requesting assistance, and assistance is not provided unless requested. This assistance was consistently rendered outside of contractual working hours. It could be as informal as teacher-coach email communications, or it could be a lack of formal training or PD provided to teachers on how to integrate technology into the classroom. Adding to the conversation, Masullo's (2017) qualitative study demonstrated that inside school facilities, teachers trust one another owing to convenience and shared understanding of the curriculum and classroom environment, which facilitates technological integration. Even though teachers individually assisted one another in technology integration, the study data indicated that schools do not offer technology integration feedback via peer coaching and schools are not customizing technology education to fit each teacher's existing technology knowledge and classroom needs.

While integrating technology into the classroom aims to personalize student learning, professional technology education for teachers has been uniform and not tailored to each teacher's unique needs (Hall & Trespalacios, 2019). Corroborating the latter, Nelson et al. (2019) adds that teachers lack the resources and training necessary to integrate technology effectively into instruction. The primary impediment is not a

scarcity of materials or resources; instead, it fails to model appropriate pedagogical practices when implementing technology.

PD opportunities are insufficient, with teachers failing to acquire the knowledge they desire within the time allotted. The most effective learning occurs when teachers are given time to collaborate, share best practices, and practice independently (Park & Hargis, 2018). This learning must be significant and methodical in its implementation in schools. A negative experience with technology can have a detrimental effect on a teacher's perception of the value of technology use in the classroom (Liu, et al., 2017). Adding to the conversation, Hall, and Rice (2019) postulated that traditional lecture-style PD did not support the individualistic learning required to support the transition from traditional to technology-based pedagogical practices. Instead, the way PD is delivered around technology integration needs to change, giving teachers the ability to customize learning based on their technical abilities and perceived technological self-efficacy.

Teachers should participate in PLCs that foster leadership development and empower them to effect change through 1:1 technology. According to Parrish and Sadera (2020), 1:1 educators must practice and improve their technical skills in order to engage in discussions about 1:1 technology in their schools, and Mills et al. (2019) concurred, concluding that teachers' PD should include opportunities for them to focus on their pedagogical practices when integrating technology as in this mixed methods study findings demonstrated that a change in teacher beliefs does not constitute a change in teacher practice and PD interactions were associated with teacher values, pedagogical strategies, and student outcomes.

A PD emphasis on TPACK aided teachers in incorporating technology specific to their content areas (Nelson, et al., 2019). When teachers could integrate technological practices learned in PD into their content areas, and classroom practice, Georgiou, and Ioannou (2019) discovered they are more successful and have increased self-efficacy in putting learning into action. However, Hall et al. (2019) argued that if PD was solely focused on technology operation and not on pedagogical practices, teachers did not see the value or perceived benefit of incorporating technology into classroom instruction. While teachers need skills and knowledge to use technology effectively, the most significant challenge was to understand that blended learning was about more than just using the device; it was also about integrating technology into their pedagogical practices (Greene & Hale, 2018). Yet, while pedagogical values are consistent, changing teachers' pedagogical beliefs and behaviors typically requires long-term PD (Tondeur et al., 2017). Colleagues can help reinforce pedagogical values and exchanging technology-related ideas can be beneficial. Even when teachers collaborated with PLCs in a welcoming and diverse learning environment, educational change involving integrating technology into instruction was a unique process for each teacher.

If PD is to change teachers' values, research indicated that long-term PD is more likely to accomplish this goal and long-term PD indicated positive results in technology integration within pedagogical practices (Hur et al., 2016). In a quantitative analysis of technology-focused PD and peer mentoring, Nelson et al. (2019) found that teachers who began with low self-confidence and self-efficacy exhibited increased confidence, a more positive perception of the value of technology in instruction, and increased use of

technology in everyday classroom instruction. Teachers must have the opportunity to practice with technology in their subject areas, and Nelson et al. (2019) concluded that when PD encourages teachers to practice using technology in their area of expertise or content area of math, English language arts, science or social studies, the perceived value of technology integration within instruction increases.

A significant barrier to successful technology implementation in classrooms is a lack of time for PD. To ensure successful technology integration into pedagogical practices, schools must assist educators in integrating technology into their existing pedagogical and content knowledge (Park & Hargis, 2018). PD is necessary to boost teachers' self-efficacy in integrating technology and to demonstrate precisely what is expected of teachers to have criteria for successful technology integration within instruction (Hall & Trespalacios, 2019). Teacher quality is contingent upon the availability of opportunities for ongoing PD. With technological advancements occurring every year, it was necessary to provide ongoing PD for teachers' perceived value and self-efficacy to remain positive and implementation to continue (Christensen & Knezek, 2016).

Nevertheless, Hur et al. (2016) using structural equation modeling with self-reported data contended that a teacher's self-efficacy and the use of technology in the classroom are less important than the influence of PD on a teacher's perceived benefit of using technology in the classroom. The purpose of this research was to investigate the importance and connections of variables that influence technology integration, and the results showed that teachers' knowledge and abilities in using technology should continue

to improve. However, the more significant correlation with technology integration was PD centered on the perceived benefits of technology use.

Implications

Technology enables teachers and students to do things that previously were not possible within the classroom environment. New learning opportunities are afforded with the use of technology within classroom instruction. With new opportunities come needed modifications to traditional pedagogical practices, with teachers needing to determine how and when to implement technology into their content-specific areas (Geer et al., 2017). Technological advancements alter viewpoints on education and learning spaces are not restricted to traditional school classrooms. There is a potential to broaden the learning environment via the use of technology. While technology usage alone would not transform classroom results, it would spread learning beyond the four walls of a classroom. Educational systems must innovate to assist teachers and students in acquiring 21st-century abilities and preparing themselves actively for the next century. To do this successfully, teachers must reinterpret current educational pedagogical practices. They may then offer new teaching ideas based on recent technical advancements and pedagogical practices. Today, because of these changes, new insights, or improvements in integrating technology within pedagogical practices undoubtedly continue to emerge, since it is critical for schools' instructional goals to keep up with those of the emerging world. When teachers and administrators prioritize PD, the use of digital tools in the classroom, learning spaces, and scenario-based learning in the classroom, the desired outcome is readily achieved (Göçen, et al., 2020).

There was a need to understand how technology may be successfully integrated into classroom education to get teacher buy-in and an increased perception of technology's value within instruction (Park & Hargis, 2018). Implications for prospective project direction include the necessity for teachers to successfully incorporate technology into their present pedagogical methods and incorporate new pedagogies for effective technology integration to occur inside the classroom. PD training would be required to ensure successful technology integration. The research findings were valuable in creating new PD models that combine learner-centered instructional pedagogies with technologies that can be applied within a teacher's specific content area.

Summary

Technology is changing how we communicate, collaborate, and create within the learning environment. Teachers are challenged to develop collaborative and learner-centered daily instruction experiences (Andersson, et al., 2016). Knowing how to use technology is no longer adequate within classroom instruction. Before expecting technology use within classrooms, teachers' pedagogical beliefs need to be understood, and teachers must value the use of technology within instruction (Hur, et al., 2016).

The research problem was that teachers in Grades K-5 were not implementing the use of technology within instruction consistently. However, by incorporating technology into education, teachers can establish content-specific pedagogies that result in authentic learning experiences and increased motivation and learning. According to Kuehl (2018), there is evidence that technology usage helps engage elementary-aged students and provides them with genuine learning experiences. With increased motivation to

understand, greater learning occurs, even if this learning is not easily quantifiable using standardized tests. Classroom technology has the potential to facilitate authentic learning experiences, create limitless options for creative expression, and encourage intrinsic motivation to learn. By embracing the modern necessity of teaching children to read, write, navigate, and interact repeatedly with computers and the internet, educators can extend the scope of instruction by integrating technology within instruction.

The conceptual framework developed by Mishra and Koehler that underpinned this study was TPACK. The TPACK framework adds technology to build upon the relationships and interactions of content, pedagogy, and technology within instruction. Therefore, the purpose of this basic qualitative study was to explore the teachers' perceptions of integrating technology consistently within classroom instruction in Grades K-5 at the elementary school under study to understand why technology was not being implemented within instruction consistently. The RQs for the study concerned the perceptions of teachers who taught within a 1:1 classroom and addressed what pedagogical practices they perceived as necessary to consistently integrate technology within classroom instruction and how they perceived their ability to consistently integrate technology within classroom instruction. An extensive literature review revealed that 21st-century skills, teacher self-efficacy, values and beliefs, and barriers to consistent integration within the K-5 classroom all impact consistent technology integration. The subsequent section includes the research design, participants, data collection, data analysis, and potential limitations in the research study. The study findings were the basis for a project (see Appendix A), which I introduce in Section 3.

Section 2: The Methodology

The information that is presented in Section 2 includes in-depth descriptions of both the procedures that I followed in order to answer my research questions and the methods that I employed to carry out my study. This section also contains a comprehensive overview of the methods used to obtain data, the methodology used to analyze data, and any other tools or materials that were employed in the course of my research. This section provides evidence that supports the validity of my findings.

Qualitative Research Design and Approach

The research design was directly related to the problem. Specifically, the research problem was that teachers in Grades K-5 at the study site were not consistently implementing the use of technology within instruction. The purpose of this basic qualitative study was to explore teachers' perceptions of technology integration in classroom instruction. I used a basic qualitative design. Qualitative research was an effective way to obtain information on the study problem because of its human aspects. Qualitative methods are a way to focus on why humans feel or think a certain way and how these affect human actions in natural settings (Harwarti, 2019).

I forged a close collaboration with participants to enable them to share their stories, which allowed me to understand their actions. To address the study problem, participants shared perceptions and experiences through interviews. I used participants' responses to answer the RQs, which were as follows:

RQ1: What pedagogical practices do teachers perceive as necessary to integrate technology consistently within classroom instruction?

RQ2: How do teachers perceive their ability to integrate technology consistently within classroom instruction?

Qualitative Tradition

The knowledge that was obtained through qualitative research was beneficial in that it provided insight into various human characteristics. This close collaboration approach between participants and myself was advantageous in allowing participants to share their stories, enabling me to understand their actions. According to Merriam and Tisdell (2016), the overall purpose of qualitative research for the researcher is to interpret and describe people's perceptions of their experiences and how people make sense of these perceptions in their lives. Although I was the primary source of data collection and analysis, I sought to convey the perspective of participants, not mine. Instead of building a theory or focusing on culture, basic qualitative researchers seeks to understand a process, phenomenon, or the perceptions of the participants involved (Caelli & Mill, 2002) and elicit the opinions, reflections, and actual life experiences of participants (Percy et al., 2015).

I considered other qualitative approaches for this study, including ethnography, grounded theory, case study, and narrative inquiry. However, I determined that these approaches would not be a practical approach to this study. A narrative inquiry approach was considered for this study, but this approach focuses on the linguistic, psychological, and biographical focus on participants (Merriam & Tisdell, 2016). According to Merriam and Tisdell (2016) ethnography would not be an appropriate approach because the study and RQs were not based on my immersion as an observer at the study site. Using a case-

study method was considered but found not to be appropriate as this study focused solely on interviews of participants, and case studies involve multiple sources of information such as interviews, observations, documents, and reports. Finally, grounded theory was not an appropriate approach for this study because the purpose of this approach is to have a theory emerge from the research (Merriam & Tisdell, 2016), which was not the purpose of this study.

Participants

General education teachers in Grades K-5 were appropriate participants for this study because they provided instruction within all academic content areas and in a 1:1 classroom with a device for each student. I used purposeful sampling to select participants. According to Merriam and Tisdell (2016), an assumption of this sampling method is that the researcher wants to understand participants' perceptions. To do so, I selected a sample that would provide me with the most information. Purposeful sampling enabled me to choose participants with the correct attributes to appropriately answer the RQs. This involved identifying and selecting participants who were particularly familiar with or trained with the topic being studied (Palinkas et al., 2016).

Participants for this study came from the elementary school under study. Within each grade-level K-5 at the study site, there are four to five general education teachers. I excluded special education and related arts teachers from this study because they did not have their own classrooms and because they saw multiple grade levels throughout the day. Their classrooms or classroom settings were not equipped to be a 1:1 learning environment. Additionally, only teachers who were fully employed by the school district

were invited to participate in the study. Employment information was obtained from the administration team at the school under study.

Eleven participants participated in interviews for the study. I had a goal of two participants per grade level in grades K-5. The purpose of achieving saturation, according to Palinkas et al. (2016), is to have as many individuals as necessary to provide as much detail to ensure that all aspects of the study can be examined. Guest et al. (2006) emphasized that data saturation relied on many factors including number of researchers reviewing the data, experience of the researcher, and the complexity of the data. However, when research is conducted with the goal to understand perceptions among a comparatively homogeneous group of participants, 12 interviews is sufficient (Guest et al., 2006) Therefore, 11 participants provided adequate saturation despite the number of participants being 1 less participant than discussed previously, 11 participants allowed me to gather enough data from grades K-5 needed for this basic qualitative study.

An email that included informed consent was sent once I had received a letter of cooperation signed by the building administrator of the site under study. Email access to participants was requested from the building administrator, and teachers who met the criteria to be a participant in the study were directly emailed. The email asked teachers if they agreed to participate in the study, and I scheduled days and times to meet with individual participants via Zoom meeting video calls due to the COVID-19 pandemic.

Participants were informed that this was a learning experience, and the purpose was to explore their perceptions of integrating technology consistently within classroom instruction. It was essential to create a professional relationship with participants at the

study site and build trust through an initial meeting to explain the study in further detail to clarify any questions participants may have had before conducting the interview. Furthermore, each participant chose the date and time convenient for them to conduct the interview. Interviews were conducted and recorded using both audio and video via the Zoom meetings video platform to ensure participant safety due to the COVID-19 pandemic and current school safety protocols.

Protection of Participants' Rights

I adhered to the ethical standards established by Walden University's Institutional Review Board. This included participants' rights, confidentiality, informed consent, and protection from harm. Holland (2019) emphasized that participants need to be assured of their personal information being protected and kept private. Participants were notified of how, where, and the duration that their information would be kept on file. Keeping participants informed of this information built a trusting, positive relationship during the study.

Confidentiality

To protect participants' rights, confidentiality was employed in this study. A numerical assignment system was established as participants joined the study; they were assigned a numerical code to keep data collection anonymous and confidential. All data was stored in a locked filing cabinet and on a password-protected personal computer that only I was able to access. Participants were informed that any identifying information was removed from the data and not shared with anyone. The data is stored within these secure locations for a minimum of 5 years and then destroyed.

Informed Consent

Participants' rights were protected. To do so, I used informed consent. Informed consent builds trust with participants and ensures that participants are informed about the study's purpose. The letter of informed consent sent via email indicated the study's purpose, explained the process for choosing study participants, identified any potential risk, and detailed the study's required time commitment. Participants were notified that interviews would be conducted and recorded using video via Zoom via meetings to ensure participant safety due to the COVID-19 pandemic and current school safety protocols. Participants were also notified that participation in the study was voluntary and that they may choose not to participate in the study at any time by notifying me.

Protection From Harm

I did not collect data collection without approval from Walden University's Institutional Review Board. The approval number for this study is 02-16-22-0673021. Ethical considerations are of critical importance, and I ensured that participants were protected from harm through the use of informed consent and maintenance of confidentiality throughout the research process. I will also store study data within secure locations for a minimum of 5 years and then destroy it. I adhered to district safety protocols for COVID-19 to protect the participants and myself. Interviews were conducted and recorded using video via Zoom meetings video platform.

Data Collection

Two different data collection methods were employed in this study's qualitative research: open-ended sentence stems and semistructured individual interviews. The

semistructured interview procedure for the interviews can be found in Appendix B. Using open-ended sentence stems as a data collection method inspired honest, insightful responses (Howell et al., 2012) and was found to generate participants' ideas about specific educational topics and explore participants' social attitudes towards the topic (Barton, 2015). The open-ended sentence stems can be found in Appendix C. This elicitation technique was used to not only concentrate participants' responses but encourage honesty and insight into individuals' perceptions regarding technology integration and pedagogy in K-5 classrooms.

Although data collection can occur in many ways, the purpose of this study justified the use of semistructured interviews to provide insight into multiple perceptions. Open-ended sentence stems provided honest dialogue into actual perceptions held by participants. The use of open-ended sentence stems gave the emergence of themes relating to teachers' perceptions regarding technology integration and pedagogy within K-5 education.

Data Collection Instruments

Collection instruments included an interview protocol and a set of elicitation stems consisting of open-ended sentence questions. Data was collected while recording the interviews with video via the Zoom meeting platform. The interview protocol is in Appendix B. The open-ended sentence stems are found in Appendix C. I video recorded the participant interview sessions using the Zoom meeting platform and then downloaded the Zoom video file. I used Google Docs: Voice Typing to transcribe the session audio file.

The data collection instruments were chosen as they were applicable to complete an in-depth analysis of this study's basic qualitative design. I created the interview protocol (see Appendix B) and open-ended sentence stems (see Appendix C), and an email to send to the panel of technology integration experts in grades K-5 to obtain permission to participate (see Appendix D) to align with this basic qualitative study. The data collection instruments used in the research empowered participants to share their perceptions of technology integration and pedagogy in K-5 education.

I created an interview protocol to be reviewed by a panel of subject matter experts. The panel was made up of three district general education teachers with a master's degree or above from grades K-5 who are considered building level experts on integrating technology into instruction. Their job was to ensure that the interview protocol was an appropriate instrument for gathering the intended data and to make edits based on any recommendations. Content validity was determined by having a panel of experts review and evaluate data collecting tools based on their relevance and representativeness to the design of the basic qualitative study (Almanasreh et al., 2019). The data collection instruments used in the research empowered participants to share their perceptions of technology integration and pedagogy in K-5 education.

The interview protocol and use of open-ended sentence stems as an elicitation technique provided sufficiency as data collection instruments. The RQs designed for the study addressed the teachers' perceptions regarding technology integration and pedagogy in K-5 education. The use of both interview questions and open-ended sentence stems encouraged dialogue, sincerity, and insight into individuals' perceptions. Member

checking was established, and participants were invited to respond to the data collected in qualitative interviews. Participants were asked to respond to preliminary findings individually via a Zoom video session, thus creating dialogue between the participant and myself (see Lewthwaite & Nind, 2016). Table 1 shows the alignment of the RQs to the interview questions.

Table 1

Alignment of Research Questions to Interview Questions

Research question	Interview question
RQ1: What pedagogical practices do teachers perceive as necessary to integrate technology consistently within classroom instruction?	1. How do you normally teach? What type of instructional approach do you take within your daily instruction. 2. What types of engagement strategies do you currently use within classroom instruction? 3. How do you create collaboration between students in your classroom? 4. How does your teaching change based on the subject you are teaching? 5. How do you currently use technology within classroom instruction? 6. What do you want students to be able to learn by using technology within instruction? 7. What does technology integration mean to you? 8. How do you plan for technology integration within elementary for the primary or intermediate classroom? 9. What is your reason to use technology within classroom instruction? 10. What do you do you feel is necessary for you to successfully use technology consistently within classroom instruction?
RQ2: How do teachers perceive their ability to integrate technology consistently within classroom instruction?	11. What kind of technology integration strategies have you learned at school and/or have you learned any technology integration strategies from outside PDs? 12. What do you perceive as barriers or challenges to integrating technology within instruction? 13. What are some barriers to teaching with technology in the elementary classroom? 14. Do you see advantages for technology integration in the elementary classroom? 15. How do you feel about planning lessons with technology? 16. How is the use of technology within instruction pre-planned? 17. What feelings do you have or have you about your ability to integrate technology within classroom instruction? 18. How is technology used in 1:1 activities? 19. What are the pedagogy needed to complete a technology activity? 20. How has your ability to integrate technology consistently within classroom instruction changed due to the COVID-19 pandemic?

The use of open-ended sentence stems encouraged participants to speak candidly about their genuine perceptions and lead to the formation of themes (see Howell et al., 2012). For each RQ, open-ended sentence stems were generated. The alignment of RQs with open-ended sentence stems is presented in Table 2.

Table 2

Alignment of Research Questions to Open-Ended Sentence Stems

Research question	Open-ended sentence stem
RQ1: What pedagogical practices do teachers perceive as necessary to integrate technology consistently within classroom instruction?	1. Instructional strategies I use within my classroom are… 2. The learning environment within my classroom can be described as… 3. I would describe integrating technology within classroom instruction as… 4. I use technology in my classroom when…
RQ2: How do teachers perceive their ability to integrate technology consistently within classroom instruction?	5. My ability to integrate technology within classroom instruction consistently is… 6. I feel successful when… 7. I feel unsuccessful when… 8. A barrier to using technology consistently within classroom instruction is… 9. The effect that the COVID-19 pandemic has had on my ability to use technology consistently within classroom instruction is…

Data Collection Processes

Due to the COVID-19 pandemic and district safety protocols, the interviews were conducted remotely using video recording via a secure password-protected meeting room using the Zoom meeting platform, thus maintaining participant confidentiality. Although it was vital to provide a convenient and appropriate interview setting, there was no other choice in the interview setting due to the continuing safety concerns surrounding the

COVID-19 pandemic and for the foreseeable future. Initial data collection occurred during 45 min to 1 hour individual semistructured interviews with a purposeful sample of 11 general education teachers from the elementary school under study. The use of semi-structured interviews allowed me to use interview questions to guide the interview through open-ended questions. Using open-ended questioning enabled participants to narrate experiences or share perceptions but in relation to the research topic (see Johnson, 2017).

Systems for Tracking Data

All data collected was tracked and saved in a digital format. In conjunction with the open-ended sentence stems, participant interviews were recorded using video via the Zoom meeting platform and transcribed. The Google Docs Voice Typing feature was used for the transcription of the interviews. A reflective journal was used to help me track information, analyze perceptions, and gain insight into my perceptions to reflect and minimize bias. Reflective journals are documents used to gain understandings over a period of interactions, events, or notions (Alt & Raichel, 2020).

Systems for Tracking Emerging Understandings

A reflective journal tracked any perceptions, thoughts, or ideas as new understandings were gathered in the research process. Alt and Raichel (2020) proposed using an unstructured reflective journal with general prompts to provide me with the ability to contemplate and document thoughts and questions. After each interview, I used a reflective journal template with general prompts found in Appendix E to record thoughts, ideas, and perceptions from the interview which assisted me later in the

research process to identify any themes or patterns within the data, as I reflected to help minimize my bias.

Role of the Researcher

I have experience in the study setting. I have worked in the school district for 3 years, from August of 2019 to the present. During that time, my official assignment has consisted of multiple roles, including classroom teacher, dean of students, and currently assistant principal at a school that was not the study site. Previous to my current position, I have taught in Colorado and Louisiana in Grades K-5 over 12 years and served as an academic dean for 2 years. There was the possibility that potential participants were past colleagues, as I previously was employed at the study site and my rapport with all individuals can be described as positive and reciprocally respectful. It was important to note that site under study had many current staff leaving at the end of the 2020-2021 academic year due to retirements, military spouse moves, and two non-renewals. As assistant principal at another school site within the district, I am not in a supervisory or evaluative capacity over any potential participants. My role was to conduct interviews with participants and record and analyze the interview data. Consequently, I used an established interview procedure, interview questions, and sentence completion stems.

My role in this basic qualitative study was to gather qualitative data from interviews and the open-ended sentence stems. During this study, I was careful not to carry any bias or preconceived notions forward with participants and keep my part in the study as a learner. I engaged in data triangulation, member checking, and reflective journaling practices as a cautionary approach to reduce any bias. My insight into personal

biases and decision-making bases throughout the study was essential to the study's integrity. Beliefs, experiences, and my background can affect my bias (Johnson & Chauvin, 2020).

Data Analysis

This section's information consists of a comprehensive summary of how the data was collected and analyzed. Data analysis enabled the examination of data concerning the study's purpose and RQs (Johnson et al., 2020). Data analysis began after all interviews, and open-ended sentence stems being conducted, and the transcriptions of all interviews were finalized. Interviews and open-ended sentence stem completion were video recorded to ensure accuracy. Data analysis began by analyzing the transcriptions for emerging themes, similar phrases, verbiage, differences in responses, and patterns that indicated relationships. The study used the identified themes from participants' interviews to answer the RQs based on participants' perceptions.

Data Organization

Data organization involved the categorization or classification of information that would be used to communicate the study results. The quality reporting of qualitative research results was a product of maintaining data in an organized manner. Data was transcribed using Google Docs: Voice Typing. The video file recorded from the recorded Zoom meeting was downloaded after each participant's interview. I used Google Docs: Voice Typing to transcribe each participant's interview video file, and open-ended sentence stems activity. A deductive approach to coding was used before formal data coding began. Deductive coding or precoding was a method used where a pre-defined list

of codes was created based on existing literature and focused the coding on issues already identified in existing literature (Linneberg & Korsgaard, 2019).

Coding Procedures

Coding is labeling a short phrase or word with a code. This was a simple operation to identify different data segments and categorize the segments into themes (Linneberg & Korsgaard, 2019). The coding process enabled me to generate a data inventory making the data easily accessible, required me to revisit data creating a comprehensive review, enabled the sorting and organization of data, ensured validity, and gave voices to the participants' perceptions and lived experiences (see Linneberg & Korsgaard, 2019). Both deductive and inductive coding approaches were used. Deductive coding focused on a pre-defined list of codes based on already identified issues from the literature. Inductive coding developed codes from the data itself. Codes were generated using phrases or words that participants used during the interviews, enabling me to remove bias and prior understanding instead of keeping the codes parallel to the actual data (Linneberg & Korsgaard, 2019). As I began coding, the goal was to classify the main perceptions or ideas generated by participants' interviews and, in the process, reduce the data by categorizing them into themes and patterns (see Clark & Vealé, 2018).

As the coding process occurred, I developed a color-coding system to categorize themes and patterns. Each code had a definition set to differentiate each code. This was a cyclical process revisited throughout the analysis of data to ensure reliability and validity. Throughout the coding, process reflections were made within my reflection journal using my template as a guide (see Appendix E). Throughout the coding process, participants'

responses were used to begin answering the RQs. As part of the coding process, I used the MAXQDA data analysis software, a computer data analysis program; I have obtained a user license, which helped to select and identify codes and provided tools to organize the data.

Themes

The themes developed from the data collected, and through the organization of data during the data analysis process, themes emerged from condensing groups of codes into related themes and subthemes. During the analysis process, the themes revealed were coded again to ensure no patterns or underlying themes had been missed in the process. I then took the data revealed through the coding process and used the information to continue answering the RQs and connect to the TPACK and self-efficacy conceptual frameworks, creating a diagram or figure to represent the themes and the relationships and concepts related to the themes and used this diagram in the final reporting of the study findings.

Evidence of Quality of the Data

Member Checking

To establish internal validity, I elicited feedback in the form of respondent validation on initial or emerging findings from a random selection of participants interviewed. In this process participants recognized their experience and provided suggestions to further clarify their perspectives (see Merriam et al., 2015). Member checking permitted the examination of both accuracy and confidentiality by participants

and ensured that the transcription was an accurate reflection of the participants' meaning and intent (Johnson et al., 2020).

Member checking entailed me providing data transcripts or data explanations for comment to all or a subset of participants. This exchange was intended to bolster the integrity of data collection and participant participation. Member checking was performed twice over the course of the analysis (Varpio et al., 2017). To begin, participants were invited to study their transcripts to determine if their terms correctly reflected their intended meanings, rather than if their articulations were accurately captured. Second, participants were invited to revisit my original or final data assessments to verify their interpretations of the data. Member checking was used to bolster my data collection methods, with members being asked to contribute to the developing interpretation of the data.

Triangulation

To increase data analysis quality, triangulation was applied to increase the reliability of the qualitative research collected (Johnson et al., 2020). Multiple methods of data collection were employed within this study to attain triangulation. The methods in this study included participant responses to interview questions and open-ended sentence stems. Using two data collection sources reduced the chances of misinterpretation, which minimized bias or error and increased data accuracy in both collection and analysis (Johnson et al., 2020). Triangulation enabled the me to obtain a deeper understanding of the study and afforded data collection that permitted me to better amass data to address the RQs (Cypress, 2018).

Researcher Bias and Validity

Bias based on my background, beliefs, or experiences may have affected any part of the research study. The validity of the study biases could have influenced decisions and actions (Johnson et al., 2020). Consequently, the possible result of my bias and any ethical considerations were addressed throughout the study. The study's plausible validity threats were handled through data collection strategies of member checking, triangulation, and reflexivity (see Cypress, 2018). Multiple data collection methods were employed through triangulation, member checking, and reflexivity. Throughout the study and coding process, reflections were made within my reflection journal using my template as a guide (see Appendix E) to achieve reflexivity. Reflexivity was a continuous process of interacting with and expressing my position and environment. Additionally, it entailed addressing and articulating the social and cultural forces and processes that shaped the context of the research (Barrett et al., 2020). The act of reflecting regularly enabled me to be conscious of bias throughout the study, increasing the study's validity.

Procedure for Addressing Discrepant Cases

In searching for data, finding information that goes against the current understanding or pattern of the discrepant research cases could have emerged and affected the study's validity (Collins & Stockton, 2018). Using triangulation and multiple methods to compare data, discrepant cases were easy to identify as they emerged. This procedure provided me the opportunity to analyze why the discrepancies have occurred. Discrepant case findings were analyzed appropriately and recorded in the research findings. This analysis of discrepancies ensured that I could appropriately record the

study participants' findings and perceptions both within and outside the study's direct background, increasing the validity of the data collected (see Spiers et al., 2018).

Data Analysis Results

In a small, suburban elementary school in the western United States the problem was that teachers in Grades K-5 were not implementing the use of technology within instruction consistently at the study site. This problem affected the elementary school under study because developing consistent and effective pedagogical practices when integrating technology within classroom instruction in Grades K-5 was an integral part of a systematic instructional approach. The purpose of this basic qualitative study was to explore the teachers' perceptions of integrating technology consistently within classroom instruction in Grades K-5 at the elementary school under study to understand why technology was not being implemented within instruction consistently. By investigating this problem, I was able to get a better understanding of the reasons why the use of technology was inconsistent in grades K through 5. For the purpose of collecting data for this study, I conducted semistructured one-on-one interviews with 11 general education teachers in Grades K-5 using a 20-item protocol instrument with all open-ended questions and nine open ended question stems. I designed the interview questions to answer the study's RQs. This format enabled each participant to share their perspective and experience in a manner that was kept strictly confidential.

The questions that were used assisted to support the RQs that were related to the challenges associated with implementing technology consistently within instruction in grades K-5. The protocol for the interview is included in Appendix B, and open-ended

sentence stems are provided in Appendix C. The duration of each interview was no longer than 60 min. With the permission of the participants, I video recorded the Zoom interviews. Clarification of responses and improvement of data quality were achieved using member checking. Data were transcribed, reviewed, categorized, and coded following each individual interview that was conducted. The computer-assisted software known as MaxQDA was employed to classify the interview data and generate codes from the interviews. The findings of the study provided a summary of the responses of the participants regarding their perspective of integrating technology consistently into instruction in Grades K-5.

Process for Generating, Gathering, and Recording Data

Purposeful sampling was employed in the selection process. According to Merriam and Tisdell (2016), this sampling method assumed that I wanted to understand participants 'perceptions I selected participants who would provide me with the most information. Purposeful sampling enabled me to choose participants with the correct attributes to appropriately answer the RQs. This involved identifying and selecting participants that are particularly familiar with or trained with the topic being studied (Palinkas et al., 2016). In order to accomplish this, inclusion criteria, also known as the characteristics of individuals that are necessary for their selection in order to participate, established the following parameters; to be selected the individual had to be currently teaching general education in any grade level within the limits of kindergarten through 5th grade; had to have a classroom equipped with 1:1 devices with one device for every student, and access to technology within their classroom, last the individual had to be

actively employed by the study site at the time of the interview. The 11 participants who agreed to participate in this study were all general education teachers of students in Grades K-5 and met all the inclusion criteria.

Semistructured interviews were used to acquire the data. Each interview took place within a time frame of 60 min. It was necessary to contact some of the participants on occasion to explain their answers to the interview questions. According to Palinkas et al. (2016), the goal of reaching saturation was to have as many people as were required to offer as much detail as possible to guarantee that all elements of the study were explored. After a total of 11 interviews, I determined that saturation had been reached because no new information was offered to aid in answering the RQs; consequently, the process was ended.

Coding and Theme Development

Before formal data coding began, a deductive approach was used to code. Deductive coding or precoding was a strategy that created a predefined set of codes based on existing literature and concentrated the coding on previously recognized concerns (Linneberg & Korsgaard, 2019). I began by creating a data inventory that made the data easily available, facilitated the sorting and organizing of data, assured validity, and offered participants' perspectives and lived experiences a voice (see Linneberg & Korsgaard, 2019). I started the coding procedure by highlighting excerpts within the transcribed text and making notes by hand on concepts that were analogous in the data. In this method, both deductive and inductive coding approaches were employed; following deductive coding, inductive coding was used to build codes from the data

itself. Codes were developed based on phrases and words spoken by participants during interviews, allowing me to eliminate prejudice and preconceived notions rather than maintaining the codes parallel to the actual data (Linneberg & Korsgaard, 2019). As I began coding, the objective was to categorize the primary perceptions or ideas created by participants' interviews and, in the process, to compress the data by classifying them into themes and patterns (see Clark & Vealé, 2018).

As the process of coding progressed, I devised a color-coding system to classify themes and patterns. Each code was distinguished by a unique definition. This was a cycle that was repeated throughout the data analysis to assure the accuracy and validity of the data. Using my template as a guide, I recorded process reflections throughout the coding phase in my reflection journal using my template as a guide (see Appendix E). I then began coding with the computer-assisted application MAXQDA. Using both strategies ensured that the process was correct and precise. The deductive and inductive coding processes yielded 47 codes. The codes were then sorted by themes that corresponded to the RQs. As the data was evaluated and analyzed, code groupings were changed to guarantee proper placement within the theme and subthemes. Following a thorough evaluation of the data, nine themes with two subthemes emerged that addressed the study questions. Table 3 shows how each code was grouped and related to the study's themes.

Table 3

Alignment of Codes to Themes

Code	Theme
Padlet Schoology ALEKS Google Suite Platforms	Theme 1: K-5 teachers perceive that student use of applications/computer programs is technology integration within the classroom.
Technology Computers/laptops Developmentally ready Limited skills Student learning	Theme 2: K-5 teachers perceive that students lack the basic skills needed to implement technology within instruction.
Reteaching Gradual release model Collaboration among students Discussion boards Integration/instructional strategies Instructional technologies	
Instructional technologies Students and kids Attitudes and beliefs Opportunity	
Resources Requirements Planning Attitudes and beliefs Time constraints	
Barriers Attitudes and beliefs Time constraints Self-efficacy concerns Planning	

Code	Theme
Requirements Professional development PD supports Instructional coach Peer resources Teacher and student learning	Theme 7: K-5 teachers believe that their school district has provided adequate PD on how to use digital platforms required by the school district but have not provided PD specific to integrating technology within instruction.
Comfort level Modeling Access Self-efficacy concerns Planning	Subtheme 7*:* K-5 teachers believe they are successful with technology when they understand how technology integration works through modeling.
Barriers Attitudes and beliefs Time constraints	Theme 8: K-5 teachers perceive time as the biggest barrier to technology integration.
Comfort level Attitudes and beliefs PD supports Teacher learning Limited skills Instructional technologies	Theme 9: K-5 teachers believe they do not have the necessary skills and knowledge needed to appropriately integrate technology within instruction.
COVID-19 Barriers Teacher learning requirements	Subtheme 9: K-5 teachers believe that they see technology as a necessity within classroom instruction due to the COVID-19 pandemic.

Note. PD = professional development.

Table 4 shows the themes and their relationship to the two RQs.

Table 4

Alignment of Themes to Research Questions

Theme	Research question
Theme 1: K-5 teachers perceive that student use of applications/computer programs is technology integration within the classroom.	RQ1: What pedagogical practices do teachers perceive as necessary to integrate technology consistently within classroom instruction?
Theme 2: K-5 teachers perceive that students lack the basic skills needed to implement technology within instruction.	
Theme 3: K-5 teachers spend more time using traditional instructional strategies for collaboration than instructional technologies.	
Theme 4: K-5 teachers believe that students need technology skills to be successful in the 21st-century.	
Theme 5: K-5 teachers perceived that they only need to use technology within the classroom when required by administration or for evaluative purposes.	
Theme 6: K-5 teachers perceived that planning for technology occurs on an individual level, but not consistently as a team.	RQ2: How do teachers perceive their ability to integrate technology consistently within classroom instruction?

Theme 7: K-5 teachers believe that their school district has provided adequate PD on how to use digital platforms required by the school district but have not provided PD specific to integrating technology within instruction.
Subtheme 7*:* K-5 teachers believe they are successful with technology when they understand how technology integration works through modeling.
Theme 8: K-5 teachers perceive time as the biggest barrier to technology integration.
Theme 9: K-5 teachers believe they do not have the necessary skills and knowledge needed to appropriately integrate technology within instruction.
Subtheme 9: K-5 teachers believe that they see technology as a necessity within classroom instruction due to the COVID-19 pandemic.

Findings

In this part of the analysis, I discussed the findings of the study in terms of how they related to the questions that were asked during the research. The interview questions were designed to encourage participants to engage in conversations that would generate data that provided understanding and knowledge regarding the two RQs that were addressed in the study:

RQ1: What pedagogical practices do teachers perceive as necessary to integrate technology consistently within classroom instruction?

RQ2: How do teachers perceive their ability to integrate technology consistently within classroom instruction?

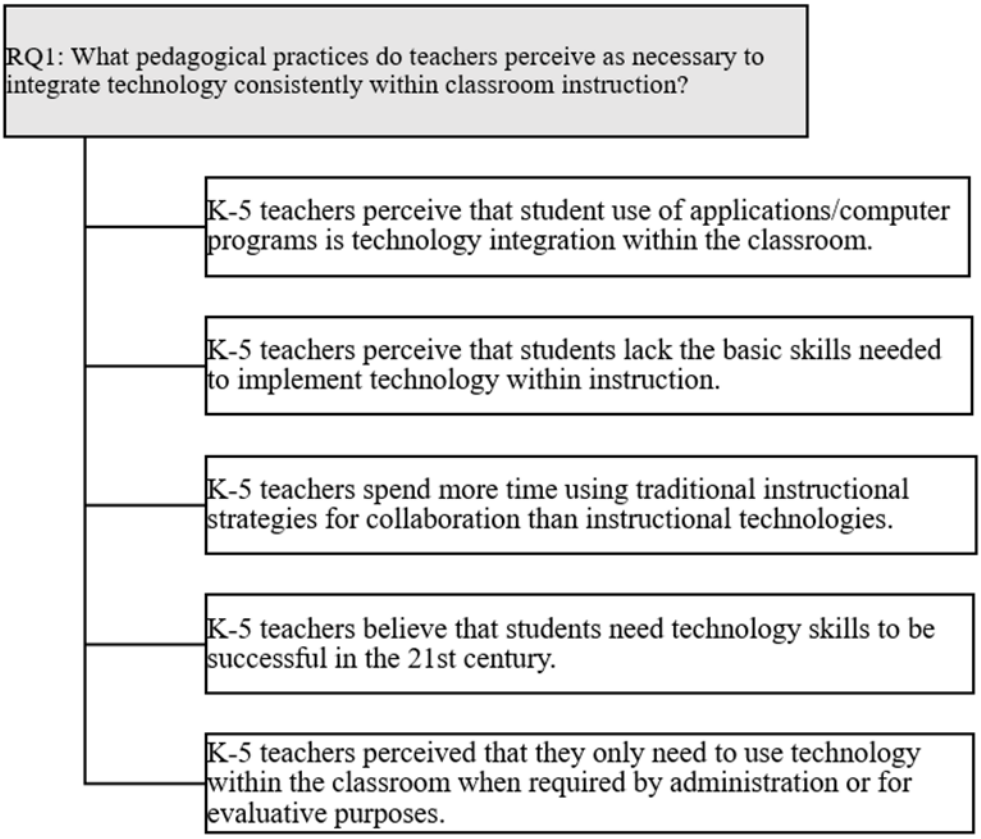
Nine themes with two subthemes were discovered that were in alignment with the two RQs.

Research Question 1

RQ1 addressed the pedagogical practices teachers perceived as necessary to integrate technology consistently within classroom instruction. There were five themes established to answer this question. This section was organized based on the five identified themes. Figure 2 illustrates the link between RQ1 and the five themes that emerged.

Figure 2

Themes Related to Research Question 1



Theme 1: K-5 Teachers Perceive That Student Use of Applications/Computer Programs Is Technology Integration Within the Classroom. Each of the eleven interviewees stated that they use technology applications in the classroom, and the majority stated that this is what they considered to be technology integration. Throughout their interviews, participants mentioned that they used applications such as Schoology, Padlet, Google Docs, Google Slides, Prodigy, Amplify, Flipgrid, Jamboard, and ALEKs in their classes. When asked if and when technology was used during instruction, the most common response from participants was an application being used. Participant 9,

for example, thought the software application Flipgrid was entertaining, saying, "It was extremely fun using the application." I had never used that before, but when I did, the kids really enjoyed recording and listening to themselves." Participant 7 added that they try to include the technology component in any lesson where they believe they can embed technology within the lesson, suggesting that if they are doing a group discussion project, they will add it as a discussion post on Schoology, a digital platform provided by the district, but the participant acknowledged that teaching directly from technology can be difficult. Participant 1 addressed their impression of technology integration in their classroom throughout the year by expanding on their use of the Schoology platform, saying that they incorporate discussion questions into Schoology for students who have the ability to answer each other on a device. The participant went on to say that they would then leverage Google Docs to turn handwritten assignments into Google Docs, which students would then share digitally with them. Participant 1 reported that they have used Padlet and Jamboard for students to discuss their thoughts with one another and continued naming software apps that they have used as independent technology activities throughout the year.

Conversely, Participant 8 stated that in the primary classroom, they and other teachers relied completely on the district-mandated online Wonders and MyMath curricula, respectively, for reading and mathematics instruction. Participant 8 explained that the district provides an overview of the online components available through the curriculum and that this is the only technology they integrate into instruction if time allows students to finish it independently. While each of these teachers was able to

emphasize the technology used in their classrooms, they were also able to discuss the students' use of applications and technology during classroom instruction, which will be explored in subsequent themes.

Theme 2: K-5 Teachers Perceive Those Students Lack the Basic Skills Needed to Implement Technology Within Instruction. Many participants shared a surprising perception that they were not successful in integrating technology into the classroom due to their students' lack of abilities or the teacher's perceived belief that students were not developmentally ready. According to Participant 4, "Some of them don't even have the dexterity or physical capacity, in my opinion, it is like they are not developmentally ready to be able to run a mouse and type keys." Participant 2 added to this statement by saying that when it comes to instructional strategies, you have to consider the students' skill levels, explaining that "Some of those technology concepts, like finding an array for a Google slide, they [students] have to have that foundational knowledge before they can necessarily apply those skills with finding their own pictures or evaluating solutions for those contexts." Participant 2 reported that one of the most significant challenges in the elementary classroom is students' lack of awareness of technology systems and typing skills. Other participants shared similar beliefs that embedding technology with students is more difficult and that it is difficult for students to use software applications when they lack the basic skill sets to navigate the devices.

Participant 4 differed from the others in believing that the students could only gain the necessary skills through practice and the teacher determining the appropriateness of the technology. They explained that as teachers, they must determine if the technology

is age and developmentally appropriate before assigning it or attempting to embed it into the lesson, but they must also give students the opportunity to get on technology and try it out even if they make mistakes, implying that if students do not practice and make mistakes, they will not be able to learn and acquire the skills required to use technology within the classroom. Participant 5 provided another unique perspective from the primary grades when discussing students' ability to use technology. The role of teachers in the primary grades is in creating the foundation students need before a teacher can successfully integrate technology into their instruction, stating, "I am laying a foundation where integration next year might be a little bit easier as they go up, just like we teach reading where we have laid a foundation for the upper grades."

The participants in the study reported that when students were able to effectively use technology, they were more willing to integrate technology into lessons. Additionally, teachers evaluated their own technology integration self-efficacy to be connected to students' levels of technological proficiency. Participants believed that technology could not be introduced into instruction via pedagogical practices until students were developmentally ready to manage computer hardware and had the physical dexterity to operate the computer.

Theme 3: K-5 Teachers Spend More Time Using Traditional Instructional Strategies for Collaboration Than Instructional Technologies. Throughout the course of the interviews, it became abundantly clear that the teachers at the site of the study employ a variety of conventional traditional instructional strategies in grades K through 5. The gradual release model was mentioned in each interview as the standard method of

course delivery, and Participant 3 said, “I use it with everything, the gradual release method is used in reading, writing, and math.” Participant 10 shared that the gradual release model is a building-wide expectation across grade levels. Other traditional instructional strategies for collaboration, such as think-pair-share, QSSSA-Question, Signal, Stems, Share, Assess (a teaching strategy for structured discussion), four corners, whiteboard routines, and gallery walks, were also brought up for general discussion among all the participants. Participant 1 described how they build a collaborative culture in their classroom by organizing student groups for discussions and activities. They explained that differentiated groups are formed based on the activity or content, and groups can range from mixed-ability groups of students to heterogeneous groups based on their students' academic needs, adding that on occasion, they will group their identified gifted and talented students together so they can extend their learning while collaborating together.

Every interviewee mentioned adopting collaboration tactics in their instruction across several content areas, but only two participants elaborated on how they had students collaborate using technology. Participant 11 explained how they try to use technology for collaboration, but in general, they rely on traditional teaching practices to facilitate collaboration in their classroom, explaining, "I normally incorporate whiteboard routines or have students use butcher paper where they are answering questions altogether and on occasion, we will use technology." Participant 1 went on to say that they have started embedding Disney video shorts into the Schoology platform and will generate discussion questions connected with the video or have students interact on a

Google slide. However, they considered that this was more difficult than standard collaborative practices or instructional routines within the classroom, and they often applied traditional instructional tactics for collaboration unless planned in advance. Participant 2 shared similar strategies as Participant 11 explaining " I do typically more of high-medium, high- low partnerships. I also have my kids in groups again we have tables in pods with different partnerships." Participant 2 further described that with technology, their class does collaborate through online discussion boards through the Schoology platform and that students will respond to each other digitally when time permits.

Throughout the interview process participants continued mentioning applications or programs as examples of how technology was being integrated into classrooms as an instructional strategy; and, Participant 1 shared their belief in how technology could be used to enhance learning stating, "instead of doing like a turn and talk, I might do a Padlet or a Jamboard for kids to engage because you need that engagement piece to keep students involved in the discussion". Participants agreed that teachers needed instructional approaches to educate students, and that technology should be taught and used in the classroom on a regular basis. Although participants agreed that technology should be taught and used in the classroom on a regular basis for collaboration, they still believed that traditional instructional strategies were easier and did not take as much time to plan as technology-based collaboration.

Theme 4: K-5 Teachers Believe That Students Need Technology Skills to Be Successful in the 21st-century. The development of technology has brought about

changes in a great many facets of day-to-day existence. The development of technology has brought about changes to the way people live and read, one of which was the educational system. The modern classroom has been transformed into an environment that cannot be equated with the traditional classroom of the past because of the widespread availability of technological instruments in a variety of formats. The skill set required of the future workforce has had to evolve in response to advances in technology Participant 2 shared this sentiment, “technology integration for me is important for helping students get 21st-century skills and become citizens in this world where they have to use technology.” Participant 4 stated that it is the responsibility of teachers to teach students proper digital citizenship and establish a sense of digital responsibility. All interviewees stated a desire for students to be able to use technology tools to learn in a number of ways in order to help them improve their learning and knowledge, as well as to inspire them and provide them with a tool to help drive their lives in the future.

During the interviews, it was discovered that Participant 4 was an early user of new technologies and was a strong champion for the use of technology in the classroom. This participant gave the following insight on the necessity for students to have skills relevant to the 21st-century explaining that, “21st-century skills are huge, it is basically starting out the basics of having them [students] be able to work on the computer and it will just give them that opportunity to access the information and be able to use that information when existing during the 21st-century.” Participant 1 also believed that students needed to be equipped with technology skill sets for the twenty-first century in order to be successful in the later stages of their lives. This participant went on to say that

even though they were not comfortable with technology, they needed to be able to teach it to their students stating "I am not super comfortable with technology. It is an uncomfortable area for me, but I know that technology is what kids need in the 21st-century and is what they need to be successful in high school, college, and even in their adult world." The majority of the study participants agreed that technology is just a part of students' lives and that it is their obligation as educators to teach them how to use technology and become proficient in the digital world. Participant 7 had the additional insight that students needed more than just the ability to demonstrate knowledge through paper and pencil but needed to be prepared to use technology to have the option to type or use different applications to complete work explaining that they as an educator wants students to have a positive experience with the technology asserting that students will use technology throughout their lives stating, " I do not want learning to consist solely of writing things down with a pen; I want students to have opportunities to express their creativity through the use of a computer, where they discover something that piques their interest."

When discussing the fundamental abilities that are required to even operate a computer, participant 8 provided further understanding of the skills they believe children need to have. It was brought up several times by the majority of participants, and it was generally agreed upon, that students need to have a basic understanding of technology early on in their education, in the primary years, in order to be able to build on those skills to more advanced levels in the intermediate and secondary levels of education, and most importantly, in life. Participant 8 expressed their conviction by explaining that

students need to use technology because that is where the world is heading and that students need to know how technology works, and how to use it to be successful going forward because that is where we are in the current society. Participants 5 and 6 each provided a unique perspective on what they wanted their students to be able to accomplish with the support of technology in a world that requires 21st-century skills. Participant 5 expressed a desire for students to have access to information and know where to go to find outside resources and conduct research outside of the classroom walls, explaining, "I think with so much at our fingertips, it is important for them [students] to know, but I also want them to know how to do it responsibly, and how to check sources." Participant 6 held the same perspective as participant 5 but brought a new dimension to the discussion by expressing the desire that students will become familiar enough with technology to feel confident in their ability to use it effectively and advocate for their own educational needs. Participant 6 stated, "I want kids to feel safe using it [technology] and having the kids use it to advance their education, to take charge of their learning, and to be able to pick subjects that they want to learn about." An interesting addition to this conversation was made by Participant 9, who talked about their own personal experience and how their perspective has changed over the years, going from one in which they did not see a use for technology to one in which they believe that students need to have these technological skills to be successful in the 21st-century explaining that “there is technology in every aspect of our life. And I know as a teacher, I struggle with it, because I was never taught it.” Participants throughout the study stressed

the importance of students knowing how to use a computer on a basic level by third grade when they must begin state testing, which is now entirely digital.

Participant 10 revealed additional information that in their district there are students coming from adverse situations explaining, “We have got kids that have never left this area in their entire life. And they are probably likely never going to. So, when we bring in technology that gives them access to a world that they would not necessarily get otherwise.” This participant shared their worries that being digitally illiterate will be a crippling barrier to future achievement and that technology will be necessary to be a contributing citizen in our current and future societies. However, Participant 11 offered a different viewpoint, stating that "Technology is overused and really pushed, especially in the elementary level; instead, students need to be doing hands-on activities." Participant 11 acknowledged that students need to use technology but asserted that the social element of education is also just as important and that learning how to speak, work with your peers, and collaborate is essential. They believed that for students to be successful as well-rounded citizens, they need to be talking and working with peers instead of sitting in front of a screen.

Although all of the participants acknowledged that technology should be incorporated in some manner within classroom instruction to prepare students for the 21st-century, they lacked the training and support to ensure they could plan and incorporate technology within their instruction consistently. This has discouraged many of the participants from attempting to integrate technology within their instruction as they perceive the barriers and lack of knowledge and ability to be too great.

Theme 5: K-5 Teachers Perceive That They Only Need to Use Technology Within the Classroom When Required by Administration or for Evaluative Purposes. When participants were asked how they planned to use technology in their everyday instruction, a trend emerged in the responses. It was repeatedly noted that the teacher state evaluation rubric was the primary reason that technology was planned, to have a box marked on their teacher rubric, when administration would be observing. Participants also mentioned that this was an area that was rated lower on their rubric and that they are actively attempting to improve it by integrating more technology to raise their overall evaluation score. Participant 6 shared, "Basically when I think of technology, that is the main thing that I am trying to get better at on my rubric." Participant 11, elaborated and provided a more personal experience explaining, "It is always on my rubric, the lowest point, my lowest area, I would say that my competence for integrating technology is just lower." Participant 11 attributed technology to being the lowest area on their rubric due to the available PD asserting that, "you leave PD knowing that things exist, and someone showed you something really cool with it, but you do not know how to go back into your own classroom and implement it and how to use it proficiently."

During the interviews all participants expressed specific concerns about their own perceived abilities in being able to successfully integrate technology within instruction and be appropriately rated on a state educator rubric, however, Participant 3 voiced their unhappiness with the process of incorporating technology into the classroom and talked about how the skills of students might have affected the overall scores that teachers

receive on the rubric explaining “It hurts us teachers’ scores if students are not as quick or as fluent on the computer.” Multiple participants shared their opinions that they did not believe kids possessed the appropriate skills to use technology, as discussed earlier in theme 2 and that teachers only used the technology when it was necessary for evaluative, district, or school-mandated purposes.

Other participants stated that they simply use the district-supplied online curriculum to guarantee that students are using technology as previously outlined in theme 1. Participants discussed a variety of digital platforms for quickly incorporating technology to meet the teacher evaluation rubric's criteria. Schoology was mentioned by each participant as an easy approach to integrating technology into daily education by publishing assignments and having students comment on discussion board topics. Participant 7 described how the Schoology platform was used to make it simple to use technology when needed. They explained that they just use Schoology, make a few questions a digital discussion post, and attempt to have students use the digital platform to ensure that students are getting exposure to some digital components adding, “It is just hard to teach straight from the technology.” Participants reported that technology was frequently integrated while being evaluated by administration or when mandated at the district or school level, despite students requiring continuous use of technology in education to develop 21st-century skills.

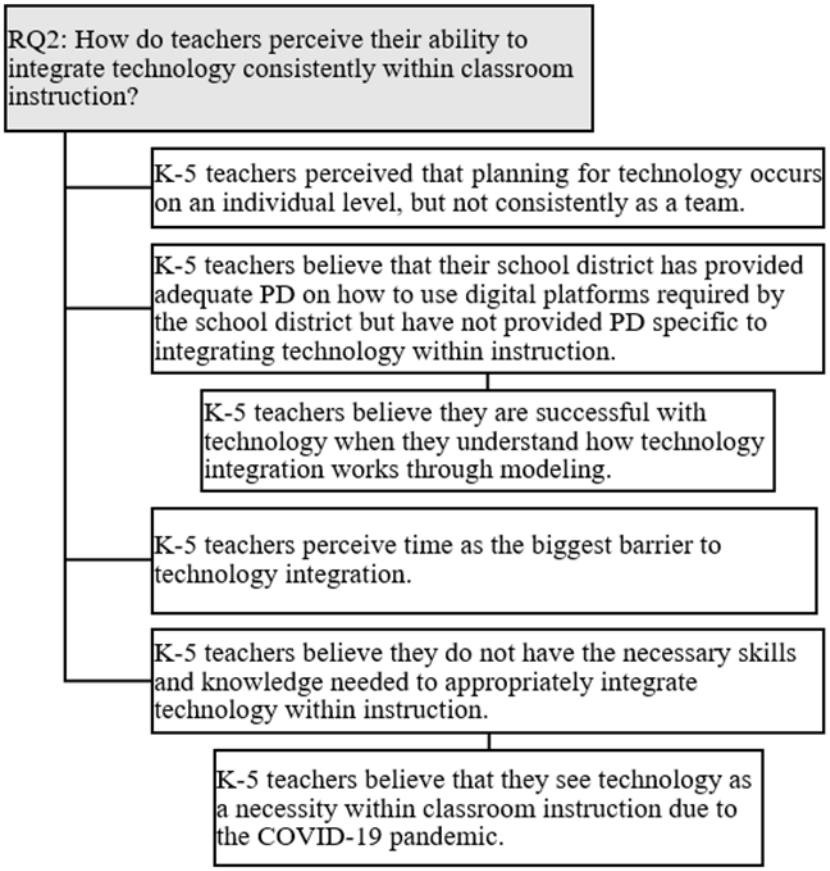
Research Question 2

RQ2 addressed how teachers perceived their ability to integrate technology consistently within classroom instruction. There were four themes and two subthemes

established to answer this question. This section was organized based on the four identified themes and two subthemes. Figure 3 illustrates the link between RQ2 and the four new themes and two subthemes that emerged.

Figure 3

Themes and Subthemes Related to Research Question 2



Theme 6: K-5 Teachers Perceive That Planning for Technology Occurs on an Individual Level, but Not Consistently as a Team. During the course of the interviews, the participants expressed the perception that as teams, they prepare lessons as grade level teams, keeping instructional goals in mind and integrating state standards in a

consistent manner. On the other hand, when participants were asked how they plan as a group for the integration of technology, the general response was that preparing for technology was an individual undertaking. Even while participants in the study believed that planning for technology was an individual undertaking, they also shared the sentiment that planning for technology was necessary regardless of whether it was done by the team or by the individual. A further explanation of the significance of planning for technology was provided by Participant 1, who noted that planning is essential adding that if students do not know their logins or the basic operations of the device time will run out due to students' inability to access the technology efficiently and effectively. Several participants concurred that planning is key to integrating technology within the classroom successfully. A similar attitude was expressed by Participant 10 on the significance of planning technology integration into classes; however, this participant offered a unique point of view regarding the individual planning component. They discussed the significance of identifying the purpose of a lesson and determining whether or not the corresponding technology is appropriate for the lesson. They were cautious to state that they used technology on a daily basis inside the classroom because they explained that if the technology does not serve a purpose within the lesson, then it is not a suitable tool to use. Additionally, Participant 10 elaborated on the necessity of having a backup plan in the event that the technology fails while the lesson was being taught by explaining that it is essential for teachers to prepare for the unavoidable, which is the chance that technological systems will eventually have errors occur or network systems can go down. To avoid conducting a filler activity and to better prepare the kids for the

possibility that the technology they are using could not function properly, they believed that it is essential to be intentional and to create backup plans in advance when planning technology into a lesson.

Participants all shared ways in which they individually plan for technology and some provided more insight into the emotions that can manifest when having to plan alone for technology. Participant 2 offered that when planning by themselves it is challenging and perhaps more intimidating and thought that “If it were more of a team collaboration then it probably would not be as scary for people and would not take as much time planning because then that workload is shared.” Participant 1 shared similar perceptions on the emotions that planning for technology on an individual level induces explaining, "I personally feel that it gives me a bit of anxiety because I am not super strong when it comes to technology." Other participants expressed similar thoughts, and the overall perception presented was that when it comes to preplanning and integrating technology, the focus is mostly on them as individuals, followed by sharing what they have attempted to do with others. Many participants also stated that teachers working and preparing technology together would help students more since students would have more opportunities to use the technology if it was incorporated into the classroom. They proposed that if team planning took place, there would be more discussion boards or assignments on Schoology because the effort would be divided across a grade level team and teachers would benefit from the collaboration.

During the interviews participants openly revealed that there was little to no technology preparation inside teams and that while some teachers did prepare for

technology, it was on a case-by-case basis of who felt comfortable enough to try outside of their team. Participant 5 shared that they do not plan for technology as a team either and expressed the negative emotions that are induced when attempting to plan for technology as a team expressing, “I am more adventurous when integrating technology and using technology in different ways and see the value of technology…the impact it has on me as a teacher and everything, I have to plan for then is a challenge.” Many participants indicated that planning for technology as a team involves the team discussing which program students will independently access, and they gave examples such as Amplify, a digital reading program; ALEKs, a digital math program; or any software each teacher's students are able to independently access. Participants stated that as a teacher, it is up to the teacher to select which technologies to deploy and which programs or applications to use within the classroom. This decision-making authority rests solely with the teacher independently and is not a team decision. Participant 10 stated that they believe that there is not a lot of understanding of how to use technology among the teachers at the study site. They also shared the following regarding technology being planned in teams, saying, "I think that is an area of opportunity to make sure that technology is consistent and to make sure that it is something in the forefront of our mind." Participant 8 shared their perceptions about planning for technology both from an independent perspective and a team perspective sharing on an individual level that it is easier for them to incorporate technology within their instruction explaining, " I have never not had technology in my planning experiences. And so, I cannot fully say that I would feel confident planning a lesson with just a notebook, I think that would be hard."

Participant 8 continued to share their team's experience with technology planning explaining that each week during PLC their team plans out lessons starting with the standards and intentionally plan out for the week for content and traditional instruction, and then they independently plan for technology if they want to embed it within their own classroom and that as a team they do not plan or collaborate on any technology integration together.

It was clear through the interviews that participants planned during PLCs for the subject matter, however, no participants reported planning instruction as a team to embed appropriate technology that would enhance the instruction. Veteran teachers explained that prior to deciding what technology to use, they believe that teachers first need to consider the "what" and "how" of the lesson. Participant 8 also provided additional insights regarding the integration of technology in their classroom. This participant shared their beliefs that technology integration was applied in certain subjects more than others and that their skills were determined by the subject or content that they were teaching, explaining, “I find myself using more technology, in the morning during ELA. In math, I feel like math is where I struggle the most and finding technology integration for students’ math.” Throughout the interviews, teachers expressed the strong collaboration that occurs within grade level PLC planning times in relation to standards and content when planning instruction. On the other hand, it was evident that there is little to no planning amongst grade level teams on how to embed technology within their instruction, and that collaboration on how to integrate technology within instruction specific to each content area is a need at the study site.

Theme 7: K-5 Teachers Believe That Their School District Has Provided Adequate PD on How to Use Required Digital Platforms but Has Not Provided PD Specific to Integrating Technology Within Instruction. During the interviews, participants stated that their local school district did an exceptional job of providing opportunities for PD in a wide variety of curricular areas, including technology. Even though participants stated that the district offers PD on how to use the digital platforms that are owned and operated by the district, it became clear that the district does not offer PD that was specifically tailored to the incorporation of technology into classroom instruction. Participant 3 had a tough time even remembering when a PD on technology had been offered sharing, "I think that school-based PDs have been the only thing I can think of where I have received training on technology, but where other people [coworkers] have shown me." Participant 3 acknowledged that when the district adopted a new curriculum, Wonders [reading curriculum] a PD trainer came to PLCs and showed teams where to find different resources online with the curriculum. Participant 2 shared similar information and explained that the school and district have been provided with PD on digital platforms, but no strategies or training on how to incorporate the technology within instruction. They reported that there is a limited amount of what is shared for different strategies to collaborate or engage students with those online components. The majority of the participants who were interviewed believed that most of their skills with technology had been based on their own personal experiences of trial and error, or hearing about a new technology tool or strategy, and then testing it out on their own to see if it worked within the context of their classroom instruction.

Participant 5 gave a similar perspective but added extra insight into social media and finding ideas on social media platforms from other teachers around the country and then attempting to integrate technology through trial and error. Participant 5 shared, "I do not feel we get a ton of support, integrating technology into instruction, we go to training but on curriculum resources and standards implementation. I feel some of my ideas come from seeing things on social media." Participants did not think that there are enough PD options available or resources at the school level on how to use technology within instruction. Many participants echoed this concern and reported that they go to outside sources such as social media and follow other teachers across the nation to gain ideas on how to integrate technology into their classrooms. Other participants shared that they learn differently and that when they have attended PD they have not learned from the training, but instead from other teachers showing them at their own pace. For example, Participant 1 explained that although they have attended PD the PD courses are not differentiated and that they are not always able to keep up with the pace of the learning, other participants echoed this concern where two participants who are early adopters of technology shared that many of the resources taught they are familiar with and they would like more challenging training, whereas many of the participants explained that most of the training has been too fast paced with Participant 1 sharing, "I need to see other educators using it to teach me, then I think, oh, I can maybe learn how to use that. So that has been, how I have learned the best way." The majority of participants believed that in order for them to better understand and increase their level of self-efficacy, they either needed to be provided with a model of the technology being used within instruction

or be able to have time to practice using the technology tool or strategy with colleagues in a collaborative space.

However, Participant 8 offered a slightly different viewpoint, stating that one of the obstacles was a lack of PD on how to integrate technology as well as how to work the students' devices. The participant explained, "A barrier, is not knowing the students' end of things and how I can incorporate some of those things for their computers, I need PD on how to work the students' computers. I have not gotten that yet."

During the interviews, participants explained that they know how to scan QR codes, and navigate students to different locations online, but many participants asserted that they are not well versed in the Chromebook technology for students and do not know how assignments appear to students in the student version and can only see the teacher version and participants expressed a desire for PD in learning how to use technology from the student's perspective.

Subtheme 7: K-5 Teachers Believe They Are Successful With Technology When They Understand How Technology Integration Works Through Modeling. During the interviews, a subtheme emerged as participants discussed what the term "success" meant to them in a number of contexts, as well as how effective they thought they were in incorporating technology in the classroom. Participants frequently stated that, while they believe they could be effective if they understood how technology integration worked through examples and modeling, they do not receive support in learning how to integrate technology within instruction. This is despite participants' belief they could be successful if they knew how to integrate technology into instruction.

According to Participant 5 teachers at the study site only receive training on online resources connected to the district-provided curriculum. Additionally, other participants revealed that they feel successful when they have seen other teachers model how to use technology within instruction whether through social media, learning walks, or peer observations. Participant 7 shared that because they are a newer teacher it was difficult for them to envision what successful technology integration looks like within classroom instruction and explained, “Involving technology, is a bit overwhelming at times, I think that just seeing everyone else has different ideas of stuff they already have implemented in their classrooms that work, I can then envision that in my own class.”

Even so, Participant 9 added to the discussion by explaining how seeing technology integrated within instruction is beneficial and helpful in the learning process, and that after seeing technology demonstrated, they need to practice it as well, otherwise, they will not be successful despite the modeling that was observed, stating, "I have to understand something before I introduce it to them [students], and then I can walk them [students] through step by step." Participant 9 provided further clarification by stating that if they, as the teacher, become frustrated with the technology, they will not be able to use it with students because, in order to function as the facilitator of instruction, they are required to have the self-efficacy and ability to appropriately demonstrate the activity to students. Other participants discussed the advantages of observing the integration of technology through modeling but acknowledged that they did not achieve success with the integration of technology until they tried it themselves inside the classroom setting. Participant 2 added that after watching others implement technology within the

classroom, “It takes time training myself on the different platforms training for the kids of how to work with it, so knowing that I cannot give up on it too quickly, but it has to take more time to develop.”

Participant 4 provided a different point of view regarding the necessary modeling that was required for success discussing the necessity of filming yourself and watching yourself model the lesson to gain a deeper comprehension of how to modify your current pedagogical practices explaining, “Having that opportunity to video myself and get feedback, I think that is how I feel most successful and then having an opportunity to review so I can go back and figure out what my strengths or weaknesses are.” Further analysis of the data demonstrated that it was common practice for participants in the study to take part in unofficial learning activities that were neither formally organized nor supported by the school or district. The majority of the teachers' opportunities for PD came in the form of unstructured, self-directed encounters with various forms of technology.

Theme 8: K-5 Teachers Perceive Time as the Biggest Barrier to Technology Integration. Participants were asked what they perceived as their biggest barrier to integrating technology within their instruction. Other than the previously discussed lack of PD available it was interesting to note that more than one participant mentioned that they consider time to be the most significant barrier faced by other colleagues, but they did not necessarily identify it as their own barrier. Participant 10 shared their perspective in relation to what they have overheard other colleagues in the building say as the most significant barrier, “I think the one I hear is time, the time that it takes to set the

technology up, and the intentionality it takes to plan. I think it is also that lack of knowledge or that lack of capacity." Participant 10 asserted that they think the time barrier is due to a lack of confidence in using the technology and believes that if teachers can build up that capacity to have confidence, it will reduce time being a barrier to teachers at the study site. Participant 7 similarly shared their take on the biggest barrier being time due to students not being familiar with the technology which then requires them as the teacher to model the technology for the students and then instructional time is lost. On the other hand, Participant 2 stated that time was the most difficult barrier, but rather than providing what they perceived to be the opinion of their colleagues, they provided their own perspective on how time was the most difficult barrier in the way of integrating technology into their instruction and shared their opinion on how PDs do not allow for enough practice time for teachers. They specified that the main barriers or challenges first start with the internet quality or whether the students' computers are working and functioning properly but perceived that with PDs technology is introduced and explained that the PD is not followed up on. They clarified that new technology tools or strategies are presented in a PD but are quickly shown with a minimal model and no time allocated for teachers to practice using the technology, and no discussion or support on how to appropriately integrate the new technology into instruction.

Throughout the course of the interviews, the subject of time came up repeatedly as a barrier, and the overall perception of the participants in the interview was that the most significant challenge was simply finding the time to explore the available technology resources and test them. Another challenge is just finding the time in the day

to not only spend the time pre-teaching in order for the students to be able to use the technology, but also to ensure that there was time to continue integrating the technology once it had been introduced. Several participants explained this is because teachers have to take time away from other things in order to do that. If teachers are given the time during PD and PLCs to collaborate and practice using technology participants believed they would be able to better implement technology within their classroom instruction with some participants suggesting that the technology tools and strategies could replace some traditional instructional strategies if they had the appropriate time to learn and implement the skills.

Theme 9: K-5 Teachers Believe They Do Not Have the Necessary Skills and Knowledge Needed to Appropriately Integrate Technology Within Instruction. During the interviews, participants identified the skills and knowledge that they felt they lacked in order to be able to effectively integrate technology into their classroom instruction. Participants also discussed the pedagogical practices that teachers perceived to be necessary in order to effectively integrate technology into classroom instruction. Participant 2 offered areas that they felt unsuccessful in both knowledge and skills voicing, “I feel unsuccessful when the internet is not working. Or if I do not have the visual side of what it looks like from the student perspective.” They voiced their concern that they have experienced feelings of inadequacy whenever they have attempted new technologies and tools or strategies for the first time, or whenever they have practiced using different digital platforms. Other participants had similar concerns that they have not had sufficient time to practice with the technology before introducing it to the

students, and that the introduction of new technology took too much time because it required the teacher to demonstrate to the students how to use the new technology. Participant 1 described their personal struggles and perceived lack of self-efficacy sharing, “I feel unsuccessful when things do not go well. When there is a glitch, that I cannot figure out, or I do not understand what I did wrong.” Participant 11 added to this conversation stating, “I feel like sometimes we get pushed new programs and we do not have the training that we need, and then the lesson is consumed with troubleshooting.” Additionally, Participant 3 reported anxieties that their perceived lack of skills was blocking them from having the ability to integrate technology within instruction stating, “I do not have the skills because of myself, and I do not know how to get past that. It is this mental block, and I do not know why I am scared, but technology scares me.”

Participant 9 spoke in detail about how their lack of skills using technology led to unsuccessful attempts at technology integration explaining, “Students get frustrated, I get frustrated, and I quit trying to use technology altogether.” Nonetheless, during the interviews, participants clarified the skills they perceived were needed, asserting that teachers must understand the technology before introducing it to students, that they must ensure that the programs or technology tools are correctly loaded and that they must be able to walk students step by step in how to use the technology correctly before there is a benefit to the instruction. Despite participants noting a lack of skills or ability to integrate technology in instruction, many participants interviewed described skills that they perceived were crucial to successfully integrate technology within instruction consistently.

During the interviews, both veteran and inexperienced teachers expressed a need for PD in order to manage what students see on their devices. Participants expressed worry that they have had no training on what the students' devices are showing when they are still learning what the technology should look like on their devices. Another worry expressed by inexperienced teachers was a lack of ability to set clear, strong expectations about the use of technology in class. Veteran teachers in the study expressed similar concerns about managing devices and expectations in class. They reported a need for PD to understand the technology in order to set clear expectations and boundaries with students, as well as believing that teachers need PD on how to use both teacher and student devices before having the confidence and skillset to introduce to students during instruction.

Subtheme 9: K-5 Teachers Believe That They See Technology as a Necessity Within Classroom Instruction Due to the COVID-19 Pandemic. Every participant interviewed for this survey stated that the COVID-19 epidemic had changed the way they taught in some way. The general consensus was that technology was now a requirement in the classroom rather than a luxury to be used on occasion. Due to the COVID-19 pandemic in March 2020, the world of education was forced to go virtual. Participants in the study were forced to use technology with little time to prepare as a result of this unexpected turn of events. This subtheme emerged as participants' reactions and perceptions reflected the influence of the 2020 forced shift to online education and the subsequent gradual return to in-person learning and teachers now having 1:1 digital devices in every classroom. Participant 11 shared a sentiment that was common amongst

all participants stating, “Prior to COVID, I did not use any technology and since then I now do use technology more because of COVID-19.” Further elaborating on what many other participants shared Participant 3 explained how their use of technology changed due to COVID-19 revealing, “It has changed my technology ability because I had to, that is what we had to use, and I was forced to use it. Now that we are back in the classroom, all the kids have a computer.” Participant 1 went more in-depth into the answer explaining how the COVID-19 pandemic has changed their perception of the necessity of technology “COVID-19 has changed my embedding of technology because I have realized that there is going to be a huge need for students to be familiar with technology because you never know when this pandemic could send everybody back into our homes.” All participants believed that due to the pandemic students need to be familiar with technology and how to receive instruction through a device that they may or may not be familiar with. Many participants explained that being forced to use technology during the pandemic has required them to be more active in building their own technological skills. Participant 1 added, “It forced me, to change how I view education. Technology could be a very necessary need.”

Participants 4 and 5 shared similar views of being hesitant and feeling forced to use technology, however, broadened the conversation by detailing the innovative ideas, technologies, and resources that were made available during the pandemic with Participant 4 being candid in their response and perceptions revealing, “It has made it where we have had to use technology, whether you like it or not, you have basically had to get on board because this is what is happening.” Participant 5 reported, “I think of

education, and the need for having technology in the schools, and even devices one on one, I think we have known how important technology is and we must be prepared for situations like a pandemic in the future and not be afraid of technology." Participants 4 and 5 both believed that the pandemic allowed educators access to more resources nationally and, locally to collaborate with others in education about technology and share strategies with other educators that previously may not have collaborated within an online forum. Additionally, Participant 5 shared their opinion that, "The pandemic pushed technology to the forefront of education and that educators need to get on the technology "wagon" in case we ever must, go back to something like COVID-19 created again." Participant 4 however shared a more personal perception expressing, "COVID-19 made me feel like I do not have a choice. You must do this, you must teach them how to use technology because you could go virtual, and it was terrifying." However, Participant 4 and others perceived that being forced to use technology helped them gain skills that they otherwise would not have been comfortable practicing. "The pandemic has lessened my fear of using technology with small children. I sought out more resources, and it exposed me to more opportunities that are available that I can implement."

During the interviews, several participants shared examples of the virtual tours that are now available due to the pandemic and believed that they can expand their students' world from the classroom many participants explained how many more resources there are for them now. Most participants also think that the COVID-19 pandemic has increased their willingness to use technology and resulted in an increased desire for PD in using technology within instruction appropriately. Participants in the

study perceived that people, schools, our children, and the ways in which we connect with one another have all been impacted because of the pandemic. All participants expressed unease that the field of education is not the same. Even though many participants revealed that they still hold out hope that education will get back to normal they believe that the COVID-19 pandemic has demonstrated that technology is no longer a luxury but an essential component of the learning process and that teachers need PD to increase their confidence and ability to consistently integrate technology into their instruction.

Summary

The problem in this study was that teachers in Grades K-5 at the study site were not consistently implementing technology within instruction despite having comparable technology equipment, access to district PD, and similar digital curriculum resources The purpose of this basic qualitative study was to explore the teachers' perceptions of integrating technology consistently within classroom instruction in Grades K-5 at the elementary school under study to understand why technology was not being implemented within instruction consistently. To study this problem, I developed two RQs to explore teachers' perceptions of technology integration and pedagogy in K-5 education. I used a basic qualitative study that allowed me to understand the perspective of the participants through their experiences. Mishra and Koehler's TPACK was influential in framing the study, and Albert Bandura's self-efficacy concept was a lens for understanding how teachers' beliefs influence how effectively they can carry out technology integration. In this study, I collected data through semi-structured interviews with 11 elementary

teachers of students in Grades K-5. Each teacher was currently teaching all core subjects, reading, writing, math, science, and social studies in a general education classroom. The vast majority of those who agreed to be interviewed were established educators with at least 10 years of practice. The participants also included at least one teacher from each grade level from Grades K-5, with many participants teaching in kindergarten through Grade 3. After interviewing 11 teachers, I reached the point of saturation obtaining no new information to help answer the RQs.

Every participant discussed the obstacles they each faced while attempting to implement technology into instruction. However, most participants reported that despite the difficulties, they would have an open mind and were interested in learning how to integrate technology appropriately and successfully into their day-to-day instruction. Every one of the participants expressed a wish to acquire additional training to improve their ability to integrate technology into their lessons. Through the analysis of the data collected in my study, nine key themes and two subthemes emerged regarding teachers' perspectives and experiences with each RQ emerged.

According to the literature, technology is altering how teachers interact, cooperate, and create in the learning environment. Teachers are being challenged to design collaborative, learner-centered daily learning experiences (Andersson, et al., 2016). Understanding how to use technology in the classroom is no longer enough. Before expecting consistent technology use in classroom instruction, teachers' pedagogical views must be understood, and teachers must appreciate the use of technology in instruction (Hur, et al., 2016). The findings of my study are consistent with

the concepts aligned with Mishra and Koehler's (2006) framework on TPACK and Albert Bandura's (1977) self-efficacy framework, which were used in this study. The use of the TPACK framework assisted in establishing the significance of technologies to enhance the relationships and interactions between content, pedagogy, and technology in instruction. By identifying professional technical knowledge, Mishra and Koehler's approach promoted the creation of successful teaching and developed a partnership between CK, PK, and TK to integrate technology into the classroom (Park & Hargis, 2018). As a result, Mishra and Koehler's TPACK framework provided support for this study. This study was also backed by Bandura's theory of self-efficacy. According to Bandura, self-efficacy is a set of beliefs that determines how well a person can carry out a plan of action in a given situation. Individuals' perceptions of their abilities have a significant impact on their actual abilities. Bandura's self-efficacy framework provided insight into teachers' current perceptions of their competence or self-efficacy to integrate technology into classroom instruction on a regular basis.

Many participants in the study perceived that students use of applications or computer programs was technology integration within the classroom. According to Zinger et al. (2017), the use of technology in the classroom remains "technocentric," implying that technology was used without a clear instructional goal. Students' outcomes were often poor when technology was used in this manner. According to Park and Hargis (2018), there is still a need to understand how technology may be effectively integrated into instruction and what pedagogical practices are required to assist teachers in effectively implementing technology in the classroom. Park and Hargis also stated that

there is still a need to understand how technology may be properly integrated into assessment. Technology is increasingly expected to be used in classrooms and teaching approaches. Based on the findings of Voihofer et al. (2019), educators have developed an awareness of the extent to which technology can support in student learning. Teachers with a working knowledge of technology are more aware of the subject-specific pedagogical material that technology provides for their students' learning and experienced teachers are not always able to adapt their pedagogical expertise and talents to technology-mediated instruction. The capacity to teach using technology requires more than just knowing how to use it and it was observed that the availability of technology, administrative aid, support personnel, and PD all have a role in boosting teachers' use of technology in the classroom. Upon further analysis of the data, it was discovered that many of the participants in this study misinterpreted the relationship between pedagogical practices and the integration of technology into education. Participants' perceptions were continually linked to various digital platforms and software programs rather than pedagogical techniques, and PD was required to support the teachers at the study site.

As noted in Section 2, Bandura (1977) argued that not only may perceived self-efficacy influence the activities and environments that people choose, but it can also influence coping efforts that have already begun due to expectations of ultimate success. Participants in the study reported that when students could properly use technology, they were more willing to incorporate it into lessons, and teachers evaluated their technology integration self-efficacy to be connected to students' technological proficiency. Participants were skeptical that technology could not be integrated into instruction

through pedagogical methods until students were developmentally able to manage computer hardware and had the physical dexterity to use the computer itself. The conversations continued to share similarities, and another theme that supported RQ1 revealed that teachers spend more time using traditional instructional strategies for collaboration than instructional technologies. Every participant acknowledged to using at least one traditional pedagogical method in their separate classrooms. According to the research, K-5 teachers considered traditional pedagogical methods of instruction to be technology integrated into the classroom merely because they used a technology program or application. In Grades K-5, teachers at the study site consistently used similar traditional instructional methodologies with vertical alignment. The findings indicate that teachers in Grades K-5 devote a greater portion of their time to more conventional teaching strategies than they do using collaborative instructional strategies through the use of technology. According to the findings of the interviews, each participant brought up the strategy of using partner activities, such as think-pair-share and table partners. When discussing the implementation of these tactics, teachers also brought up the usage of whiteboard routines, gallery walks, and jigsaw routines, all of which are carried out in the classroom in a conventional manner and do not involve the application of any technology. All of the teaching strategies shared by participants are useful within the context of instruction and are required in order to promote engagement; nevertheless, they do not have a technology component. Only a few of the educators interviewed acknowledged leveraging collaborative pedagogical approaches by applying technology such as holding a discussion on a Padlet wall or using a Jamboard to create a

digital gallery walk in a group setting. As described by the literature in Section 2 Andersson et al. (2016) discovered that technology requires teachers to facilitate collaborative learning through innovative ways and that 1:1 technology promotes cooperative group work over cooperative collaboration. When students worked in groups, they typically constructively divided the work and only communicated face-to-face over their computer lids. The usage of technology aims to provide students and teachers with a genuine learning experience while also opening creative and collaborative opportunities (Kuehl, 2018).

The participants in this study reported that they believed that students need technology skills to be successful in the 21st-century. Researchers Parrish and Sadera (2020) reported that students' learning of 21st-century skills through 1:1 technology integration had a favorable impact on the development of students' subject-specific skill sets. Learners in today's technology-driven economy require 21st-century skills and information to be competitive. For students to evolve into productive members of society, it was critical that their academic experience include 21st-century abilities (Nelson et al., 2019).

Industrial-era classrooms have begun to be modernized to meet the needs of a community of learners living in the 21st-century. To achieve this change, teachers' education and expertise must also progress (Hall et al., 2019). Overall, based on the responses of participants a new theme developed supporting RQ1, showing that participants thought students needed to be able to use technology to achieve their future efforts in the 21st-century. Participants believed that technology knowledge started in the

classroom and that technological ability must be built from the ground up, with difficulty increasing as students progressed through the grades. Participants also agreed that technology should be taught in the classroom and used on a regular basis and that teachers needed technological pedagogical skills to educate students on how to use technology by incorporating technology into their daily classroom instruction. In order for teachers to engage in technical pedagogy, it is expected of them that they will use a variety of technologies and technological instruments. Digital curriculum, computer-mediated communication, or collaborative learning digital platforms like Schoology or programs like Padlet or Jamboard are just a few examples of the kinds of technology and tools that fall under this category. In the modern world, it is expected of teachers that they have a high degree of expertise when it comes to using technology in the classroom. The term "pedagogy" refers to a collection of varied practices, forms, processes, and procedures that are employed in the process of teaching and learning. These practices, forms, processes, and methods are referred to together as pedagogical modalities. The ability of teachers to effectively incorporate the use of technology into instruction is one definition of the competency known as "techno-pedagogical competency." Within the realm of techno-pedagogy, there are three distinct classifications of information that can be found. Content, pedagogy, and technology are the three categories that fall under this umbrella. The subject matter that is to be covered has to be instructed, which means that the topic itself has to be taught. The term "technology" can be used to refer to computers, the internet, and computer-generated videos, as well as more conventional technologies such as software applications and digital platforms (Asad et al., 2021).

Participants' responses, on the other hand, resulted in the establishment of another theme that indicated teachers' perceptions of when they needed to use technology in the classroom and how they thought they only needed to use it when requested by administration or for evaluation purposes. Nonetheless, the literature suggests that the use of technology in the classroom should be a regular expectation for today's teachers, as it is expected to improve students' academic outcomes. The assumption was made in such suggestions that if teachers are expected to incorporate technology into their classes, they will realize the benefit of the technology and incorporate it into their instruction. Technology in the 21st-century has advanced rapidly, and teachers can now teach outside of textbooks and engage students all over the world with on-demand materials thanks to technological advancements (Pierce, 2017). Students can use global information to augment their classroom study (Geer et al., 2017). Due to the increased accessibility of critical knowledge and technology, Kuehl (2018) advised teachers that to prepare students for a largely online world, they must stay current on technological breakthroughs. Schools must use one-on-one classrooms to prepare children for the 21st-century and they must promote PD to promote teaching and teacher training (Parrish & Sadera, 2020).

The state where the research site is located has increasingly instructed teachers to employ technology in their classroom practices, and an entire section within a teaching standard on the state teaching rubric was dedicated to grading teachers on both their own and their students' usage of technology within instruction. Participants said that technology was often integrated when being assessed by administration or when

mandated at the district or school level, despite knowing that students require constant use of technology in education to build 21st-century skills. None of the participants claimed to use technology in the classroom only to improve student achievement; rather, they claimed to use technology due to state, district, and school mandates.

Teachers must believe they are effective in their use of technology-related pedagogy to continuously integrate technology into instruction. Teachers require persistent and comprehensive learning experiences that support not only their ability to reconceptualize instruction using technology but also their self-efficacy in implementing such instruction in a meaningful way for students. According to the literature, for teachers to be successful, they must understand the practices that are required for them to be successful in properly integrating technology into classroom education on a consistent basis. This self-efficacy can be increased by actively modeling pedagogical practices with technology to show teachers how to use technology purposefully and meaningfully within instruction. The literature reviewed in Section 2 shows that teachers who are confident in their own abilities are more passionate about using technology in the classroom (Hur et al., 2016).

In today's educational system, the diverse age range of teachers results in classes with a wide range of technical skills. Because of this skill gap, the success of bringing technology into the classroom is dependent on how effective teachers believe they are. Teachers must consider how their usage of technology is regarded. They may believe that their use of technology is innovative, but students may not believe that using technology such as slides, or computer applications is innovative (Hoffman & Ramirez, 2018).

Although teachers value integrating technology into the classroom, it is still sporadic if not done on a regular basis, according to the report. There is, however, a disconnect between teachers' pedagogical attitudes on technology integration and their apparent self-efficacy to use technology in a pedagogical rather than task-oriented manner (Hall and Trespalacios, 2019). As noted in the Section 2 literature review, emerging research suggested that teachers routinely participated in informal learning activities that were not explicitly organized or sponsored by their schools or districts. Teachers' education was primarily informal, taking place outside of contractual hours before and after school, and on occasion during specified planning times (Jones & Dexter, 2018). The participants' responses in this study revealed that they perceived themselves to be successful when they saw technology integrated into classroom instruction from other teachers, but also when they saw themselves model classroom practices with their students. The interviews revealed that participants believe more assistance is required in both seeing and then implementing pedagogical strategies that incorporate technology into instruction.

The need for collaboration was a concern expressed by participants. Teachers who collaborate in learning communities are a valuable resource for both planning and execution. A theme emerged from the data connecting to RQ2 that revealed that participants in the study perceive that planning for technology occurs on an individual level, but not consistently as a team. When teachers work together, they may address one another's knowledge gaps in technology, pedagogy, and material, allowing them to create dynamic, technology-integrated curriculum (Shinas & Steckel, 2017). Participants in the study reported that they design lessons as grade-level teams with instructional goals in

mind and consistent incorporation of state standards. However, when asked how participants plan for technology integration as a team, the majority's response was that technology planning was an individual undertaking.

Teachers in the current educational system are required to integrate technological resources into their classes in such a way that students would make meaningful progress toward pedagogical goals (Guggemos & Seufert, 2021). Although participants at the study location recognized the necessity of incorporating technology into classroom instruction and believed they were confident in their capacity to plan, the consensus was that technology planning did not occur within PLCs as a school. As a result, participants and teachers at the study site had mixed emotions regarding the efficacy of incorporating technology into classroom instruction, and teachers were unsure of their capacity to plan for technology without the help of their grade-level team. Knowing how to use technology differed from knowing how to integrate technology into instruction. This was backed further by Mills et al. (2019) research, which sought to investigate the factors that influence pedagogical decision-making when teachers integrate technology into classroom teaching and learning. They found that educators must improve their awareness of learning opportunities to better integrate technology into their pedagogical practices as discussed in Section 2.

Teachers, who incorporate technology into daily teaching and learning, play a critical role in influencing how students interact with technology in the classroom. The study's findings suggested that PD should include opportunities for teachers to reflect on their own practice with technology integration and analyze external aspects that

contribute to pedagogical change. To effectively integrate technology into classroom teaching and learning, teachers' knowledge and beliefs must be developed to support the creation of inquiry-based experiences that complement those found in the digital sphere.

Participants in the study believed that their school district provided adequate PD on how to use digital platforms mandated by the school district, but they were concerned that the school district had not provided PD relevant to integrating technology or technological platforms into education. According to the conclusions of Guggemos and Seufert's (2020) research, a teacher who has a stronger knowledge of instructing using technology across several topic areas may also have a greater knowledge of teaching a specific subject. However, study participants stated that they are confused about how to include technological components in classroom instruction. Technology-integrated PD for teachers has traditionally been focused on a specific digital tool or platform rather than how to use the technology to achieve educational goals. These PDs did not address the challenges that teachers may have encountered while incorporating technology into their lesson preparations. There has been an upsurge in research on this problem as a result of teachers' lack of formalized PD in incorporating technology into the classroom. Section 2's literature found that, while technology was widely employed in classrooms today, there was a mismatch between teachers' active participation and school support (Jones & Dexter, 2018). The study concentrated on PD opportunities provided by districts or schools. Recent studies, however, have revealed that educators often engage in unofficial learning activities that are not formally organized or supported by their schools or districts. The majority of teachers' PD came via informal, self-directed interactions

with technology. The literature supported that it was challenging to encourage the use of technology in K–5 classrooms due to teachers' limited expertise and self-efficacy (Mouza et al., 2017).

Upon further analysis of the data, another theme connected to RQ2 emerged with participants citing a lack of time as the most significant barrier in their way when it came to integrating technology into classroom instruction. Although there are numerous barriers to integrating technology within instruction as discussed in Section 2 the overall sentiment based on the interviews conducted was that time was the biggest barrier in not only teaching with technology, but planning for instruction with technology, finding appropriate resources with technology, and learning how to use the technology with a high level of self-efficacy prior to integration within the classroom. This assertion was supported by the findings of a study discussed in Section 2 using a mixed methodology that was conducted by Hall et al. (2019). The researchers found that career learning that focused on increasing teachers' self-efficacy in technology integration had a strong positive relationship with technology integration. According to the findings of the research, teachers' perceptions of their own competency to apply technological tools and levels of self-efficacy regarding implementing technology in the classroom grew significantly after receiving training. Regardless of where they started in terms of teaching, academic, or technical self-efficacy, teachers were able to make progress toward their PD goals.

The participants in this study voiced concern that they believe they do not have the necessary skills and knowledge needed to appropriately integrate technology within

instruction, despite believing that technology is a necessity within classroom instruction due to the COVID-19 pandemic. Nevertheless, according to Hur et al. (2019) successful PD that was personalized to the specific requirements of individual teachers led to a rise in teachers' interest or self-efficacy in the use of technology in the classroom. Although there was no statistical correlation between the guidance provided by school leaders and an increase in the use of technology in the classroom, the guidance did have a direct effect on the teachers' observed self-efficacy. As a result, teachers developed increased confidence in their ability to assess students' technological skills and deliver instructional materials to students using technology in the classroom. Finally, an increasing concern noted among all study participants was that the COVID-19 pandemic had numerous repercussions for the school system over the last 3 years, which led to the development of a subtheme connected to RQ2 where participants believed there is a need for technology in classroom instruction as a result of the COVID-19 pandemic. Recent research discussed in Section 2 has exposed that teachers' previous perceptions of pedagogical practices necessary for technology integration within a classroom have been altered as a result of the COVID-19 pandemic and the sudden changes that have been required involving technology in day-to-day instruction, which has directly contributed to the knowledge required to answer the RQs. Teachers from kindergarten to fifth grade have exhibited resilience and adaptability in the face of abrupt changes that have challenged their preconceived conceptions of what a classroom should look like and how children should learn (Webb et al., 2021).

In summary, the themes that were generated to provide support for RQ1 and RQ2 helped in better comprehending the perceptions of teachers in connection to the obstacles that are involved with continuously incorporating technology into instruction. In addition to providing invaluable insights regarding PD opportunities and what areas of opportunity there are to build teacher capacity and stakeholder knowledge, the responses of the participants provided the information necessary to develop intentional PD at the study site. This allowed for an in-depth understanding of the challenges that the participants perceive. According to the findings, PD ought to include introductory, intermediate, and advanced levels of training, all of which should be completed through ongoing training that is embedded within the PLC structure. In addition, there should be a deliberate follow-up to assist in the integration of technology into the instructional process.

It is imperative that educators receive PD that is tailored to their unique sets of competencies. In order to differentiate between different levels of PD for teachers, the various abilities that teachers possess need to be broken down into three categories: basic, intermediate, and advanced. In both their personal and professional lives, teachers who have initial skillsets, use technology at a fundamental level. They may be limited to critical duties such as the usage of email, the processing of word documents, and modest application use when it is required. An intermediate user is someone who has the basic skillsets necessary to use technology such as email and word processing, uses technology hardware such as Smartboards and desktop or laptop computers both personally and professionally, and has the ability to learn to use new technology with less basic skillsets

needing to be reviewed. An advanced user is someone who is able to learn to use new technology with no basic skillsets needing to be reviewed. An advanced user of technology, on the other hand, integrates their use of technology into both their personal and professional lives as an integral part of both. The advanced user is often one of the first people to use newly developed technologies and is not afraid to experiment with different kinds of technology.

Limitations of the Study

When I was conducting the analysis of the data of this qualitative research study, I took into consideration three limitations. The sample size, the self-selection of participants, and my bias were all factors that were taken into consideration as limitations for this study. I employed a modest sample size, which consisted of 11 general education teachers who taught classes ranging from kindergarten to fifth grade. The size of the sample could prevent the findings from being generalized. All the individuals were willing participants who had chosen to take part in the study on their own. The administration of the study during the COVID-19 pandemic was an additional limitation of this study due to the restrictions and the social distancing that were involved. The last limitation of this study was the possibility of my biases. My professional and individual experiences with the integration of technology into classroom learning were considered when conducting the interviews. I was able to minimize any negative effects of researcher bias by using reflective journaling to separate my thoughts and impressions from how I interpreted the participants' responses.

Recommendations

Access to PD opportunities of a high quality is essential for the on-going growth and development of teachers at the study site in Grades K-5. The integration of educational technology into classrooms enables both students and instructors to gain access to a variety of learning tools that help students get ready for the 21st-century. It is important for educators to be active members of professional communities that encourage the growth of leadership skills and give them the ability to affect change using 1:1 technology. One-to-one educators needed to practice and improve their technical skills to engage in discussions about 1:1 technology in their schools, according to Parrish and Sadera (2020). Teachers' PD should include opportunities for them to focus on their pedagogical practices when integrating technology.

The results of this study indicated that the study site occasionally offers technology-based PD opportunities. Despite this, there was a gap in the present PD programs, and there are chances to fulfill the learning needs of teachers regarding instructional technologies and ongoing job-integrated assistance. The findings of this study also underlined the necessity to implement differentiated learning in PD offered to teachers in accordance with the specific needs and level of technology understanding of teachers. The findings made it evident that future research should concentrate on instructional technology and the essential PD preparations for trainings to enhance teacher capacity, as well as the differentiation of PD for the various learning levels of K–5 teachers at the study site.

Section 3: The Project

The goal of this basic qualitative research was to examine teachers' perceptions of integrating technology consistently within classroom instruction in Grades K-5 at the elementary school under study. The study's findings indicated that teachers required additional PD and assistance in recognizing and implementing technology-based instructional practices. Furthermore, the data revealed a need for collaboration, planning, and support time.

I created the project in response to the findings identified in Section 2 and as a solution to the research problem. The project addresses both the pedagogical skills that teachers require for integrating technology into instruction and the planning and collaboration structures that they need to effectively plan for integrating technology into the instruction. Learning would be differentiated based on teachers' self-identified self-efficacy and current TPACK. The intended PD's goal is to provide comprehensive training that includes pedagogical practices that facilitate consistent technology integration in K-5 classrooms. Teachers can engage in learning activities throughout the training, and the training includes the provision of a support framework that continues even after the PD sessions are concluded in order to promote additional assistance and learning for teachers at the study site.

I discuss the project, which can be found in Appendix A, in this section. This section includes a description, objectives, and rationale for the project. A literature review that incorporates the conceptual framework and supporting research for the project deliverable is also provided. The PD execution is detailed, including the tools and

supports, potential obstacles, suggested timeline, and instructional leaders' responsibilities. Section 3 also includes a project evaluation and a discussion of the implications of social change at the study site.

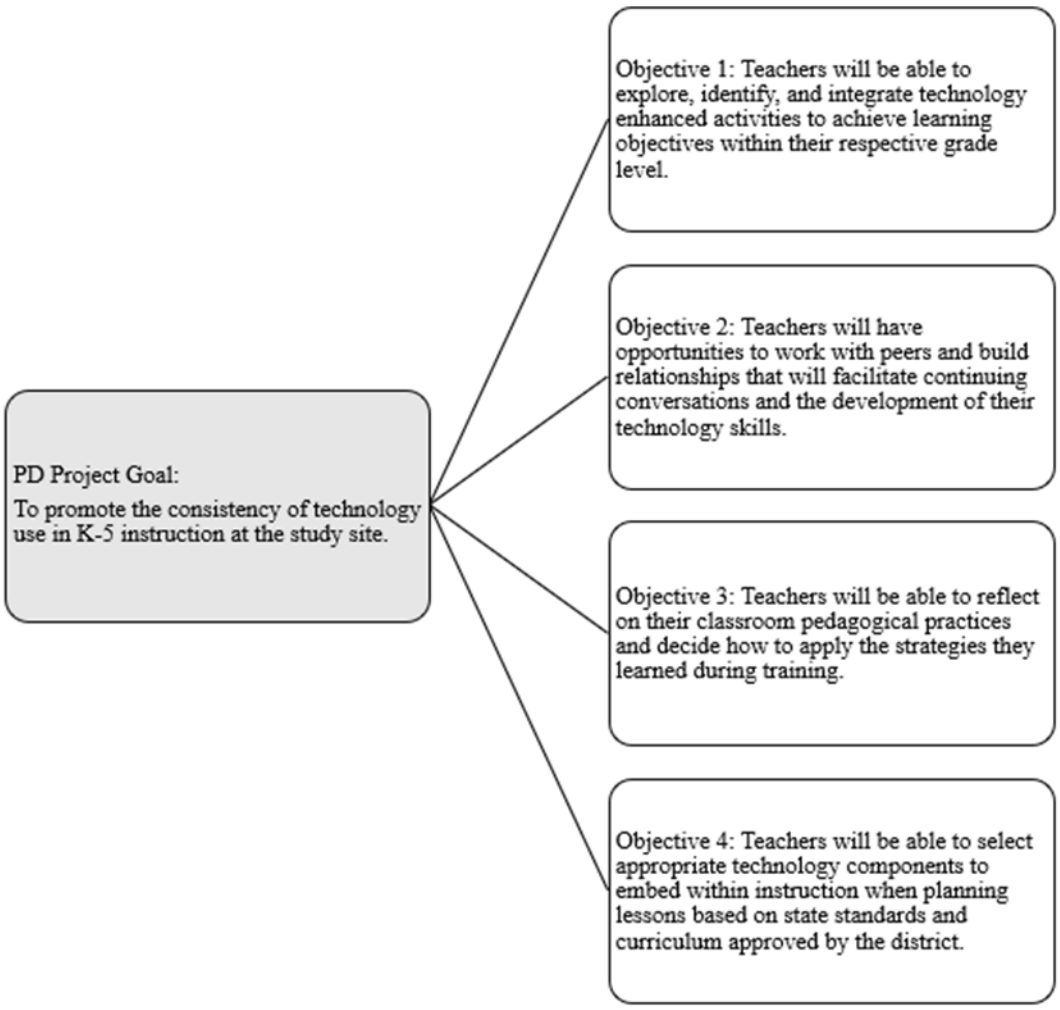
Description and Goals

I designed this PD, titled *Implementing Technology into Instruction in Grades K-5*, to provide teachers at the study site with strategies and techniques to help them develop their self-efficacy in integrating technology into their pedagogical practices. In designing the project, I also wanted to allow time for peer collaboration and an opportunity for educators to share their specific expertise in technological areas with the entire group. The goal of this basic qualitative study was to investigate teachers' perceptions of integrating technology consistently within classroom instruction in Grades K-5 at the elementary school under study. Findings indicated that participants were unsure how to integrate technological components into classroom instruction, citing a lack of time to collaborate and plan successful integration of technology within instruction. Participants also expressed the belief that they could increase their own self-efficacy or ability to include technology if they could see technology being used in a peer's classroom or had time to practice technology prior to teaching. The PDPD will be conducted in-person over the course of 3 days at the location of the study. To ensure consistent, continuous PD that integrates collaborative structures from a spectrum of new to experienced general education teachers in Grades K-5, the target audience will consist of all K-5 teachers; instructional support staff, including instructional coaches; and

administrators at the study site. The intended goal of the PD project and objectives are presented in Figure 4:

Figure 4

Goals and Objectives of the PD Project



Rationale

I presented the study's findings in Section 2. The findings show that teachers at the study location need both initial training and continuous supports to successfully integrate technology into their lessons. The key themes and subthemes that emerged from interviews with 11 elementary school teachers at the study site led me to propose a 3-day PD program for teachers as a practical means of addressing the challenges involved with integrating technology into K-5 classrooms on a consistent basis.

The analysis supported that the effective use of technology in instruction is dependent on efficiently modifying pedagogical practices and overcoming barriers to integrating technology into existing pedagogical beliefs and practices. Every participant discussed the challenges they encountered while attempting to integrate technology into their instruction. Despite the difficulties, most participants stated that they were willing to keep an open mind and were interested in learning how to integrate technology appropriately and successfully into their day-to-day instruction. Every participant expressed a desire to receive additional training to improve their ability to integrate technology into their lessons. Participation in a thorough PD program may provide the opportunity for teachers to develop the self-efficacy and skills required to consistently integrate technology into instruction.

I concluded that PD was the best choice to address the problem of technology not being consistently used within instruction in Grades K-5 at the study site. This was determined because PD matched the needs of the teachers in relation to the RQs. I designed the PD in response to the findings pertaining to the assorted reasons why

teachers do not routinely use technology within their instruction. The PD activities that teachers, school instructional leaders, and/or school administrators participate in might improve the individual practice of each participant as well as the collective performance of the school. This, in turn, may result in increased student learning as well as increased teacher engagement in planning and collaboration amongst peers regarding technology use within instruction (see Harper-Hill et al., 2020).

Review of the Literature

The literature review in Section 1 contributed to the formulation of the problem about the difficulties of integrating technology into K-5 instruction. In this literature review, I provide examples of effective approaches for incorporating technology into K-5 classroom learning. In addition, I discuss studies that support the effective practices and techniques for incorporating technology into instruction in Grades K-5.

Literature covered in this section supports the need for effective PD. A PD project was suitable for addressing the problem in this study since it could contribute to advancements in K–5 technology integration. The framework that supported this PD project was the TPACK-Based Approach to Teacher PD. The TPACK model proposes that for content to be taught effectively with technology, teachers need to have knowledge of the complex interactions that exist between content, pedagogy, and technology. This knowledge was initially referred to as TPACK. Because of this paradigm, both educators of technology and academics in the field of technology-enhanced education have rethought the process of how one acquires knowledge in this area (Guggemos & Seufert, 2021). SAGE Publications, EBSCO, and ERIC are just a few

of the education databases that are available to users of the Walden University Library. Those databases are where I found most of the sources that are mentioned in this literature review. PD, professional development, TPACK, technology integration, PD for technology integration, and the TPACK model for PD were some of the search phrases that were utilized. After utilizing these criteria to locate publications, I next restricted the scope of my search to only include those that had been published during the previous 5 years. To exhaust the available research and get access to more studies that support the combination of PD and technology, a total of 25 papers were analyzed in this review.

PD

Approaches to teacher education and professional experience have developed to meet the problems of the 21st-century, alongside the evolution of learning and teaching to meet those issues (Curtis et al., 2019). This segment discusses PD within the elementary school setting, including effective PD, technology and PD, professional communities of learning, and the effects of peer-coaching and instructional coaching as PD. As the findings that were presented in Section 2 indicate, there was a need for formal training along with ongoing support and collaboration in order to ensure consistent integration of technology within Grades K-5. Participating teachers expressed that if they received additional training on the integration of technology into instruction, it would improve their ability to incorporate technology into their lessons. They also believed that training would give them the opportunity to develop the self-efficacy and skills necessary to consistently integrate technology into instruction. Webb et al. (2021) used a non-experimental design approach to compare and assess data from an anonymous Likert

Scale survey given to seven large school districts to ascertain the significance of self-efficacy in teachers' CK and skills as well as the crucial role self-efficacy plays in a teacher. They also looked at whether PD in technology would prepare teachers in grades K–12 to instruct their students using technology. The information showed that to support effective teaching, PD must be continuous and ongoing.

Effective PD

Individuals' perceptions of their skills have a significant impact on their abilities. Performance varies greatly; ability is not a fixed characteristic. Individuals with a keen sense of self-efficacy recover quickly from failure; they approach situations with an emphasis on how to control them rather than worrying about what might go wrong. While attitudes and preparation are regularly discussed as factors influencing teacher technology acceptance and integration, self-efficacy has been specifically linked to the highly contextualized nature of implementation. According to Section 2, most study participants were not comfortable using technology and did not believe they could successfully incorporate technology into instruction with the skills they already possessed.

PD targeted at strengthening teacher self-efficacy knowledge, according to Barton and Dexter (2019), can have a positive impact on teacher attitudes and actions, acting as a counterbalance when innovation threatens teacher self-efficacy. Teachers have better access to information about self-efficacy when they participate in formal, informal, and autonomous PD, and reflection is required for that knowledge to have an impact on teacher self-efficacy. Indeed, increased teacher self-efficacy may assist teachers in

overcoming external integration issues such as a lack of resources or leadership support. Addressing sources of teacher self-efficacy is critical for PD. Mishra et al. (2019) investigated how teachers might be informed about current trends in modern research and technology, as well as instructed to use similar techniques in their classrooms. The researchers performed five independent focus group interviews with participants over a 5-year period. Using design research concepts, the PD model was created and iterated upon. According to the study, teachers' lack of knowledge regarding efficient technology use may result in misconceptions and errors when incorporating technology into their curriculum. In this sense, PD programs that focus on training teachers on how to use accessible technology in a certain curriculum area are deemed vital. These PDs also give teachers resources to assist them in implementing technology in the classroom.

Teachers lack knowledge and confidence in adopting recent research that incorporates technology into their lessons, in addition to a lack of technological understanding. It has been noticed that educating teachers on the use of modern software and research tools relevant to their content area can help them introduce research into their classroom, inform students about current research advancements, and provide them with an authentic learning experience. Furthermore, teachers must be comfortable selecting or aiding students in the selection of appropriate technical instruments for data collection, analysis, and interpretation. Effective teachers, according to Dennis and Hemmings (2019), must understand both the subject they teach and the pedagogy that best supports children's learning in that subject. This entails giving teachers opportunities to participate in PD activities that are relevant to their interests and expressed

requirements. According to Harper-Hill et al. (2020), teachers who have a keen sense of agency are more willing to enhance their own lives and environments. Teachers with a higher sense of self-efficacy are more likely to experiment with novel teaching strategies, which may lead to the successful incorporation of new information into classroom practice, including the use of technology.

Effective PD offers classroom teachers with targeted learning, allowing them to filter out distractions and strengthen their practice. Dennis and Hemmings (2019) studied how job-embedded PD assisted a Year 1 teacher in gaining expertise with guided reading instruction. Over a 7-month period, the researchers examined the teacher's teaching progress by evaluating coaching dialogues centered on the teacher's guided reading practices. According to the findings, the teacher gained more expertise, allowing him to be more attentive to the students during instruction. It was also established that PD provided by professionals with experience collaborating with schools, who are familiar with the challenges teachers face, and who build programs on their own knowledge and training are more effective than programs that do not take these elements into account.

Furthermore, PD that is interwoven into teachers' daily lives and provides opportunities for practice, debate, and feedback is more likely to result in transformed teaching methods. Desimone and Pak (2017) published a paper in response to policy initiatives encouraging the use of evidence-based teaching approaches. The research employed cross-sectional studies, longitudinal studies, and literature reviews of experimental and quasi-experimental investigations. This study adds to the discussion by noting that there is considerable evidence from their research that for PD to be effective

in improving teacher practice and student learning, at least five characteristics must be present: Content-focused activities are those that concentrate on subject matter content and how students learn that content. Active learning: opportunities for teachers to observe, receive feedback, evaluate student work, or make presentations rather than passively listening to lectures. Coherence: content, goals, and activities that are compatible with the school, curriculum and goals, teacher knowledge and beliefs, student needs, and school, district, and state reforms and policies. Sustained duration: PD activities that last the entire school year. Collective participation: PD sessions are attended by groups of teachers from the same grade, subject, or school to form a PLC.

However, Chaipidech et al. (2021) indicate in a study based on andragogy theory and the TPACK framework that for PD to be effective, it must address the principles and techniques of adult learning and teacher training, and the focus must shift to a rigorous process of capacity development for adults, so that the approach to managing their educational needs is viewed differently than that of children. The practice of supporting adults in learning is referred to as andragogy, whereas the approach employed by teachers to instruct students is referred to as pedagogy. Andragogy includes learning as a product, natural growth, and self-involvement, student-centered and learner-evaluation, and a method for achieving topic mastery. This overlaps with the use of practice and modeling the transfer of theory into practice for teachers, as well as using teachers' existing experience. Hands-on learning is emphasized in this method, and the learner determines needs, goals, assistive resources, and strategies before evaluating learning outcomes. Peer groups can help with the process. A peer group is an important motivation for self-

directed learning, and shared professional experiences assist learners in evaluating their learning outcomes and reviewing their needs. A PLC fosters collaboration among peers, teachers, mentors, and supervisors. Relationships are formed by PLCs and the PLC structure allows learners to build trust, collaborate, and provide a supportive learning environment (Anderson & Boutelier, 2021). A pre-post intervention design method was employed in the study and reported on an ongoing longitudinal assessment of the impact of a teacher PD program on 153 in-service teachers. TPACK was employed in the study to assess participants' cognitive outcomes regarding how to teach topics using digital technology. According to research on teacher PD, the process is most effective when it is active, aligned with intrinsic motivation, focused on individual performance, and reflected on actual progress.

When PD is combined with vital aspects such as topic standards, curriculum, and daily courses, it is more likely to be well-implemented. Rather than leaving it up to the teacher to embrace current ideas and approaches, such alignment gives explicit recommendations. PD congruence with the curriculum utilized by teachers, as well as the standards and content taught by instructors, has been linked to the effectiveness of various PD projects. PD is more likely to be effective when it is clearly integrated into teachers' regular teaching methods. A lack of curricular coherence and pace, on the other hand, has been identified as a primary reason for the failure of PD programs (Desimone & Pak, 2017).

A study was conducted on the establishment of competency-based PD. Elliot (2017) examined how educational institutions could improve PD by including it into

traditional academic programs. The research advocated for a novel application of the TPACK framework, which is a model of the knowledge required for effective teaching. Learning activities might be formal or informal, structured, or unstructured, individual or group, and formal or informal, according to the study. Weinhandl and Lavieza (2018), on the other hand, suggest that teacher trainers take in mind that participating teachers are employed and may have family commitments and leisure needs while organizing and conducting PD sessions. Teachers may get overburdened if the necessity for didactic and technological PD is now extended to include regulatory developments. This potential overstrain may have an adverse effect on teachers, instructional coaches, and professional growth. Dennis and Hemmings (2019) argue for opportunities for teachers to participate in PD activities that are relevant to their interests and expressed needs to avoid this potential hindrance to effective PD.

Teachers must engage in learning activities that are authentic, active, and collaborative. Active learning opportunities for teachers improve the effectiveness of PD. In contrast to passive learning, which is typically characterized by listening to a lecture, active learning can take several forms, including observing expert teachers or being observed, followed by interactive feedback and discussion; reviewing student work in the topic areas being covered; and leading discussions (Desimone & Pak, 2017). George and Sanders (2017) directed a quantitative study that used 33 teacher-designed technology-based tasks from eight subject areas. Explanations were captured during interviews with teachers or from field notes taken during observations, and the 33 tasks were plotted using two intersecting continua, represented by solid lines, to gauge the benefit. The

study discovered that needs-based PD is more likely to succeed, especially if teachers identify needs themselves, and that good PD programs include opportunities for feedback. Keeping with the theme of effective PD, Desimone and Pak (2017) suggested that PD is more effective when teachers have more opportunity to practice what they have learned and receive feedback on it. This feedback is most helpful when it is explicit and draws on data sources. Adult learners get invested in learning when they understand why they are learning and actively direct the challenges they are attempting to solve. Their schooling is informed by prior knowledge and experience, and they seek influence over their tasks. To put it another way, they want to be acknowledged as capable adults with something to offer (Hanewicz et al., 2017).

Even though studies have proven that employing technology in the classroom can improve students' academic performance, there are still obstacles that impede teachers from implementing digital technology into their lessons. Personal views are impacted, but so are the contexts in which people find themselves socially and culturally, as well as the educational practices that children are exposed to (Durff & Carter, 2019). To get through this obstacle, Elliot (2017) suggests modeling and connecting PD programs with pedagogy to achieve the goal of practicing what and how instructors teach. This will allow teachers to get better at their jobs. Increasing teachers' knowledge and application of their skills is the primary objective of practice-based PD techniques. Teachers are provided with "professional learning assignments" when they participate in practice-based PD. The assignments are designed to address specific challenges that teachers have in the classroom. A practice-based approach allows educators to enhance students'

capabilities by bridging the gap between theory and application. As they put their newly acquired skills to use in the classroom, teachers also receive feedback on their performance (Hirsch et al., 2019). However, Chaipidech et al. (2021) emphasize that to prevent a failure in school improvement, teachers should be active participants in PD rather than passive receivers of new information.

Teacher collaboration in PD creates a constructive learning environment. Interactive forums assist teachers to build a shared vision, expectations, commitment, student learning accountability, and trust (Desimone & Pak, 2017). It is vital to develop a PD strategy that results in improvement in teaching practice and understanding, as well as improved student engagement. Teachers require extensive learning experiences that improve not only their ability to rethink teaching with the help of technology, but also their self-efficacy in providing instruction (Barton & Dexter, 2019). Krauskopf et al. (2018) claim that to self-regulate one's learning, it is necessary to become self-aware of one's prior knowledge as well as the task at hand and the context of its performance. Self-assessment tools frequently measure self-efficacy, which has the potential to be a reliable indicator of teachers' use of technology. Additionally, self-assessment tools are widely used in studies on technological acceptance (Guggemos & Seufert, 2021). To modify teachers' practices, Harper-Hill et al. (2020) found that participation in formal and informal learning events is both necessary and effective. To change their practices, teachers interact with new professional knowledge in a gradual, active, and dynamic process known as teacher professional learning. If PD is to be successful, teachers must be placed in a position to better comprehend and integrate new methods into their

teaching repertoire to improve student results (Webb et al., 2021). Teachers must enter the experience with an open mind, a want to learn, a willingness to be observed, and a drive to enhance their own teaching if they want effective PD to take place (Ralston et al., 2019). Teachers can advance in their careers by taking advantage of development opportunities, which help them step beyond of their comfort zones. However, Desimone and Pak (2017) found that impacts are unlikely to occur until teachers attend a specific number of PD hours or sessions.

Researchers have discovered features that lead to effective PD throughout the last decade. Simply practicing or teaching material knowledge, for example, is insufficient: teachers must also acquire relevant pedagogies to enhance student learning. For effective PD to occur, frequent and appropriate PD opportunities must be available. Motto (2021) understands that offering targeted PD is difficult due to teachers' varying degrees of knowledge and the need for diverse practice skills through collaboration. Furthermore, incorporating pedagogical subject learning while also incorporating appropriate technology integration to improve education may be problematic. Despite the challenges, effective teacher PD is feasible. It should be noted that effective PD is rigorous, ongoing, and practice-based, and Pearce et al. (2017) suggest that school-based assistance is critical for improving teacher practice. Active collaboration and hands-on activities are crucial in increasing teachers' TPACK, and school-based coaching, such as subject specialists or coaches, have been utilized to support teachers in building CK and pedagogical approaches within the context of their own classroom (Njiku et al., 2021).

Technology and PD

The National Technology Plan for the United States also proposes incorporating technology into the educational system to improve student learning. Teachers may assist students in learning and influence their futures by incorporating technology into their classrooms. As a result, teachers must have a good understanding of technology and how to implement it. Mishra et al. (2019) contends that, while modern teacher education students are often referred to be digital natives and are aware of technology, they are frequently inadequate at implementing technology into their curriculum. Furthermore, while some veteran teachers are already using technology, it is used for simple tasks such as internet browsing and word processing. It was discovered in Section 2 that participants in this study used comparable technologies. Participants acknowledged using technology; however, they were using technology applications or software rather than incorporating technology into their pedagogical practices.

In a study analyzing teacher concerns about technology-based learning and instruction, Espinoza and Neal (2018) developed TPACK-ConK, a new model based on TPACK that adds an additional layer of information, context knowledge, to satisfy teachers' particular PD needs. According to the findings, educators frequently struggle to integrate technology into their teaching practices, and there is a lack of deeper-level learning and transformation that occurs when technology is strategically integrated from a pedagogical standpoint, even though digital technologies have the potential to promote deep learning when used purposefully and appropriately. According to Motto (2021), the TPACK framework fosters a balance of technology, pedagogy, and subject knowledge.

This balance was crucial for effective education, and each area had a unique role that complemented the roles of the other areas. Through proper use of the TPACK model, educators have the potential to improve lesson delivery and accelerate the learning of their students. In addition to this, according to Elliot (2017), at its core, TPACK is a teacher knowledge framework that directed professional growth. The knowledge areas technical (T), pedagogical (P), and content (C), as well as the overlap between them (PCK, TPK, TCK, and TPACK), built a relational map of which knowledge, skills, and capabilities are necessary for teachers. Research on how to create PD programs for teachers was the impetus for the development of the TPACK framework.

The use of digital devices and connectivity to the internet is becoming increasingly widespread in academic settings. However, teachers do not provide their students with the opportunity to make meaningful use of technology in their educational experiences. Instead, teachers are turning to technology as a tool for enhancing the effectiveness of teacher-centered instruction. This occurs at the expense of an education that is more progressive and focused on the student. It is not always the case that teachers make the most of the educational opportunities presented by technology in the classroom. Because a teacher's sense of self-efficacy has a positive correlation with the quality of technology integration, raising teachers' senses of self-efficacy could help encourage better integration (Barton & Dexter, 2019). On the other hand, George and Sanders (2017) believe that the value of technology in education is not just determined by whether teachers have access to it, but by how teachers use it. Students need access to technology that can assist them in comprehending the material and developing higher-order cognitive

skills. Initiatives to integrate technology into educational settings have gained momentum in recent years because of developments in information and communication technologies, with the goal of radically improving educational practices and student outcomes. This involves making teaching more efficient and effective, but it has also been found that whether teachers are required to use technology in the classroom is a critical factor in determining how effectively they implement educational technology. In addition, Njiku et al. (2021) state that developing teachers' competencies in technology integration has been a recent focus of teacher PD, and that PD should be authentic and should optimize the use of peer teams to support each other in real school contexts. In addition, one of the recent focuses of teacher PD has been on the development of teachers' technology integration competencies. Furthermore, developing teachers' competencies in technology integration has recently been one of the areas of attention in teacher PD. The ability of teachers to foster learning with technology has been the focus of a great deal of PD for teachers; however, as is the case with all aspects of teacher knowledge, continuing PD assists teachers in keeping their knowledge and skills current as well as acquiring new information and abilities to meet the demands of modern education. Even while access to technology has risen, simply accessing, and using technology is not enough to produce effective technology integration in educational settings. The development of technology is characterized by rapid growth and changes, which presents difficulties for educators who are tasked with keeping up with such rapid developments.

Motto (2021) observed six instructors who participated in instructional coaching cycles to improve their TPACK in the classroom. A Likert scale survey was used in this

quantitative study, and a paired sample t-test was used to compare pre- and post-survey assessments. The study's findings indicated that teachers have various requirements for incorporating and integrating technical, pedagogical, and topic knowledge into their classroom. To develop strong TPACK, teachers must also demonstrate an understanding of how technology may be used to make learning accessible to all students (Shinas & Steckel, 2017).

A teacher's perception of their abilities or self-efficacy has been explicitly linked to the highly contextualized nature of implementation and is a component of the conceptual framework of this study. Not only do teachers' self-efficacy levels vary, but their efficacy also varies depending on the technology in question (Barton & Dexter, 2019). Furthermore, the TPACK model, the fundamental conceptual framework in this study, argues that the most effective learning environments are those that permit students and teachers to investigate technologies in relation to the subject matter in authentic situations. Intelligent technological pedagogical applications necessitate the production of a complex contextual form of knowledge, which is the consequence of a dynamic interplay between content, pedagogy, and technology. In every class they teach, educators with this degree of experience manage the unique spaces created by pedagogy, topic, and technology (Espinoza & Neal, 2018). According to George and Sanders (2017), TPACK is the transactional and dynamic interplay of content, pedagogy, and technology. For the development of context-specific procedures and representations, it is essential to comprehend the mutually reinforcing relationships between all three components. To produce technology-based assignments that are acceptable, teachers

must have skills beyond TPACK. Teachers must justify their pedagogical decisions and behaviors using their knowledge base.

To build effective PD models that can help teachers integrate technology into their own classrooms, we must first understand how teachers think about technology in connection to actual practice. PCK refers to a teacher's understanding of instructional processes as well as topic knowledge. The level and quality of PCK provided by a teacher can influence what and how their students learn (Mishra et al., 2019). However, while appropriate technology can enhance students' experiences and help them learn more about their subject matter, Motto (2021) warns that teacher limits may exist, thereby affecting lesson delivery. Furthermore, curricular considerations may limit the types of technology available. To go beyond simply using technology to augment instruction, teachers must understand how the technology chosen can alter the learning task. TPK encourages teachers to think beyond the technology's initial design and adapt it to increase student learning. Using TPACK for PD requires only a shift of context. A single teacher is not the same as a PD program. While the TPACK model focuses on teachers, the framework may be adapted to any PD program. Chaipidech et al. (2021) investigated andragogy theory and the TPACK framework. The study used a pre-post intervention design method to investigate the influence of a teacher PD program on 153 in-service teachers over an extended period of time. In the study, TPACK was used to measure participants' cognitive outcomes regarding how to teach topics using digital technology. The researchers discovered that educating teachers how to properly use technology is a complex process that necessitates the use of numerous forms of teaching

expertise. Personalized learning systems that consider individual characteristics and adapt unique learning paths and experiences to current events and learning demands are critical for effective teacher PD. Overall, this andragogical intervention program of TPACK was largely successful in increasing the technological integration comprehension of digital technologies in teachers' instruction.

To effectively teach with technology, establishing TPACK in teachers entails comprehending both what one already knows and what one needs to know. Teachers need to grasp a wide range of subjects, as well as reflect on their expertise to grow professionally. TPACK is a professional knowledge structure, consequently, neither the PD path to TPACK is fully developed nor is it entirely centered on activities like "training." Instead, it is the outcome of a complex interaction between training and teaching experience, necessitating support for guided self-reflection for teachers' self-regulated growth (Krauskopf et al., 2018). According to Guggemos and Seufert (2021), teachers' competence and cooperation are required for professional advancement in the context of digital transformation. This demonstrates the need of effective learning experiences for teachers in order to improve their ability to reconceptualize instruction with technology and their self-efficacy in carrying out such instruction. However, scalability and sustainability concerns hinder PD initiatives that meet high-quality design criteria. Infrastructure, such as device availability, leadership, such as encouraging specific pedagogical strategies, cognitive characteristics, such as technical ability, and affective attributes, such as technology beliefs, all have an impact on teachers' technology integration at the teacher and school levels (Barton & Dexter, 2019). On the other hand, it

may be argued that the lack of instruction on how to use technology creates a pedagogical barrier for both newly hired teachers and veteran teachers whom themselves have limited experience with technology (Durff & Carter, 2019). It is crucial to familiarize teachers with current technology and keep them informed about technological improvements as a result. Teachers are able to learn about the various ways in which technology can be integrated into their respective subject areas thanks to PD, which also equips teachers with the knowledge, abilities, and resources they need to feel comfortable integrating technology into their classrooms (Mishra et al., 2019). Asad et al. (2021) asserts that teachers in the classroom who have technical teaching abilities, also known as techno-pedagogy, are able to teach subjects more successfully by focusing on the requirements of individual students. Because of this, the learner is better able to retain the information that they have been taught because they are able to fully comprehend the concepts. because it eases the burden on the teachers and gives the students the opportunity to recollect more information.

Professional Communities of Learning

PLCs, or professional learning communities, are groups of educators that usually work in grade-level teams and collaborate to develop curriculum, evaluate data, and advance their professional knowledge. Weinhall and Lavieza (2018) used semi-structured expert interviews to gather their data, and they created an interview guide that concentrated on the needs and preferences of teachers for in-service PD, as well as its methods, structure, and unique features when contemporary technologies are at the forefront. According to the study, teachers who take part in PD also desire to belong to a

community of experts or learners. In addition to exchanging knowledge, it may be beneficial for the participating teachers to exchange experiences in these groups to better their abilities and knowledge. However, it should be noted that additional team-building exercises are required so that teachers can create groups of learners prior to the start of the course. Both team-building exercises and rigorous tasks could be used for this goal, it was concluded from the interview data acquired for the study.

Teachers should work together to address these tasks or challenges since they are unable to do so alone. In addition, social factors affect PD. Students may be able to learn more quickly if better teachers are integrated into a community of learners. This is true of education gained from PD courses. Group-building exercises should be conducted for these communities to develop. Additionally, it was emphasized how crucial it is for groups to form throughout training so that teachers can continue to share ideas with other participants following PD. The PD that teachers have received will not be applied sustainably in their teaching if such communities of learners are not developed.

Professional learning groups are crucial to teachers' PD, according to Guggemos and Seufert (2021). The researchers used structural equation modeling, mediation and multigroup analyses, a finite-mixture segmentation, comparisons of competing models, and factor score regression in their quantitative study, which included 212 in-service teachers as a sample, to demonstrate that the activities of teacher communities may include the creation of school curricula or knowledge exchange that gathers such activities as teacher collaboration, integration, and communication. The study discovered

that PLCs were beneficial to the collaboration in the creation of TPACK framework components.

Participants in this study expressed a desire for time to interact and prepare with peers in Section 2. They also discussed the necessity for time to practice different technologies and the desire to observe other peers teaching with technology to learn how to integrate it into their own classes. In a study conducted by Ralston et al. (2019), team cohesiveness appeared to be a crucial factor affecting the improvements gained by participants. The researchers studied the effects of introducing a new model of supplemental PD for teachers. This was a two-part qualitative research project that included observations and interviews. In this study, however, some individuals were paired with teachers with whom they had no prior relationship. This unfamiliarity aided and hindered trust, causing people to report feeling uneasy when being monitored or evaluated.

However, various criteria, according to Weinhall and Lavieza (2018), should be investigated to increase the possibility that PD will have an influence on a group. Participants in PD in schools are typically a varied group. Teachers' knowledge, skills, and attitudes regarding the subject, technologies, or the learning process may vary. In a perfect environment, this diversity could be used to benefit PD. This implies you would be learning not only from the instructor but also from a coworker. Another advantage of diversity is that it provides different viewpoints on the same subject, extending the horizons of the participants. Njiku et al. (2021) stress the necessity of working in groups as peers and recommend that technology integration be approached contextually. They

conducted a study in which they used a quasi-experiment with three groups and a pre and post-test for groups that were not equal. The study was comprised of teachers who completed a TPACK questionnaire before and after the intervention. According to the findings of this quantitative study that used a paired sample t-test, working in groups as peers to construct classes may complement each other's strengths and aid in overcoming issues inherent in teachers' own professional abilities.

Teachers are expected to use technology in their instruction in a way that promotes the achievement of relevant pedagogical goals; on the other hand, teachers may be expected to integrate new content into their instruction or change instructional variables because of digital transformation. Literacy in information and communication technologies, for example, may become increasingly vital for societal participation and workplace success (Guggemos & Seufert, 2021). Participants in Section 2 expressed concern that students in their classrooms must be prepared to live and work in the 21st-century, and they believe that begins with preparing them in the classroom with the technological skills needed to succeed. However, they were unsure of how to plan and embed technology within their content areas and found some content areas easier to embed technology in than others.

Shinas and Steckel (2017) established a framework of thoughts and questions to help teachers plan for technology-integrated instruction in a study framed by the conceptual model TPACK and a case study of a classroom instructor. They discovered that while planning for technology-integrated instruction, it is critical to start with instructional goals. Content-specific content should drive every course across disciplines.

The next step in preparing for technology-integrated education is to think about the pedagogical techniques that will best complement your material and students. When effective teachers plan for technology integration, they start as a team with the subject they want to teach rather than the technology they want to integrate. Effective teachers begin their instructional team planning with the lesson and instructional unit standards and learning objectives. They consider the "what" and "how" of the instruction before selecting the technology.

Teachers develop models that integrate context-relevant aspects such as themselves, the students in their classroom, tasks, and learning objectives when mapped into the context of TPACK and explain how these various parts interact throughout learning settings (Krauskopf et al., 2018). To be successful, these approaches must integrate formal PD with teacher-led informal learning and individual PD. Barton and Dexter (2019) examined survey data from teachers in two schools about their PD related to technology integration in a mixed-methods study and discovered that school leaders must combine formal PD that is typically led with support for teacher-driven informal and independent PD that effectively meets teacher needs. They differentiate between informal and autonomous professional learning as modes of self-directed learning, in which teachers exercise their autonomy in deciding how and when to obtain professional knowledge. They characterize independent learning as teachers moving outside of their school or district to further explore a topic, whereas informal learning is teacher-initiated contact with coworkers that improves collective knowledge inside the same school or district.

PD for teachers, according to Weinhall and Lavieza (2018), should include more hands-on learning rather than only lectures. These practical tasks are designed to help learners apply the course material in real-world situations. Because of the diverse groups of students, real-world scenarios, and hands-on activities, teachers should rarely work alone during PD. Teachers should collaborate to learn new topics and then create collaborative learning resources. Joining groups during and after a PD session should be beneficial to participating teachers. Typically, the course group has an impact on the school group. As a result, teachers must join a group while pursuing PD to benefit later in their careers.

Participants in the study discussed pieces of technology that they are familiar with or have used in their own instruction in Section 2, and teachers' professional expertise is a focus point because it has been proven to be a significant component of instructional quality (Guggemos & Seufert, 2021). Participants expressed a desire for time to interact and show one other what technology is being used and how it is being used inside instruction because they rarely have time to communicate what technological resources they are using. Hirsch et al. (2019) assert that teacher PLCs engage faculty members with similar needs and contextualize PD for teachers. In a study that examined the effect of strategically designed PD workshops on universal classroom management practices with 6 elementary teachers during their first 3 years of teaching and a multiple-baseline design across groups of teachers, the results indicated that a PD program increased teachers' practice and decreased reprimands. Changes in teacher knowledge and student engagement were demonstrated by descriptive data. According to Dennis and Hemmings

(2019), successful PD should provide focused learning for classroom teachers to filter the noise and develop their skills. Further PD that is incorporated into teachers' work lives and allows for practice, discussion, and feedback during PLCs is more likely to result in changed instructional practices.

Peer Coaching and Instructional Coaching

In Section 2, the participants in this study stated a desire for time to communicate and prepare with peers. Other participants noted that they feel successful when they observe other teachers utilizing technology in the classroom as models, whether through social media, learning walks, or peer observations. In addition, they noted the need for time to experiment with various technologies and the want to observe colleagues teaching with technology to learn how to implement it in their own classrooms. Teachers possess an abundance of information and expertise. Teachers learn from one another, reach out to one another, and mentor one another during their careers. Teachers' learning communities are effective planning and implementation platforms. When teachers collaborate, their combined knowledge of technology, pedagogy, and content enables them to overcome knowledge gaps and build technology-integrated curriculum that is effective. To do this, teachers must function as peer mentors for their colleagues, supporting each other's efforts to assess, modify, and improve practices that enable technology-integrated instruction (Shinas & Steckel, 2017).

Additionally, instructional coaches function as a sort of peer coaching. Motto (2021) states that instructors who collaborate with an instructional coach receive, individualized PD in technology, pedagogy, and content knowledge to improve their

classroom instruction. Through reflective and collaborative practice, an instructional coach may give each teacher the customized support they need to achieve the perfect combination of technical, pedagogical, and content understanding. In addition, Desimone and Pak's (2017) research correlates instructional coaching with improvements in school climate, teacher collaboration, and teacher attitudes, as well as skill transfer, perceptions of efficacy, and increased student achievement. The implementation of technology in the classroom can be seen as stressful or intimidating. According to Motto (2021), educators must shift their focus from the technology itself to teaching with technology. Continuous practice and review with a coaching peer or instructional coach result in more effective classroom technology utilization. Despite the positive influence of technology integration on academic achievement, Durff and Carter (2019) concur, based on a study, that teachers encounter attitudinal, social, and pedagogical challenges. They conducted a qualitative multiple-case study to investigate how teachers overcame technological integration obstacles. The findings revealed that technology integration was most effective when administrators, technology support staff, and teachers collaborated as a team. Successful tactics included providing adequate PD, fostering collegial support, and promoting collaboration among teachers, educating teachers to discover relevant technological resources, and establishing value and support for the use of technology for learning. The study indicated that the encouragement of peers boosts one's confidence and morale when using technology. Teachers overcome challenges to technology integration through training, dialogue with peers, and collaborative creativity. Teachers who exchanged ideas on technology use, provided advice to one another, and were open

to observing within one another's classrooms were more empowered to overcome obstacles and implement technology in their classrooms.

Teachers are more inclined to adopt technology in the future if they are given the opportunity to see the benefits of employing it in each subject area. Firsthand technological encounters assist them in shifting their ideas and becoming aware of the significance of technology in education (Mishra et., 2019). Likewise, Pearce et al. (2017) did a study that analyzed the perspectives of teachers who participated in a 2-year PD program with a strong peer-coaching component. The value of connections, the importance of teacher dedication, and the consequent change and growth in educators were emergent themes based on data collected through focus groups and researcher notes.

Nevertheless, Pearce et al. (2017) discovered that teachers' opinions of peer coaching play a significant impact on its success as a PD tool. Personal characteristics of the coach, whether a peer or instructional coach, such as good interpersonal communication skills and a positive attitude, can contribute to the development of a positive relationship with teachers. In fact, the relationship that develops between the teacher and the coach remains one of the most important aspects of the level of coaching efficacy. Active learning through instructional coaching occurs frequently when teachers collaborate in learning teams with colleagues in the same subject area or grade level. Coaches can help to support social learning processes by collaborating with teacher groups, most typically through grade-level PLCs, in which they discuss progress monitoring tactics, instructional improvement strategies, student data, and curriculum changes. When teachers seek expert advice on negotiating the technical obstacles of

introducing new instructional approaches or obtaining a deeper awareness of how to reconstruct their practice, the coach's involvement in these grade-level PLC meetings is beneficial (Desimone & Pak, 2017). Yet, Motto (2021) contends that for instructional coaches to give tailored learning to teachers and achieve long-term pedagogical changes, job-embedded PD is required. Through collaboration and reflection, the instructional coach must provide on-demand help through tools such as literacy strategies, technology integration, and other evidence-based practices. Instructional coaching cycles must also be available as they are a critical component of PD that fulfills individual teachers' instructional and technical needs. Coaches must collaborate with teachers to use technology to support instruction in a variety of subject areas and accomplish learning objectives. Instructional coaching enables PD outcomes to be realized via practice and reflection.

Instructional coaching and peer coaching are two methods that can be used to provide feedback on the specific teaching practices of individual teachers. Coaching, whether it is from a peer or an instructional coach, can be beneficial to teachers in helping them put theory into practice. The coaching process may be beneficial in the classroom if both the coach and the teacher are committed to seeing it through. This is because the coaching process encourages teachers to engage in more in-depth professional reflection. On the other hand, the potential benefits of either instructional or peer coaching are frequently dependent on the quality of the connection between the teacher and the coach (Pearce et al., 2017). Teachers need to be aware of the benefits that come from engaging in PD activities and making use of both peer and instructional

coaches as a resource to improve their instructional practice (Weinhandl & Lavieza, 2018).

Summary

Teaching is more than just utilizing a method or a strategy; it is about human interactions inside a complicated network of connections and relationships. Because of the complexity of the learning sciences, teachers are always challenged to interpret the educational field's myriad of recommendations. Enabling teachers' professional learning is a critical determinant of supporting high-quality teaching. Rather, high-quality teaching can be judged by evidence-informed teachers who reflect on their actions to develop and improve the quality of their own teaching methods (Smets, 2017).

PD design is an ongoing, iterative process for improving teacher learning opportunities as part of ongoing teacher education. Zinger et al. (2017) studied a PD program meant to educate a cohort of teachers to teach using an online resource. They investigated how an iterative, design-based approach leveraged teacher feedback to build learning opportunities in PD. Using the TPACK framework, they discovered that PDs provided teachers with increasingly individualized and relevant learning opportunities.

The program recruited 37 teachers from 16 schools, and the study's approach was mostly qualitative; however, quantitative metrics were employed for teacher TPACK surveys, as well as Likert-like teacher post-survey responses for the overall quality of the PD. The research revealed that using PD could alter teacher beliefs, knowledge, and classroom practices, and that it could play a critical role in teacher education in terms of integrating technology into instruction. Extended PD duration, access to technology,

opportunity for teachers to actively participate in activities in a student role, time to address individual teachers' contextual circumstances, a clear vision, and time to collaborate with peers. On a scale of 1 (strongly disagree) to 5 (strongly agree), overall average teacher reported TPACK scores increased from 4.23 to 4.61, almost 1 full standard deviation.

Teacher PD is a critical component of ongoing teacher education because it prepares and supports teachers as they introduce and use technological resources in their classrooms. Incorporating technology in the classroom to increase student learning is a continuous teaching challenge. Teacher PD is a vital component of teacher education that can allow teachers use technology and improve their learning. Harper-Hill et al. (2020) conducted a qualitative study using an inductive approach to construct a framework of professional learning in action from what teachers told them about their professional learning experiences which led to changes in their practice. The research revealed that if teacher professional learning is to result in practice change in the classroom, learning experiences must be planned with the nature of the subject as well as the key role of internal teacher traits that mediate teacher agency in professional learning in mind. A mixed-method study on staff perceptions of professional growth showed that approaches to teaching and learning have evolved in response to changes in teacher education and PD to meet the challenges of the 21st-century (Curtis et al.,2019). As a result, PD design is an ongoing, iterative process for improving teacher learning opportunities as part of ongoing teacher education. The evaluation, or the systematic collection and use of data to

improve PD, must take place because it provides data to assess whether the program met its objectives and to help plan future training (Iftikhar et al., 2022).

Project Description

In the PD program (see Appendix A) that I developed; participants will receive 3 days of in-person training on how to regularly integrate technology into K–5 classroom instruction. The Teacher Leadership Institute (TLI), which is expected to occur in July 2023, will provide PDPD for teachers. Although the sessions would be conducted in-person, an online session may be created at a later date, and all sessions would be videotaped for later review or viewing by those who did not attend the live sessions.

Throughout the process of constructing the PD project, it was essential to remember that the PD is intended for adult learners. According to the andragogy theory and the TPACK framework, PD (PD) must address the concepts and practices of adult learning and teacher training in order for it to be effective. This is because andragogy describes the process of assisting individuals in their own educational pursuits, while TPACK outlines the components of effective teacher training. Andragogy is an approach for achieving subject matter mastery that involves learning as a product, natural development, and self-involvement. In addition, it views learning as a product. This overlaps with the use of practice, modeling the application of theory to practice for teachers, and making use of the prior experience of teachers. The learner should first determine their needs, goals, assistive tools, and strategies before moving on to an analysis of their learning results. Andragogy places an emphasis on learning through hands-on experience. In addition, the emphasis must be shifted to a stringent process of

capacity development for adults. This will ensure that the strategy for meeting the educational requirements of adults is regarded in a manner that is distinct from the strategy for meeting the educational requirements of children. The PD project is most likely to be successful when it is active, in line with intrinsic motivation, focused on individual performance, collaborative, and reflects on actual progress.

Resources and Existing Supports

Personal laptop devices are going to be necessary as a resource to be successful in completing the PD. Every participant is given the option of using the device that is supplied by the school district or bringing their own device to use. In addition, the instructional support staff, including instructional coaches; school administration; and classroom teachers will all be encouraged to provide suggestions regarding the use of technology in the instructional process, based on the information and expertise they have regarding this topic. Participants will be encouraged to collaborate with one another to make the most of the opportunity to share their views and approaches when technology is used in classroom instruction. This will help participants make the most of the opportunity to share their ideas.

Potential Barriers and Solutions

The voluntary nature of participation in the PD initiative presents a possible obstacle that could impede its successful completion. Because the sessions will take place outside of the normal workday for participants and will be held during the Summer (TLI) Teacher Leader Institute that is offered every summer, teachers have the option to opt out of participating. Participation in the summer TLI is not required and is not a part of the

teachers' school year contract. In addition, the participants in the study will not receive any payment from the school system for the time that they have contributed. Free materials that could support teachers in the process of integrating technology within their classroom instruction or free subscriptions to newly released technology applications are two potential solutions to this problem. Offering these options to educators could be one way to address this issue.

There is a possibility that the location of the PD (PD), which will only be provided in-person at the school that is serving as the study site and on days when instructors do not have contractual obligations, could be a barrier to the project's success. This PD is intended to be in-person education over the course of 3 days; however, it is possible that it may be recorded for participants who are unable to attend the live session, or that a Zoom video training session could be made available at a later time. The Zoom platform provides options for collaboration using breakout rooms and has the potential to offer an alternative meeting style. If the

Project Purpose and Goals

The purpose and primary goal of this PD was to provide the teachers at the study site with the knowledge and skills required to consistently integrate technology into their K-5 lessons. The PD was designed as a result of the collected data, which identified the pedagogical practices that teachers perceived as necessary for consistently integrating technology into classroom instruction and how teachers perceived their ability to consistently integrate technology into classroom instruction. Teachers believed they lacked the training, support, collaboration, team based planning, and sufficient time to

implement technology effectively and frequently. Teachers at the site of the study believed that professional training was needed. As a result, this PD was developed.

Important stakeholders in this PD at the study site are teachers, instructional support staff, and administrators. During the sessions, teachers, instructional support staff, and administrators will work together on collaborative activities and practice with new technology tools and strategies within cooperative learning teams. In order to improve the effectiveness of subsequent PD, every learner will be required to complete a summative evaluation and reflect on their experience at the conclusion of each session. A summary of the survey results will be distributed to both the administrative staff and the instructional support staff. When the leadership of the study site is provided with the results of the assessment survey, they will be responsible to use the overall information about the effectiveness of the entire PD, to assist them in making decisions regarding the ongoing support that will be provided throughout the year. The PD project's intended outcomes are as follows:

- Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade level.
- Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technology skills.
- Teachers will be able to reflect on their classroom pedagogical practices and decide how to apply the strategies they learned during training.

- Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district.

Project Timeline and Implementation

PD for teachers will be delivered at the TLI, which is scheduled to take place in July 2023. TLI is open to all teachers in the district at the end of the summer break. The PD project will be presented in three sessions over the course of 3 days. The sessions will begin at 8 AM and end each day at 3 p.m. Each day, the teachers will start with breakfast and time to converse with peers, followed by learning sessions that include collaborative work time. An hour will be provided for lunch each session and lunch will be provided. The participants will then have extra learning and/or work time, the day will conclude with an evaluation that will provide insight into their level of understanding of the objectives, as well as how to enhance future PD sessions.

Project Evaluation Plan

Teachers' PD is a methodically planned process of ongoing professional training for staff members to get them ready to perform new educational tasks, responsibilities, and functions, adapt to new school conditions and raise their level of professional readiness to perform educational functions. Evaluation of the efficacy of the provided PD is an essential aspect of the project PD. The term *evaluation* refers to the methodical gathering of data and the use of that data for the purpose of making the program or project better (Iftikhar et al., 2022). Evaluation provides data that can be used to

determine if the program was successful in achieving its aims and to assist in the planning of future training (Iftikhar et al., 2022).

To determine the level of quality offered by the PD program, it is necessary to do an in-depth analysis of it. Formative assessments will be used at various moments during the learning process to provide feedback on the areas of the learning process that require more support. The use of formative evaluation will be necessary to gather immediate feedback about whether the goal and objectives of the sessions are being met. Throughout the sessions, formative assessment data will be collected through questions during group collaboration time. The questions will be similar to those in the assessment survey (see Appendix F) to provide participants time to reflect on their individual responses and to encourage participants to collaborate with one another to generate increased discourse. With this opportunity, it will be possible to ensure that the sessions are tailored to the needs of the teachers. A summative assessment will be performed at the end of each session to provide information on what has been learned as well as feedback on the success of the learning process.

Assessment is a crucial component in establishing the individual's behavior and attitude toward learning, in determining the instructor's decisions prior to training, during training, and after training, and in assuring the oversight of PD activities (Yüksel & Gündüz, 2017). Using the information from the formative and summative assessments, I will be able to evaluate whether or not the goals and objectives of the PD project were accomplished. In order to accomplish this task, at the end of each session, teachers will be given a Google Survey, which can be found in Appendix F. This survey contains

questions for teachers to answer in order to evaluate the session as well as questions for teachers to answer in order to reflect on the activities that took place during the session. The results of these surveys will be analyzed in order to determine the most effective methods in which PD sessions may be enhanced in order to offer the greatest potential benefits to the individuals who take part in them.

Writing that serves as a reflection and questions based on a Likert-like scale give information that will be used in the evaluation and reflection survey. This information may be used to determine whether the teachers were successful in the learning process. Participants choose the option on a Likert-like scale that most closely represents their point of view. A Likert-like scale is an ordered scale. It is frequently used to gauge the participants' attitudes by asking the amount to which they agree or disagree with a certain topic or statement (Joshi et al., 2015). Furthermore, reflection writing has been critical in helping learners gain a thorough comprehension of subjects and foster professional proficiency. Reflective writing has been identified as one of the most effective methods for stimulating learners' self-reflection. Evaluating self-reflection and categorizing professionals based on their reflective writing is critical for analyzing learning processes in 21st-century workplaces (Barthakur et al., 2022). This will provide a better understanding of the teacher's perception of achieving the desired outcomes while also providing documentation of learning. The combination of these two approaches will result in a well-developed PD project evaluation plan. The feedback that is provided by shared responses will be taken into consideration in order for adjustments to be made to future PD sessions.

The teachers, instructional support staff, and administrators at the study site are key stakeholders in this PD. Teachers, instructional support staff, and administrators will cooperate in collaborative activities during the sessions. Furthermore, learners will be expected to provide a summative evaluation and reflection at the end of each session in order to increase the efficiency of future PD. The administration and instructional support staff will each receive a summary of the survey results. Sharing the results of the assessment survey with the leadership of the study site will provide them with information about the efficiency of the PD, and also will assist them in making decisions about ongoing support throughout the year.

The evaluation and reflection survey at the end of each session will reflect the PD goal and objectives. The first goal of the evaluation plan is to determine if the activities that teachers participated in during the sessions helped to increase their understanding of integrating technology into their instruction. A second goal that will be evaluated is if the sessions have increased teachers' confidence in their abilities to integrate technology into their instruction. Another goal will be for teachers to reflect on new ideas they got from the sessions and determine how they will apply the new concepts to their classroom instruction through reflective writing. Finally, through reflective writing, teachers will express what information was most valuable to them as individuals and the survey asks for specific session suggestions based on the teachers' individual needs. The ultimate purpose of the PD sessions is to increase teachers' ability to consistently integrate technology into classroom instruction, which will better prepare students for the 21st-century.

Stakeholders

The proposed PD project may be beneficial to a variety of different stakeholders. PD District administrators, school administrators, teachers, and instructional support personnel (also known as instructional coaches) who work at the study location are the primary stakeholders. The administrators of the school district may be able to evaluate the efficacy of the PD and determine whether other schools could gain an advantage from receiving the training. During the training, school administrators, teachers, and instructional support staff will collaborate, and at the end of the session, participants will be asked to submit a summative evaluation to help improve the efficiency of PD sessions in the future. The summaries of the surveys will be distributed to the members of the school leadership team, which includes district administration and instructional support personnel. Sharing the results of the evaluation with the school leadership and the instructional support staff serves two purposes: First, it provides those individuals with information about the efficacy of the PD, and second, it assists those individuals in making decisions regarding ongoing support throughout the course of the school year.

The PD project's intended target audience is comprised of general education teachers of students in Grades K–5. This PDPD may also be beneficial to the instructional support staff, including instructional coaches, in helping to prepare them to provide mentoring and ongoing support both inside and outside of the classroom. Additionally, administrators would benefit from taking part in and attending this PD activity to help in providing ongoing support throughout the year.

Project Implications

I developed this PD project to contribute to positive social change. This PD project is designed to aid teachers at the study site in understanding how to consistently integrate technology into classroom instruction in Grades K-5. This PD project will focus on providing teachers with research-based ways for using technology to instruct elementary students.

The 3-day PD session at the study site may prepare teachers in Grades K-5 to integrate technology into instruction, which will contribute to increased growth in students' 21st-century skills and help prepare students to live and work as productive citizens in the 21st-century. According to Curtis et al. (2019), as approaches to teacher education and professional experience have evolved to meet the challenges of the 21st-century, so have learning and teaching. As a result, this PD project is essential to help both veteran and novice teachers in integrating technology into their instruction.

This project will improve current instructional practices at the study site by developing teacher skills and understanding about integrating technology into their classroom. Teachers' and school leaders' learning experiences improve their own practice and a school's collective effectiveness, as evaluated by improved student learning, engagement, and well-being (Harper-Hill, et al., 2020). Teachers will be better able to integrate technology into instruction on a continuous basis, and school administration will be able to provide improved ongoing support, which has positive social implications for students by better preparing them for the 21st-century.

Section 4: Reflections and Conclusions

I provide reflections and conclusions based on the project study in this section. The potential benefits of alternative methods for solving the research problem are discussed. Considerations on leadership and change, as well as the scholarly process, project planning and evaluation, and project development and assessment, will be covered. Section 4 concludes with a review of the study's implications, potential applications, and future research directions.

Project Strengths and Limitations

Strengths

The 3-day PD project discussed in Section 3 has the potential to improve teachers', school administrators', and instructional support staff's knowledge and understanding of the pedagogical practices required to integrate technology into instruction, as well as their understanding of the TPACK framework. By correctly using the TPACK model, educators can improve classroom instruction and enhance their students' learning (Motto, 2021). "At its core," Elliot (2017) explained, "TPACK is a teacher knowledge framework that guides PD" (p.21). Technical (T), pedagogical (P), and content (C) knowledge domains, as well as their overlap (PCK, TPK, TCK, and TPACK), Motto (2021) explains give a relational map of the knowledge, skills, and capacities required for teachers. The project's goal is to foster high levels of involvement and engagement, as well as reflections on individual practices and biases towards the integration of technology in classroom instruction. Each day of the PD offers opportunity for participants to collaborate and work together.

Another strength of this project is that teachers can collaborate and exchange technology skills while planning lessons with grade-level PLC teams. Based on the findings of the study teachers at the study site wanted to practice using the technology before adopting it with students in everyday instruction and developing technology integrated lessons with their grade-level PLC teams. Teachers will spend 1 day of PD teaching their peers how to use various technology programs that they feel they are an expert in or they feel confident using in daily instruction. They can also practice using these technologies and prepare lessons with them. The PD's topic and approaches were also strengths. I designed the project to address the teacher needs described in Section 2. I devised strategies to aid teachers in integrating technology into their day-to-day lessons using the TPACK framework and the literature covered in Section 1.

Limitations

I believe that I designed an effective PD program that will provide teachers at the study site with the skills and knowledge required for effective technology planning and integration into classroom instruction. However, there may be potential problems in the execution of instructional fidelity of technology integration into instruction because the study site's administration and instructional support staff are the driving force behind continuous implementation. The leadership team will be responsible for using overall information about the effectiveness of the entire PD to help them make decisions about the ongoing support that will be provided throughout the year. The support will be embedded throughout grade-level PLCs as well as specified staff development days throughout the academic year. Without a robust PLC framework and ongoing in-class

support from instructional support staff and administration, the consistency of incorporating technology into instruction may suffer.

Another potential limitation is the project's ability to sustain ongoing support and ongoing training of new staff. Because of the study site's close ties to the U.S. military, many of the teachers are spouses of service members, which causes a greater rate of teacher turnover than in other districts due to military transfers. There will be difficulties in ensuring that ongoing training for any new employees to the study site occurs consistently to maintain the knowledge gained from the PD project, even though measures are in place to include district and school administration and instructional support staff, including instructional coaches, in the training.

Recommendations for Alternative Approaches

As an alternative to the 3-day PD, monthly schoolwide staff meetings and weekly grade-level PLC meetings could incorporate new ideas for integrating technology into instruction. To improve self-efficacy in their capacity to integrate technology into education on a regular basis, teachers must continue to participate in their learning and apply it to their practice. Creating a PLC framework focusing on monthly learning and planning sessions for grade-level teacher teams was considered as an alternative strategy. Teachers would also be able to collaborate more frequently regarding the most effective pedagogical practices and technological applications. This collaborative opportunity is supported by the findings of Section 2, in which participants reported a need for greater time to interact with grade-level peers and develop technology-integrated lessons as a team.

Another approach was to develop a coaching and mentorship plan that allows teachers to mentor one another by modeling pedagogical practices that integrate technology into instruction, engaging in classroom observations, co-planning units, and engaging in feedback sessions. This strategy has the ability to cultivate teacher leaders by allowing them to share their strategies throughout the study site. This technique would also enhance collaboration and teamwork inside the study site, hence enhancing school culture. Developing a comprehensive implementation plan would offer teachers with the ongoing support they indicated they lacked. The developed PD incorporated collaborative frameworks and provided teachers with the skills and knowledge they lacked to successfully integrate technology within instruction.

Further recommendation is for K-5 teachers to collaborate with other educators in the district. This method would facilitate teachers' access to the viewpoints of their peers within the school district and widen their knowledge base at the school under study. In addition, the cooperation may afford teachers the chance to debate and share best practices for integrating technology into their everyday lessons. Collaboration with other K-5 teachers in the district would provide support for the teachers at the school under study and create a network of professional peers outside of the study site location. The PD sessions were able to combine elements of a PLC structure as well as a coaching and mentorship plan, while also allowing teachers to engage in learning and reflect on their practices and learning experiences.

Scholarship, Project Development, and Leadership and Change

Scholarship

I learned a lot about the concept and method of scholarly research while performing this study. Prior to embarking on this study, I researched various relevant subjects of interest concerning elementary school technology use. I chose this topic after learning about the difficulties teachers experience with technology at the study site. Teachers at the research location were mostly concerned about not knowing how to use technology in their classrooms and not feeling secure about using technology within their instruction. After determining the problem and objective of this study, I began the process of collecting literature relating to the teachers' concerns. Aligning the problem, purpose, and RQs was another critical step in creating a scholarly research project. Throughout the research process, I became more committed in finding additional support for my topic in recent literature and understanding how technology impacted instruction. I acquired a significant amount of literature to support the study after weeks of exhaustive research. What I learnt from this research allowed me to broaden my ability to offer coaching support and best practices when collaborating with teachers on instructional methods and how to embed technology to increase student participation and enrich the students' experience within the classroom. I also learned how critical it is to effectively explore the literature to deliver a comprehensive and scholarly study.

During the development of my project, I faced numerous hurdles, including the world effectively closing due to the COVID-19 pandemic and the world of education being forced to go virtual. This unexpected development caused a problem in that

teachers were now required to use technology with little time to prepare. As the COVID-19 pandemic and the forced shift to online education altered teachers' perceptions of technology integration within instruction, I included additional questions to my interviews. What I learned during the data collection process was that participants still lacked confidence in their abilities to integrate technology into instruction, and that the pandemic had revealed a problem that existed not only at the study site, but throughout the field of education. This resulted in more research and literature being gathered to create a more well-rounded study relevant to current events in the world.

Project Development

After 12 years of teaching at multiple elementary schools, this project was created. Due to my husband's several military transfers, I had taught throughout the southern and western regions of the United States in grades K through 5. Despite technological advancements and the growing availability of technology in the classroom, I saw an increasing reluctance among teachers at various schools and grade levels to incorporate technology into their lesson plans. As I observed the obstacles teachers faced, I was concerned for their success because I had a different perspective on technology and embraced any new technology or idea that was presented to me, and I wished to comprehend the reluctance of other teachers in the grade levels I taught to use technology. When teachers at the research site began exhibiting the same characteristics I had observed in schools around the country, I began designing this study. My goal was to produce a study that would contribute to the changing environment in education and how teachers might be supported in guiding students to become technologically savvy citizens

able to work and live in the 21st-century. I was astounded by the sheer volume of information accessible on this issue when I began my research. The evaluated peer reviewed studies helped me acquire knowledge and support for the current study. Participating in academic research has benefited my PD. The study process strengthened my perseverance, patience, and desire to overcome obstacles. Years of research, study, and project creation culminated in a contribution to the school system. The goal of the 3-day PD was to provide teachers with the skills and knowledge necessary to begin the process of consistently integrating technology into classroom.

Leadership and Change

Working on this project allowed me to obtain valuable experience that contributed to my development as a leader, and I am grateful for that. The research, data gathering, and planning methods that I was a part of helped me get a more well-rounded perspective, both in my capacity as a professional and in my prospective role as a researcher in the future. Although I am aware that the people who took part in this study project are the only ones who stand to gain from them, I believe the information that was discussed can be beneficial to other people as well. It is still a leader's obligation to listen to others and provide what was necessary for a good change in the knowledge and performance of others, even if the information that was supplied was not utilized. This was something that came to my attention recently. Since I have been a part of this doctorate capstone process, my potential for developing further as a leader has been enhanced.

As I have gone through my time as a doctoral student at Walden, I have been both encouraged and pushed to be a catalyst for change. This has been one of the most rewarding aspects of my experience here. The process of finishing the capstone project was crucial in shaping both my aspirations and my capabilities to play a positive role in the process of bringing about positive change in the field of education. My experience has taught me that leaders are those who inspire other individuals to join them in effecting positive change. The purpose of this PD initiative was to foster the growth of teacher leaders among the participants so that they may, as a direct result of the exercise, become change agents in their own schools. My eyes have been opened to the fact that maturing into a change agent was a process that takes place over time. After this initiative is finished, I will not stop trying to be a positive part of the change that is happening in the world. This study has influenced my readiness to support more efforts to integrate technology consistently in Grades K-5, and it has made me want to do so more broadly than only at the study site. The results of this research have provided me with the inspiration and the drive that I need to continue developing as a change agent and a leader. My pursuit of a doctoral degree at Walden University has provided me with a significant amount of motivation, for my development as a leader.

Reflection on Importance of the Work

As I think more about this PD project, I am convinced that the teachers who work at this study site will benefit from the PD. The challenges of consistently integrating technology within instruction in Grades K-5 are well documented in this study. The purpose of this PD project was to address the perceptions of teachers regarding the

integration of technology and pedagogy in Grades K-5 education. Teachers at the study site in Grades K-5 could improve the consistency of technology integration within instruction if they used the skills and strategies presented in the project. This PD project will, in the end, contribute to improvements in the consistent implementation and integration of technology at the school study site.

In the process of reflecting on this research study, I started thinking about how much time was required to complete it. I also took into consideration the iterative nature of the completion of scholarly writing. I was aware that in this research investigation, having a comprehensive understanding was more important than working quickly. The results obtained required a significant investment of both time and effort. The topic of integrating technology into instruction has become a central concern as the COVID-19 pandemic enters its 4th year. As a result, the findings of this study contribute to the existing body of research on technology integration in K-5 education. The amount of time and effort put into this study was a contributing factor in the success and importance of the PD project.

Implications, Applications, and Directions for Future Research

Implications for Positive Social Change

This study on teachers' perspectives of technology integration and pedagogy in K-5 education may support positive social change in the classroom. The study focused on teachers' perspectives of technology integration and pedagogy in K-5 education. The purpose of this study was to investigate the ways in which the experiences and perspectives of K-5 teachers influenced the ways in which those teachers used technology

inside of their classrooms and the pedagogical practices that those teachers employed. The findings of the study showed that the educators at the location under study had difficulty integrating technology on a consistent basis into their lessons. This highlighted the necessity of providing educators with opportunities for PD to enhance the effectiveness of instructional technology. The PD project that was proposed to last for 3 days would equip teachers at the study site with pedagogical approaches and planning practices for routinely incorporating technology into instruction for students in Grades K-5.

Positive social change is something that is encouraged and valued at Walden University. The potential impact of the findings should have a considerable influence within school districts and other organizations to encourage constructive social change in the practices of PD that are currently in place to support instruction that integrates technology consistently in Grades K-5. The findings of the study have the potential to support and contribute to positive social change by suggesting that school districts provide open and intentional teacher PD plans, as well as purposeful follow up to support the integration of technology within instruction. Before developing PD, it was important to consider the views and suggestions of teachers regarding the PD requirements for technology within instruction. This allowed for the successful implementation of the positive social change.

It was important to note that one methodological inference gained from this study resulted from the procedure of collecting the data, and that implication should be considered. Because of the limits imposed by COVID-19, I conducted the interviews

via the Zoom platform. This structure presented a variety of obstacles that impeded the process's natural progression. For instance, both the interviewer and the interviewee occasionally had a slow internet connection. In addition, the Zoom platform made it difficult to interpret the nonverbal clues that the participants displayed. If COVID-19 no longer restricts how interviews may be performed, I would urge other researchers to conduct interviews in person whenever possible.

Applications for Teaching Practice

The application for the PD is accessible to teachers at the school under study who teach students in Grades K through 5. The PD has the potential to meet the pedagogical needs of teachers by delivering information about methods for planning for technology within instruction and integrating technology into their current pedagogical practices. The PD program may also provide an opportunity for teachers to work together to discuss effective strategies for lesson planning and student instruction related to the integration of technology in the classroom.

Directions for Future Research

The PD provided by this project aided teachers in integrating technology into the classroom. Future research might look into how sharing pedagogical information and TPACK within grade level PLCs can assist teachers to improve their TPACK competencies by encouraging knowledge acquisition from professional colleagues. During implementation, instructional fidelity can be tested using classroom observations and teacher planning materials. Student achievement tracking could be examined in the context of how PD of teachers influences achievement and school rating. Another avenue

for future research could be to investigate the continued support of school administration and the usage of instructional support personnel in continual PD, as well as the impact of peer mentors and coaches at the study site. Finally, future researchers could use the RANDA teacher educator effectiveness rating system (Colorado Department of Education, 2021) to track teachers' classroom performance at the study location and analyze the effects of PD on the educator effectiveness rating rubric's technology elements.

Conclusion

The purpose of this basic qualitative study was to explore the teachers' perceptions of integrating technology consistently within classroom instruction in Grades K-5 at the elementary school under study to understand why technology was not being implemented within instruction consistently. The problem was researched to determine teachers' perceptions of the pedagogical practices they consider to be necessary for consistently integrating technology within instruction, as well as teachers' perceptions of their ability to consistently integrate technology within instruction. Participants were given the opportunity to expound in Section 2 on the reasons they do not believe they are able to integrate technology into instruction on a consistent basis. The causes for this were a lack of preparation with grade level teams, a lack of training, a lack of collaboration amongst peers, support, and time available to test and plan technology within lessons. The participants believed that formal training combined with opportunities for collaboration would provide the skills and knowledge they required to

be more successful at integrating technology throughout their classroom on a consistent basis.

These findings from the data that were gathered in Section 2 served as the foundation for the creation of a PD plan, which had the following objectives as its primary focus:

- Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade levels.
- Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technical skills.
- Teachers will be able to reflect on their classroom pedagogical practices and decide how to apply the strategies they learned during training.
- Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district.

Effective use of technology in instruction requires altering pedagogical techniques and overcoming hurdles to integration. Every participant in the study acknowledged the challenges of integrating technology into instruction. Despite the challenges, most participants were willing to retain an open mind and learn how to integrate technology into their daily training and every participant wanted further technology integration training. Developing and providing a rigorous PD program for teachers would give them the confidence and abilities to integrate technology into classroom on a consistent basis.

In summary, PD was deemed the greatest solution to the lack of consistent technology use in K-5 instruction at the study site. This was determined because PD matched the needs of the teachers in relation to the RQs. The PD was designed directly as a response to the study's findings on why teachers do not routinely use technology in the classroom. Participating in PD events improves each participant's practice and the school's performance.

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Appendix A: The Project

Effective Tools for Instructing Elementary Teachers in Technology Integration Outline for a 3-Day PD

Overview

The purpose of the PD was to provide the teachers at the study site with the knowledge and abilities necessary to consistently use technology in their instruction in Grades K-5. The PD was developed in response to the data that was collected, which identified the pedagogical practices that teachers perceived to be necessary for consistently integrating technology into classroom instruction and how teachers perceived their ability to consistently integrate technology into classroom instruction. Teachers felt they lacked the training, support, collaboration, team based planning, and sufficient time to integrate technology correctly and routinely into the classroom. One of the most difficult challenges that teachers must face in the modern era is figuring out how to use the various forms of technology that are at their disposal effectively in the classroom to have the greatest possible positive effect on the education of their students. Participation in continual PD is something that all educators should strive to achieve since it enables students to make better use of technology and can increase the academic achievement of students. When it comes to the process of incorporating technology into the classroom, PD is an essential component (Zinger et al., 2017). The most direct connection between teachers' training and their ideas for incorporating technology was that of the support they received (Barton & Dexter, 2019). Teachers at the study site

believed that having professional training was essential and that having this specific PD regarding technology integration would be advantageous. This PD was created as a result.

Target Audience

The project was aimed at elementary school teachers, specifically those working with students in grades K through 5. In addition to instructional coaches and academic interventionists, building administrators, and district administrators will be extended an invitation to participate in the PD program.

Goals and Timeline

The primary goal of PD was to promote the consistency of technology use in K-5 instruction at the study site. The goal and objectives of the PD were a direct response to data collected during interviews regarding teachers' perceptions of the pedagogical practices required for integrating technology consistently into classroom instruction and their perceptions of their ability to integrate technology consistently into classroom instruction. The goals and objective for the PD session are:

Goal:

- To promote the consistency of technology use in K-5 instruction at the study site.

Objectives:

- Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade level.
- Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technology skills.
- Teachers will be able to reflect on their classroom pedagogical practices and decide how to apply the strategies they learned during training.
- Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district.

PD for teachers will be delivered at the TLI, which is scheduled to take place in July 2023. TLI is open to all teachers in the district at the end of the summer break. Table 7 summarizes the objectives of each PD session. Each day, the teachers will start with breakfast and time to converse with peers, followed by learning sessions that include collaborative work time. Lunch will be provided and then teachers will have extra learning and/or work time, the day will conclude with an evaluation that will provide insight into their level of understanding of the objectives, as well as how to enhance future PD sessions.

Evaluation

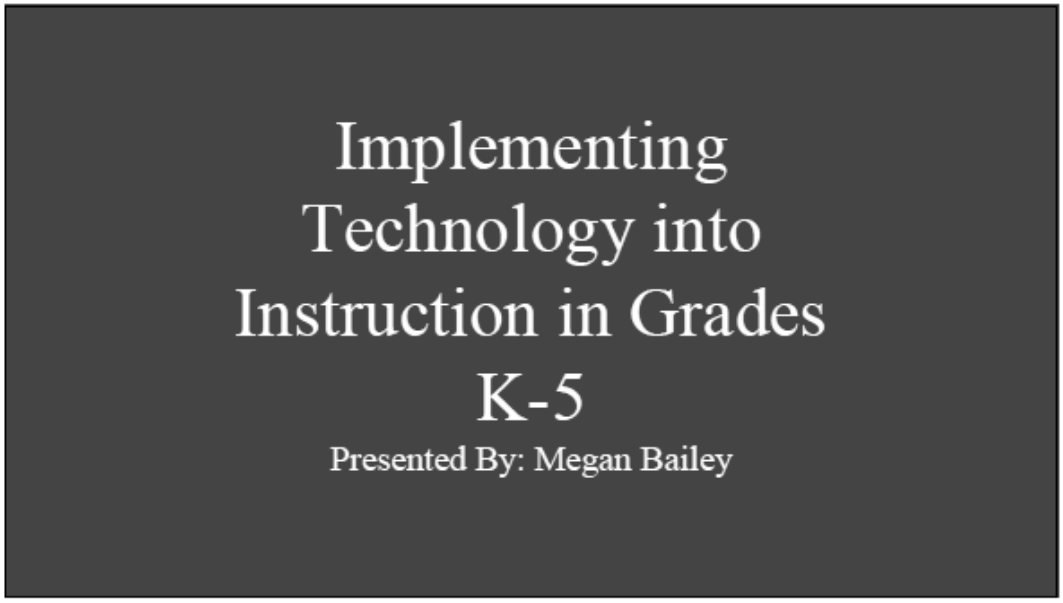
Throughout the session, participants will complete both formative and summative evaluations. The evaluation technique for this PD focuses on determining if participants meet the specific learning objectives of the PD in addition to providing input on how the PD was presented. At the conclusion of each day, participants will receive a Google Survey that offers a reflection on the day's activities which will be a self-assessment of their own learning in relation to the day's learning objectives as well as report on how well each day's sessions were received. At the conclusion of the three days, participants will be asked to submit a summative evaluation to assist in enhancing the effectiveness of PD sessions in the future. The purpose of doing a summative evaluation of a teacher professional development program is to determine how successful the professional development program was after it had been finished. The evaluation will evaluate whether or not the program accomplished its targeted goals, and it will also highlight areas in which further development is necessary. The members of the school leadership team, which consists of district administration, school administration, and instructional support staff, will receive summaries of the surveys. Sharing the evaluation results with the instructional support staff and school leadership serves two purposes: first, it informs these individuals about the effectiveness of the PD, and second, it helps them decide what kind of ongoing support to provide throughout the school year.

Resources and Materials Needed

- PowerPoint Presentation
- Computer or Tablet
- Internet Connection (Hard Connection/Mobile Hot Spot/Wireless)
- Sticky Notes
- Highlighter(s)
- Pens and/or Pencils
- Note catcher
- Google Form Evaluation/Reflection Survey
- Session Agenda Day 1
- Session Agenda Day 2
- Session Agenda Day 3

Day 1

Session 1 Outcomes	
PD Objectives: Objectives: • Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade level. • Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district. • Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technology skills.	
Agenda	
8:00-8:30	Breakfast provided for participants. Chat/Eat
8:30-8:45	Welcome and Introduction
8:45-9:00	Team Building Technology Activity
9:00-9:30	Learning Session: Why Technology in Instruction/Introduction to TPACK
9:30-10:00	Collaborative Share: How do you currently use technology within the classroom? Jamboard Gallery Walk.
10:00-10:15	Break
10:15-12:00	Learning Activity: Technology Chopp'ED' Edition with sample lesson plan template and exemplar
12:00-1:00	Lunch
1:00-2:30	PLC Team Collaborative Work Time
2:30-3:00	Closing & Session Evaluation/Reflection


Implementing Technology into Instruction in Grades K-5
Presented By: Megan Bailey


Welcome!
Today's Agenda
Team Building Activity
Examples of how to use within content
I Do, We Do, You Do
Learning Session:
Why Technology in Instruction?
Introduction to TPACK
Collaborative Share:
How do you use technology in the classroom?
I Do, We Do, You Do Jamboard Gallery Walk
Break
Learning Activity: Technology Chopp 'ED' Edition
Ongoing Professional Learning
Lunch
PLC Team Collaborative Share Out/Work Time
Exemplar lesson modeled for teachers
Session Evaluation/Reflection

Throughout the PD…

- **We will prepare for implementing technology within lessons both within content and through team building/collaboration.**
- **Each activity throughout the PD will be modeled in the way it would be presented to students during instruction through the use of pedagogical strategies.**
- **As the learner you will participate in the activities as if you were the student in your classroom.**

Learning Objectives:

- Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade level.
- Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district.
- Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technology skills.

Technology in Instruction….what is it? Enter in 1-3 words that come to mind.

Scan the QR Code and use the code
57439603
https://www.menti.com/alhugstuknms

Now let's breakdown what we just did…and how this could be used with content within your classroom.

Team Building Activity: The Hook

Example of Hook:

Students in class and will respond to a question posed by you the teacher. This could be content related or teambuilding and a way to introduce the topic at the beginning of a lesson.

Before students in class share their responses in person, students will engage in a collaborative brainstorm using the Mentimeter website to create a word cloud.

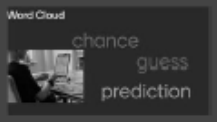
I Do:

Teach: Students solve a multi step word problem and use an estimate to assess the reasonableness of their answers. *4.Mod1.AD5 Solve multi-step word problems by using addition and subtraction, represent these problems by using equations, and assess the reasonableness of the answers.*

Model: Share a question with the class, for example: "What is an estimate?" Enter 1-3 words that come to mind.

Practice: Students will then go to the menti meter site and will engage in a collaborative brainstorm using the Mentimeter website to create a word cloud around the word estimate.

Apply: Students will practice using Mentimeter and determining 3 words that connect to the word estimate, and then the teacher will display the word cloud and students will engage in a collaborative discussion about what it means to estimate and why they would estimate to solve a multi-step word problem.



We Do: In your table group choose a reading or math standard and develop a hook for students to generate a word cloud.

Teach:

Model:

Practice:

Apply:

YOU DO:

Individually take 5 minutes to brainstorm ideas of how you could use this pedagogical approach to "hook" students into your lessons and how you could embed technology such as Mentimeter to create a collaborative word cloud.

Teach:

Model:

Practice:

Apply:

The Why...

Why is it important to embed technology within instruction in Grades K-5?

Proficiencies and skills for the 21st century need to be established as digital technologies enter the classrooms.

- Learners now need 21st century skills and knowledge to compete in today's technology-driven environment.
- 21st century abilities must be incorporated into the academic experience in order for students to become successful citizens (Nelson et al., 2019).
- The industrial age classroom has started to be modernized to meet the demands of a 21st century community of learners.

TPACK

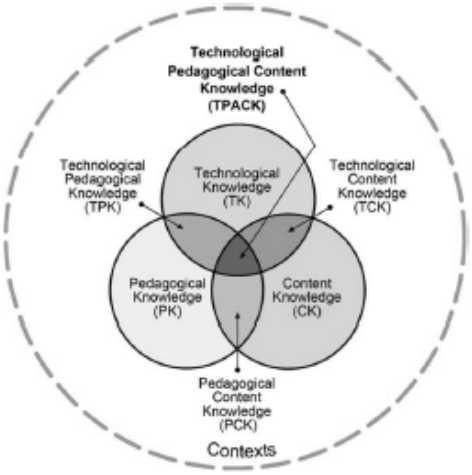
The TPACK framework aids in developing effective teaching while designating professional technological knowledge creating a relationship between:

- Content (CK),
- Pedagogy (PK), and
- Technology (TK)

Forming a relationship to create the following:

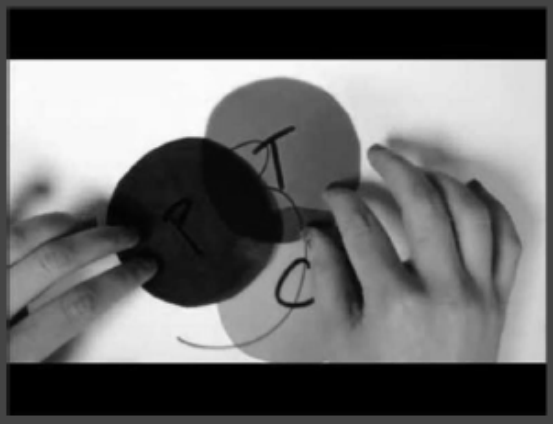
- Pedagogical content knowledge (PCK)
- Technological Pedagogical Knowledge (TPK)
- Technological Content Knowledge (TCK)
- Technological Pedagogical Content Knowledge (TPACK)

Using the TPACK model correctly, educators can improve classroom instruction and enhance their students' learning (Motto, 2021).



"Reproduced by permission of the publisher, © 2012 by tpack.org."

TPACK in 2 Minutes



Collaboration Time

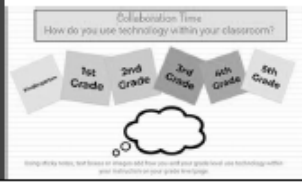
How do you use technology within the classroom?

JAMBOARD GALLERY WALK

This pedagogical strategy allows students to be actively engaged as they explore multiple groups' collaboration slides or pages. They work together in small groups to share ideas and respond to meaningful questions, documents, images, problem-solving situations or texts.

https://bit.ly/3EkeZ0Z

- Move into your grade level teams. Share what technology you use within your classroom on a daily basis and/or trialed within your classroom.
- Go to the following link https://bit.ly/3EkeZ0Z and go to your appropriate grade level board.
- Using digital sticky notes, text boxes or images add how you and your grade level use technology within your instruction on your grade level page.



30:00

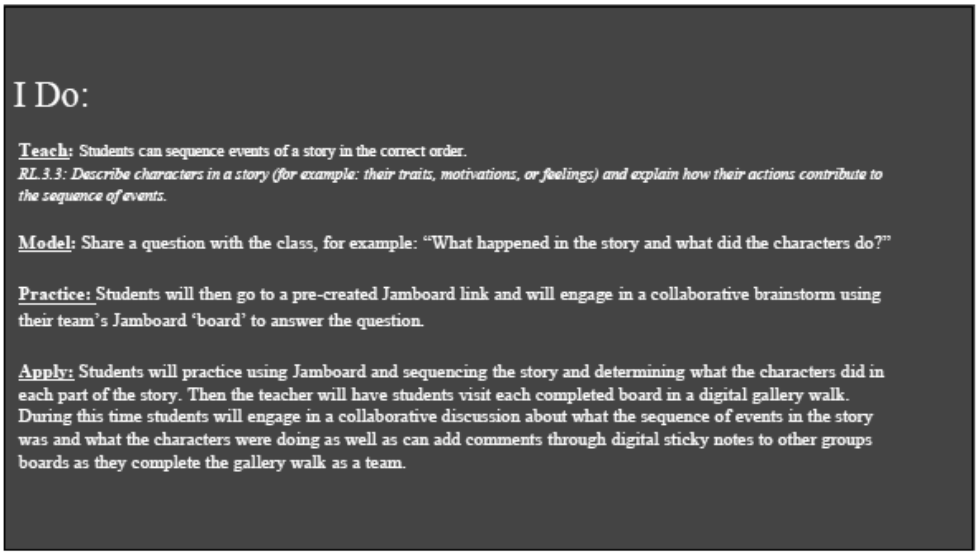
Now let's breakdown what we just did…and how this could be used with content within your classroom.

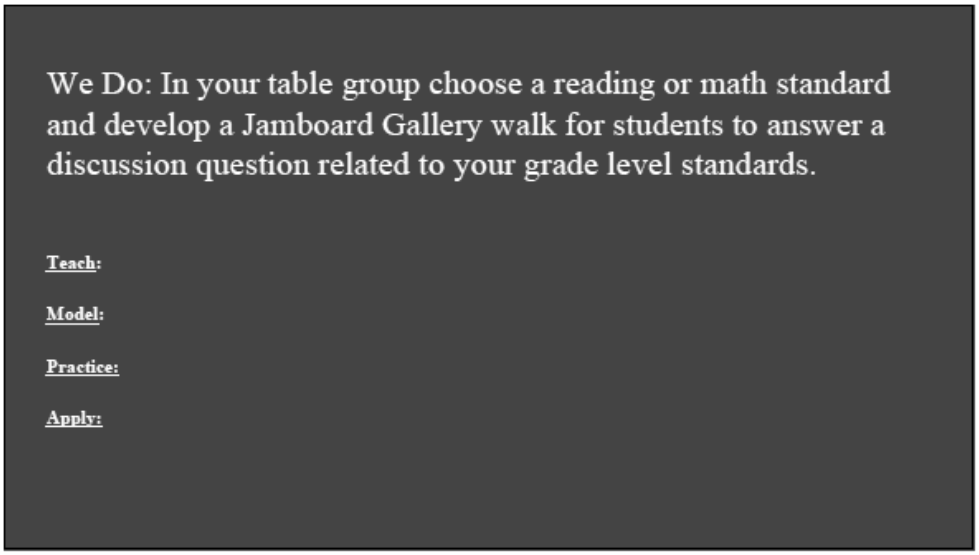
Example of Digital Jamboard Gallery Walk Pedagogical Approach:

Students in class and will respond to a question posed by you the teacher:

- **In this example it connected directly back to the original question or hook of the lesson which for us today was what are 3 words that come to mind when you hear the phrase Technology in Instruction?**
- **After the activity we completed earlier we had learning on the topic for the day and then broke into a collaborative group for discussion.**
- **The pedagogical approach of a gallery walk was used, however it was presented through the use of an online software application Jamboard.**
- **Finally, as a student you were asked to work collaboratively with your group to create an artifact of learning on Jamboard on your specific grade level board, by answering the discussion question of how do you use technology within instruction?**

Let's practice how to do this with grade level standards.





The presenter will model engagement during the 'I Do' portion, and have participants add their ideas on this Jamboard. The presenter will explain how to use Jamboard at this time.

YOU DO:

Individually take 5 minutes to brainstorm ideas of how you could use this pedagogical approach of a Jamboard digital gallery walk with students into your lessons and how you could embed technology such as Jamboard to have students collaborate together through a technology application and create an artifact of their learning.

Teach:

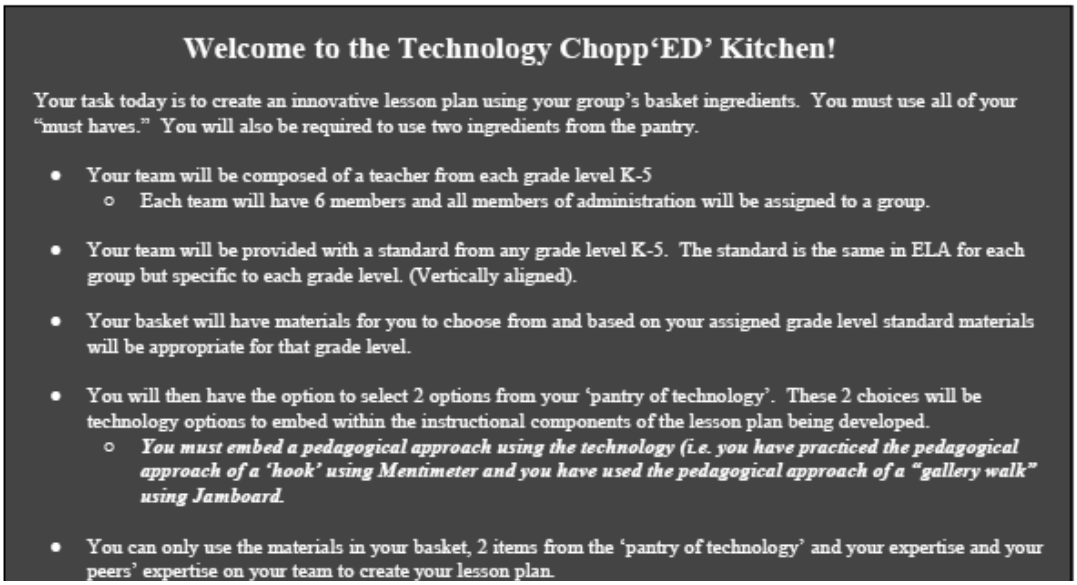
Model:

Practice:

Apply:

Break!

10:00-10:15



Welcome to the Technology Chopp'ED' Kitchen!

Your task today is to create an innovative lesson plan using your group's basket ingredients. You must use all of your "must haves." You will also be required to use two ingredients from the pantry.

- Your team will be composed of a teacher from each grade level K-5
  - Each team will have 6 members and all members of administration will be assigned to a group.
- Your team will be provided with a standard from any grade level K-5. The standard is the same in ELA for each group but specific to each grade level. (Vertically aligned).
- Your basket will have materials for you to choose from and based on your assigned grade level standard materials will be appropriate for that grade level.
- You will then have the option to select 2 options from your 'pantry of technology'. These 2 choices will be technology options to embed within the instructional components of the lesson plan being developed.
  - ***You must embed a pedagogical approach using the technology (i.e. you have practiced the pedagogical approach of a 'hook' using Mentimeter and you have used the pedagogical approach of a "gallery walk" using Jamboard.***
- You can only use the materials in your basket, 2 items from the 'pantry of technology' and your expertise and your peers' expertise on your team to create your lesson plan.

Content Area: Reading, Writing and Communicating *Standard Category:* 2. Reading for All Purposes
K: With prompting and support, identify the main topic and retell key details of a text. (CCSS: RI.K.2)
1st grade: Identify the main topic and retell key details of a text. (CCSS: RI.1.2)
2nd grade: Identify the main purpose of a text, including what the author wants to answer, explain, or describe. (CCSS: RI.2.6)
3rd grade: Determine the main idea of a text; recount the key details and explain how they support the main idea. (CCSS: RI.3.2)
4th grade: Determine the main idea of a text and explain how it is supported by key details; summarize the text. (CCSS: RI.4.2)
5th grade: Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text. (CCSS: RI.5.2)

The presenter will explain their process of developing a lesson plan from beginning to end with the gradual release model (I Do, We Do, You Do). The presenter will model how to incorporate technology into the pedagogy and provide different

examples of technology that could be used during different portions of the lesson and explain that pedagogical models that employ technology should be included in the understanding of educational objectives as a means to support and enhance learning outcomes. The presenter will explain how the use of technology in education can provide opportunities for personalized learning, collaboration, and active engagement in the learning process.

The presenter will explain that when considering educational objectives, it is important to determine what skills and knowledge students need to acquire and how technology can be used to support this learning. For example, if the objective is to develop critical thinking skills, technology can be used to provide students with access to a range of resources and tools for analyzing and evaluating information. If the objective is to promote creativity and innovation, technology can be used to provide students with tools for designing, creating, and sharing their own digital content.

The presenter will then explain that it is also important to consider the role of technology in supporting diverse learners and ensuring equitable access to education. Pedagogical models that employ technology should be designed with considerations for accessibility and inclusivity and that ultimately, the understanding of pedagogical models that employ technology should be integrated into the broader understanding of educational objectives and the overall goals of education. Technology can be a powerful tool to support learning and achievement, but it should be used intentionally and purposefully to support educational objectives and meet the needs of all learners. The

lesson plan template that will be used can be found in Appendix H. The following is the sample lesson plan that will be modeled for teachers:

Lesson Outline (I Do, We Do, You Do):

Handout The Whipping Boy text:

-Read aloud Chapter 6 to promote fluency and enhance comprehension.

Student Look Fors:

-Students should be following along and listening.

-After the reading is complete, students should write down at least one unfamiliar word and one example of figurative language to discuss in groups. (This can be done digitally on Padlet, Jamboard, or a collaborative PPT slide)

On the premade handout (digital version accessed through Schoology or paper version):

Read the excerpt from the text aloud.

- Point out the words the author uses to describe the hut the two villains live in.
- Ask students "What do these words make you picture in your mind?"
- Students may use the notetaker to record thoughts and answers.
- Have students share with a partner what they see in their minds after reading these words.

Bloom's Guiding Questions:

-Rickety means shaky. How does this affect the way you picture the hut? ***(Understanding/Comprehension)***

-Example Answer: I picture it as old and worn out, broken

-Do you think the wood that the hut is made of is in good condition? ***(Remembering/Knowledge)***

-Example Answer: No if it is rickety then the wood is probably rotten and falling apart.

-What do you think it's like to have a thatched roof when it is raining? ***(Remembering/Knowledge)***

-Example Answer: If the only thing covering the roof is straw, I picture it leaking when it rains.

Student Look Fors:

-Students should understand that the hut was in bad shape and not a pleasant place to live.

Additional Notes:

Students can use context clues to define the word revealing. When Hold-Your-Nose Billy pushed aside a low branch, then the hut was shown or revealed.

Tell students, "The author of The Whipping Boy uses a joking tone and says the opposite of what he means when describing people, places, or events in the text."

I Do (Teacher Models):

Re-read the excerpt aloud or ask a student to read it aloud.

Tell students, "In this excerpt, Hold-Your-Nose Billy reveals his rickety timbered hut with a moldy thatched roof and then calls it his castle."

On the notetaker, have students draw what the actual hut looks like (can use Google Drawing) by focusing on the details, descriptions, and literal meaning of the text. Have students label their drawings with details from the text.

When students are finished, conduct a student-led discussion to answer the question,

Bloom's Guiding Questions (Can be answered in collaborative discussion, Padlet, Schoology discussion board, or Flipgrid):

- *"What are the differences between the outlaws' hut and the real castle?" to help students understand the figurative description of the hut.* ***(Analysis)***
- *Why does Hold-Your-Nose Billy call the hut "our castle"?* ***(Understanding/Comprehension)***
- *The villains don't believe that Prince Brat is the real prince, so he is making fun of the prince with sarcastic remarks. What words should you use to help you draw the actual hut?* ***(Understanding/Comprehension)***
  - *(Sample Words: Branches, Rickety, Timbered, Hut, Moldy, Thatched)*
- *Based on the details of the hut, what can you infer about how the outlaws live and their class in the feudal society?* ***(Analysis)***

Student Look Fors:

Students should note the details the author uses to describe the hut.

Students should understand the villains don't believe that Prince Brat is the real prince, so he is making fun of the prince when he says, "There's our castle."

Students should begin to understand that the poor people in the Middle Ages live very differently than the nobles.

The author uses sarcasm throughout The Whipping Boy. Understanding sarcasm is not a reading standard until high school, so many students will struggle with these concepts. It may be important to point out these examples to guide students' understanding of the language in the text.

We Do (See attached Note catcher):

Pair students using an established classroom routine.

-Have students work with a partner to continue to re-read the chapter.

-Students should answer the questions on the notetaker (digitally using Google Docs, or Microsoft Word, or students may choose to use paper-based) as they are re-reading.

-Circulate the room and assist students in understanding the text as necessary.

Student Look Fors:

-Students should understand that the description of the hut tells us that the outlaws are very poor. They live in the middle of the forest in a run-down hut. The floor was made of dirt and the author describes it as gloomy.

-Students should understand that Prince Brat still hasn't realized that he has no power in this situation. He also has never experienced eating "peasant" food such as bread and herring.

-Students should understand that since Jemmy used to live on the streets, he considers bread and herring a treat.

-Students should understand that when the author calls Cuttwater "bone-thin" that it makes the reader picture someone who is starving. This connects to the rest of the chapter because it is describing the food that the boys were offered to eat compared to what was in the Prince's basket.

-Students should understand that the Prince still believes that these foods are his. It is another example of him being unintelligent, aloof, and self-centered.

-Students should understand that Jemmy is frustrated with the prince and thinks he is stupid when he calls him "empty-headed."
-Students should understand that Hold-Your-Nose-Billy thinks they can trade in the Prince for fifty pounds of gold.

You Do (See attached Exit Ticket):

The teacher will explain that students learned to refer to details in the text while explaining what the text says explicitly or when drawing inferences from the text. The teacher will assess students understanding by reviewing their independent work through student choice of a Discussion Board on Schoology, Padlet, Video/Audio recording on Flipgrid, or paper/pencil.

Students will independently answer the following question(s):

1. How did the author use descriptions of different food to help us better understand and describe the characters? What can you infer about the characters based on their reactions within the text?
2. At the end of the chapter the outlaws found the crown, explain why the crown would excite the outlaws by providing details from the text. Explain how finding the crown could elicit different reactions from different characters in the text.

Lesson Notetaker:

The Whipping Boy:
Ch.6 in Which the Plot Thickens

- Sketch the outlaws' hut as described in the text. Label your sketch with details from the text. Use the details and examples from another text that we've read to sketch a castle. Label your sketch with details from the text.
    - You may choose the following options to create your sketch:
        - Paper/Pencil
        - Google Drawings
        - PowerPoint
        - Microsoft Paint Application

PARTNER WORK

" 'And feast you will said Hold Your Nose Billy, 'Cutwater, serve 'em up some of our finest bread and herring.'" Jemmy had made many a meal on bread and herring, when he was in luck, and felt hungry enough to ask for seconds.

Prince Brat bared his teeth. 'I'd sooner eat mud!'".

- **What do the characters' reactions to the bread and herring tell us about the characters?**
    - With your partner you will analyze each of the characters' reactions and compare and contrast the reactions.
        - Highlight words that signify a reaction within the text in yellow for the character Jemmy and in orange for the character Prince Brat, Cutwater highlight in green, and Hold Your Nose Billy highlight in blue)
    - You may choose the following options to analyze the character's reactions and compare and contrast:
        - Paper/Pencil/Highlighters (Yellow, Orange, green and blue)
        - Google Drawings
        - PowerPoint
        - Google Jamboard

"He reached for the wicker basket, but Cutwater snatched it back. 'What we got here?' muttered the bone-thin man and threw back the lid. 'Roll your eyes at this, Billy! Meat pies, looks like, and fruit tarts-and a brace of roast pheasant! We'll eat like kings."

'Hands off—that's mine!' the prince cried out!

'Was yours,' yapped Cutwater."

- **With your partner use the description above to describe Cutwater's character. Reference the green highlighted words and how he reacts within the passage to aid in the description.**

- **With your partner discuss what you learn about the prince when he cries out, "Hands off—that's mine!? What do you infer will happen next?**

Formative Assessment (Exit Ticket):

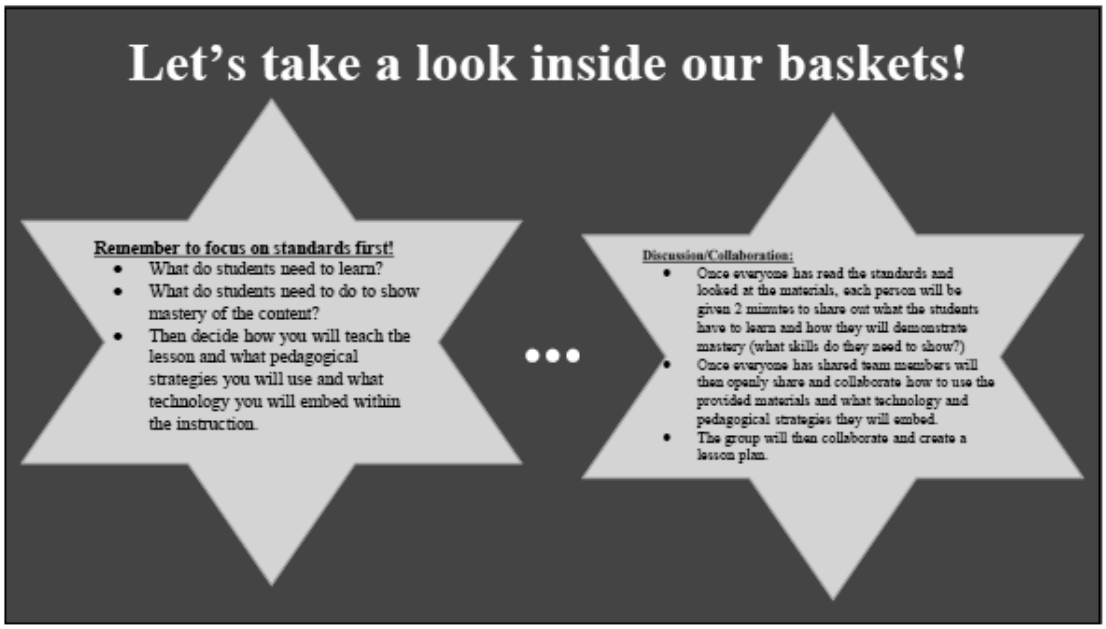
Today you learned to refer to details in the text while explaining what the text says explicitly or when drawing inferences from the text.

- You may choose the following options to complete your exit ticket:
  - Discussion Board on Schoology
  - Padlet
  - Video/Audio recording on Flipgrid, or
  - paper/pencil).

1. How did the author use descriptions of different food to help us better understand and describe the characters? What can you infer about the characters based on their reactions within the text?

2. At the end of the chapter the outlaws found the crown, explain why the crown would excite the outlaws by providing details from the text. Explain how finding the crown could elicit different reactions from different characters in the text.


Take a look inside our pantry of technology!
*These are just suggestions you may use any type of technology site or idea that you or your teammates can think of!
Any technology of your choosing (This counts as 1 pantry item)
Canva
Flipgrid
padlet
Flocabulary
Pear Deck


Let's take a look inside our baskets!
Remember to focus on standards first!
What do students need to learn?
What do students need to do to show mastery of the content?
Then decide how you will teach the lesson and what pedagogical strategies you will use and what technology you will embed within the instruction.
Discussion/Collaboration:
Once everyone has read the standards and looked at the materials, each person will be given 2 minutes to share out what the students have to learn and how they will demonstrate mastery (what skills do they need to show?)
Once everyone has shared team members will then openly share and collaborate how to use the provided materials and what technology and pedagogical strategies they will embed.
The group will then collaborate and create a lesson plan.

Team 1 & 5

Must haves:

2 pantry of technology items

- Book: Charlotte's Web
- Answer Buzzers
- Construction paper
- Markers

Team 1 Lesson Plan

Kindergarten Standard
Team Member Names:
Insert Names Here

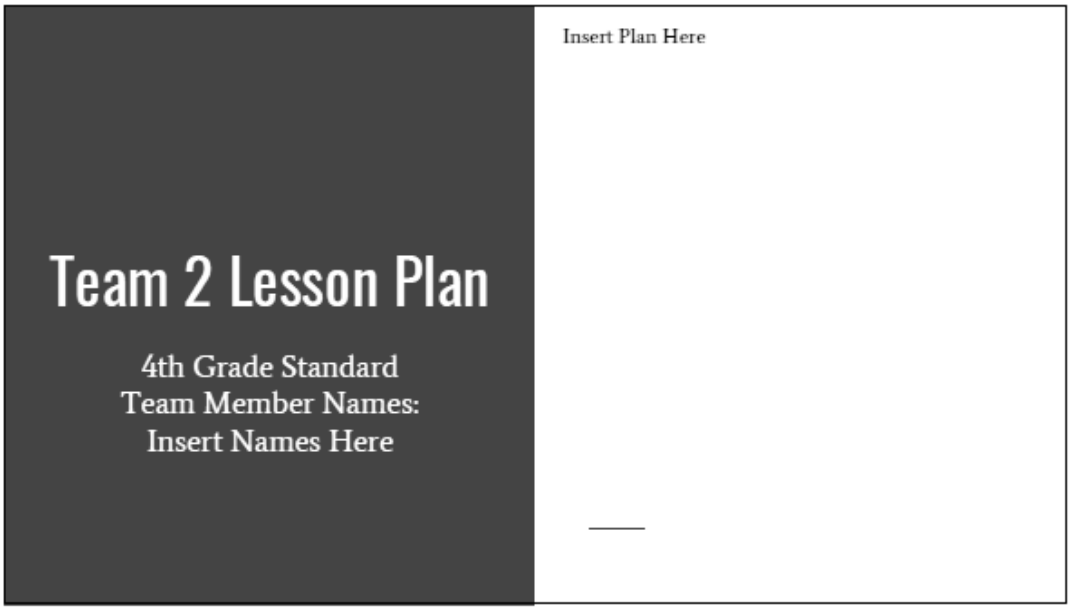
Insert Plan Here

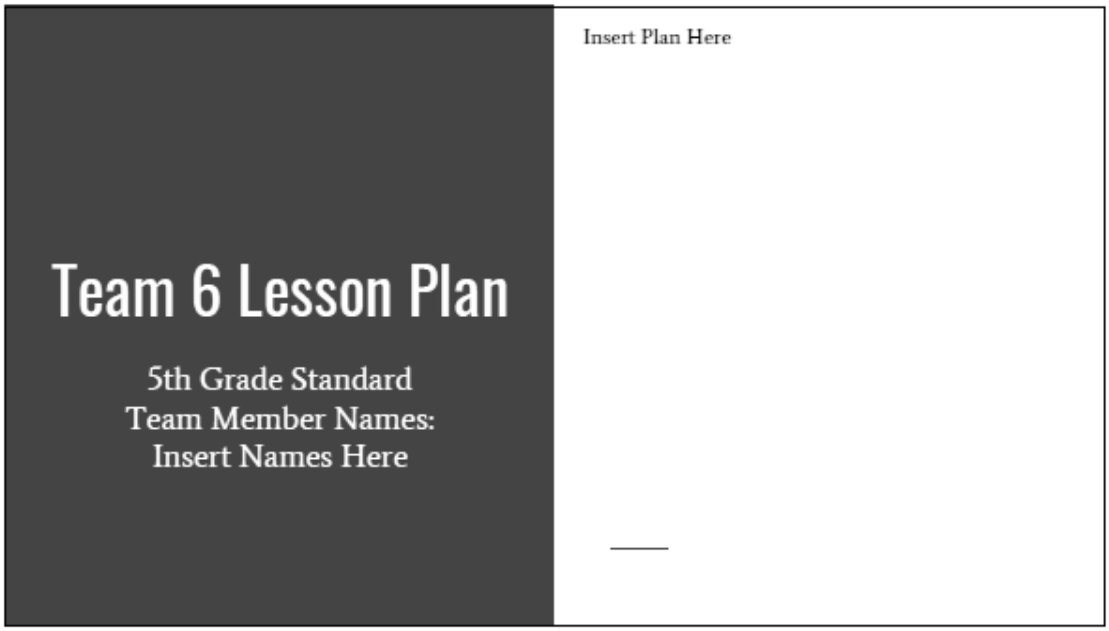
Team 2 & 6

Must haves:

2 pantry of technology items

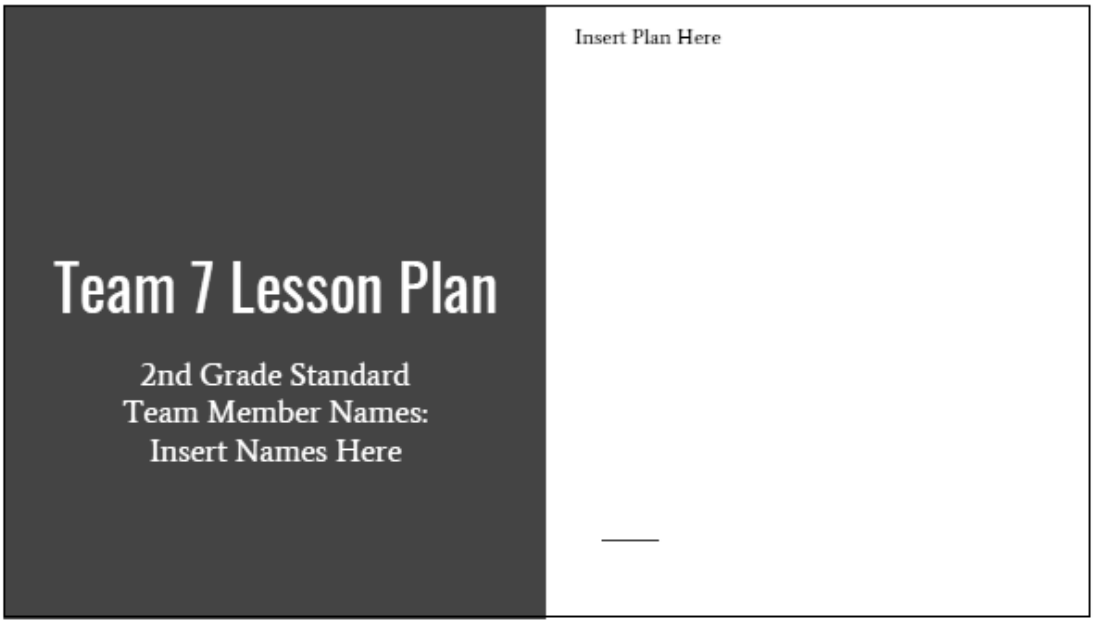
- Book: The Wild Robot
- Pack of Highlighters
- Sticky notes
- Stickers


Team 2 Lesson Plan
4th Grade Standard
Team Member Names:
Insert Names Here
Insert Plan Here

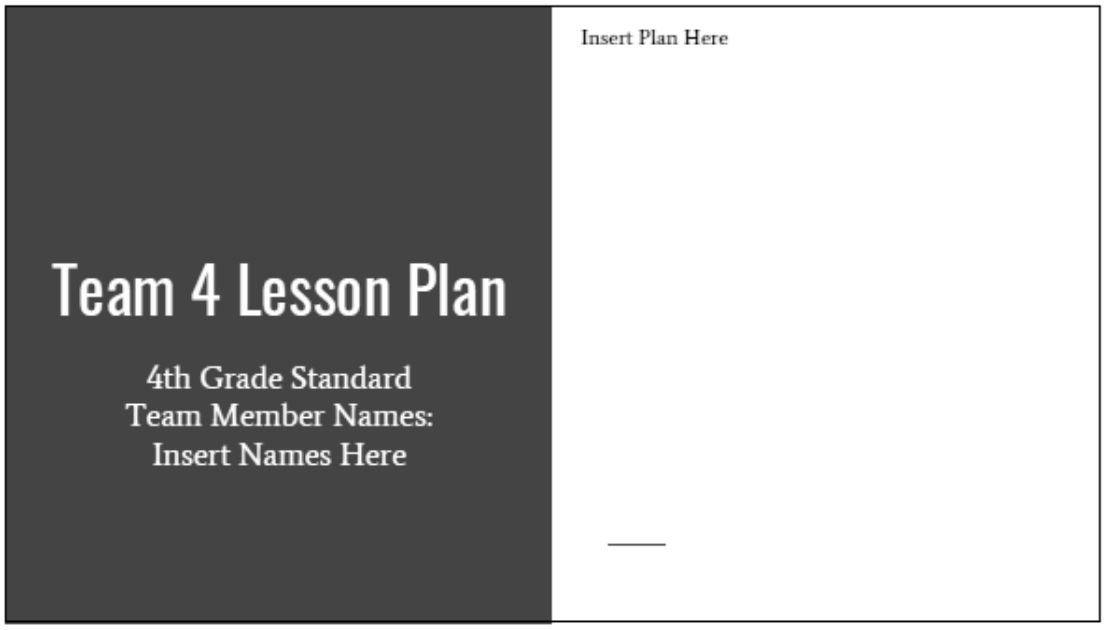

Team 6 Lesson Plan
5th Grade Standard
Team Member Names:
Insert Names Here
Insert Plan Here


Team 3 & 7
Must haves:
2 pantry of technology items
❖ Book: Beauty and the Beast
❖ Balloons
❖ Foldables
❖ Paper clips


Team 3 Lesson Plan
3rd Grade Standard
Team Member Names:
Insert Names Here
Insert Plan Here


Team 7 Lesson Plan
2nd Grade Standard
Team Member Names:
Insert Names Here
Insert Plan Here


Team 4 & 8
Must haves:
2 pantry items
❖ Book: Wonder
❖ Whiteboards/markers
❖ Fasteners
❖ Timer


Team 4 Lesson Plan
4th Grade Standard
Team Member Names:
Insert Names Here
Insert Plan Here


Team 8 Lesson Plan
5th Grade Standard
Team Member Names:
Insert Names Here
Insert Plan Here

Let's discuss
How can you use this in your classroom?

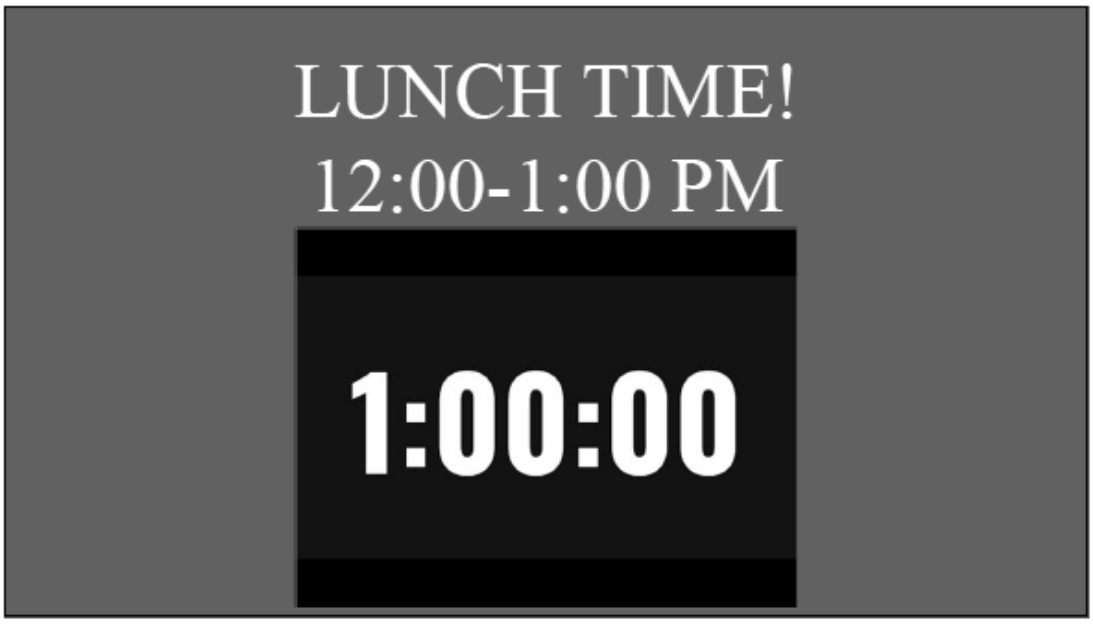
Ongoing Professional Learning:

-The instructional coaches will each take 1 lesson from primary and 1 lesson from intermediate and when school begins will teach the lesson and film themselves. This model lesson will then be uploaded to the staff drive as an ongoing resource.

-Teachers are encouraged to film any lesson where they embed technology within the lesson and their pedagogical approaches and upload to the shared staff drive as an ongoing resource.

-The activity of breaking down a standard and working collaboratively to embed technology into pedagogical approaches will be embedded within every PLC in each grade level to ensure the continuation of learning and collaboration.

*** Administration and instructional support staff are embedding this within the year long PLC plan to ensure implementation and at least 1 administrator will continue to be present at weekly PLC meetings as is standard practice.**



PLC Team Collaboration/Work Time

In grade level PLC teams you will:

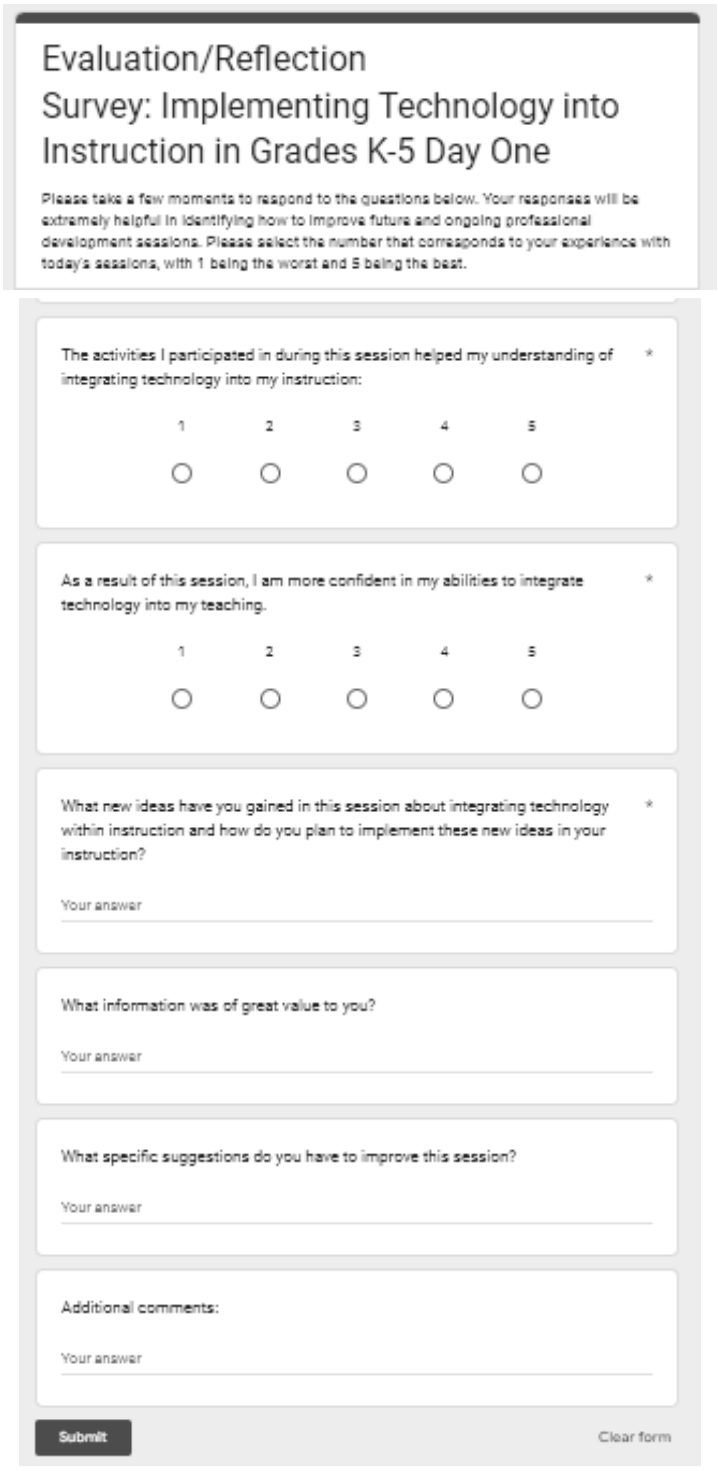
- Take the learning from the session activity and have work time to begin planning lessons for your appropriate grade level as a team.
- This is your team's time to collaborate and share previous learning from today and your own background knowledge.
- Plan for any content area that your team determines would be the most appropriate for your grade level to embed technology within the instruction.
- Trainers and administrators will be available to support grade level teams during this work time.

*Remember to start with the grade level standards!

Scan the QR Code to complete the session evaluation for Day One

OR go to the following link https://bit.ly/3Ek5hvr

Implementing Technology into Instruction in Grades K-5
Session 1 Day 1



Evaluation/Reflection
Survey: Implementing Technology into Instruction in Grades K-5 Day One

Please take a few moments to respond to the questions below. Your responses will be extremely helpful in identifying how to improve future and ongoing professional development sessions. Please select the number that corresponds to your experience with today's sessions, with 1 being the worst and 5 being the best.

The activities I participated in during this session helped my understanding of integrating technology into my instruction: *

1 2 3 4 5

As a result of this session, I am more confident in my abilities to integrate technology into my teaching. *

1 2 3 4 5

What new ideas have you gained in this session about integrating technology within instruction and how do you plan to implement these new ideas in your instruction? *

Your answer

What information was of great value to you?

Your answer

What specific suggestions do you have to improve this session?

Your answer

Additional comments:

Your answer

Submit Clear form

Session 2 Outcomes	
PD Objectives: Objectives: • Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade level. • Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technology skills. • Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district. • Teachers will be able to reflect on their classroom pedagogical practices and decide how to apply the strategies they learned during training.	
Agenda	
8:00-8:30	Breakfast provided for participants. Chat/Eat
8:30-8:45	Welcome and Introduction
8:45-9:00	Team Building Activity
9:00-9:45	Collaborative Share of Session 1 Activity
9:45-10:00	Break
10:00-11:30	Engaging Students in Learning Using 21st-century Tools
11:30-12:00	PLC Team Collaborative Work Time
12:00-1:00	Lunch
1:00-2:15	Differentiated Learning Session: How to use district provided resources and platforms to embed technology within instruction
2:15-2:30	Review of Homework for Session 3 and Google Form Sign Up for Speed ‘Tech’ing Activity
2:30-3:00	Closing & Session Evaluation

Implementing Technology into Instruction in Grades K-5 Session 2

Presented By: Megan Bailey

Welcome!

Today's Agenda
Session 2

- Team Building Activity
  - Examples of how to use within content
- Collaborative Share Out of Learning Activity from Session 1
- Break
- Engaging Students in Learning Using 21st Century Tools
- PLC Team Collaborative Work Time
- Lunch
- Differentiated Learning Session: How to use district provided resources and platforms to embed technology within instruction.
- Review of Homework for Session 3 and Google Form Sign Up for Speed 'Tech'ing Activity
- Session Evaluation/Reflection

Learning Objectives:

- Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade level.
- Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technology skills.
- Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district.
- Teachers will be able to reflect on their classroom pedagogical practices and decide how to apply the strategies they learned during training.

Team Building Activity

Online Pictionary
Each grade level team will compete against each other in this fun online game!

- We will think-pair-share at the end of the game.
  - Be prepared to share how you would use this game across content areas to increase student engagement.

Drawing Game

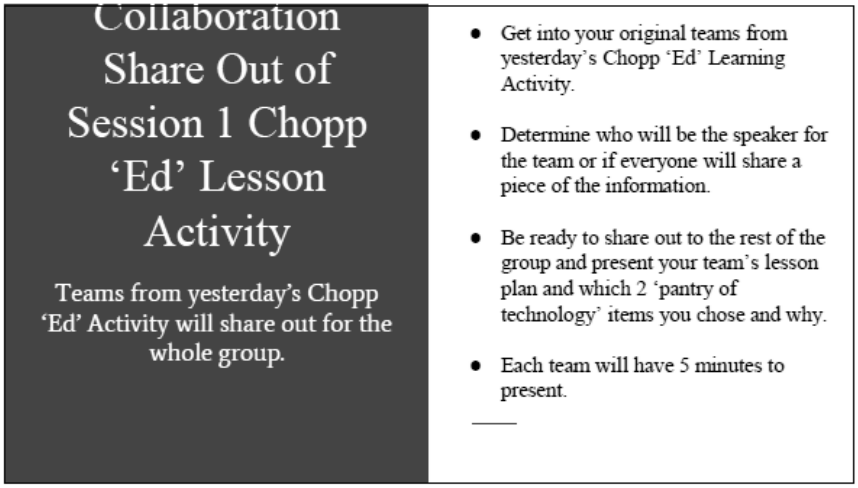
Pictionary is a great team building game that requires collaboration and teamwork!

Skribbl is a free platform that generates drawing prompts, provides a canvas and scoring.

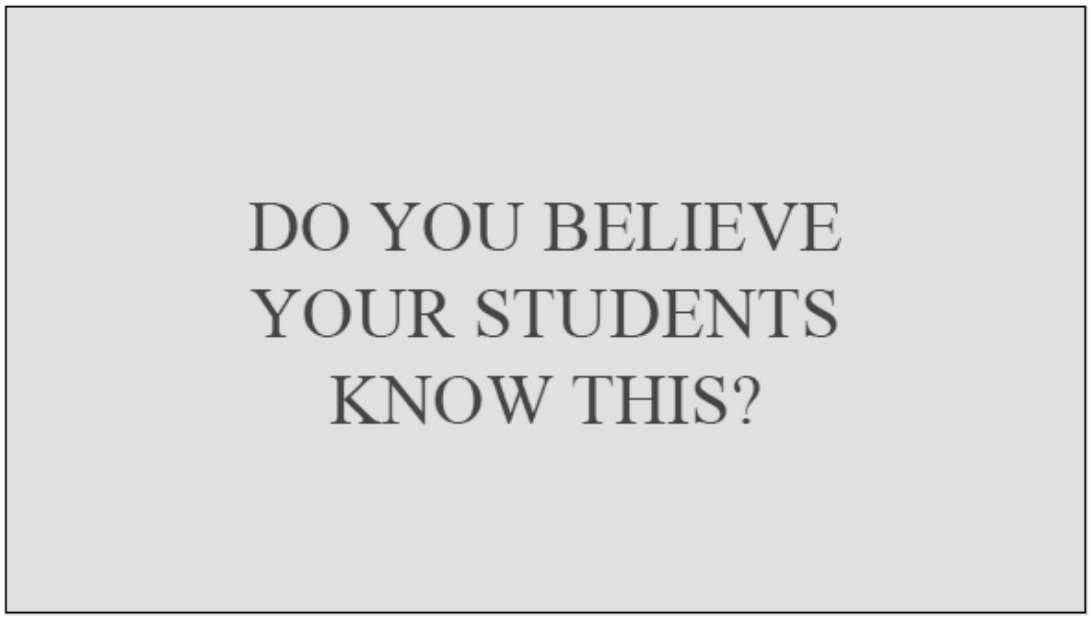
- At each player's turn, they receive a word as a drawing prompt.
- They draw while the other users watch their canvas in real-time and guess.
- The system allocates points to the correct guesses.

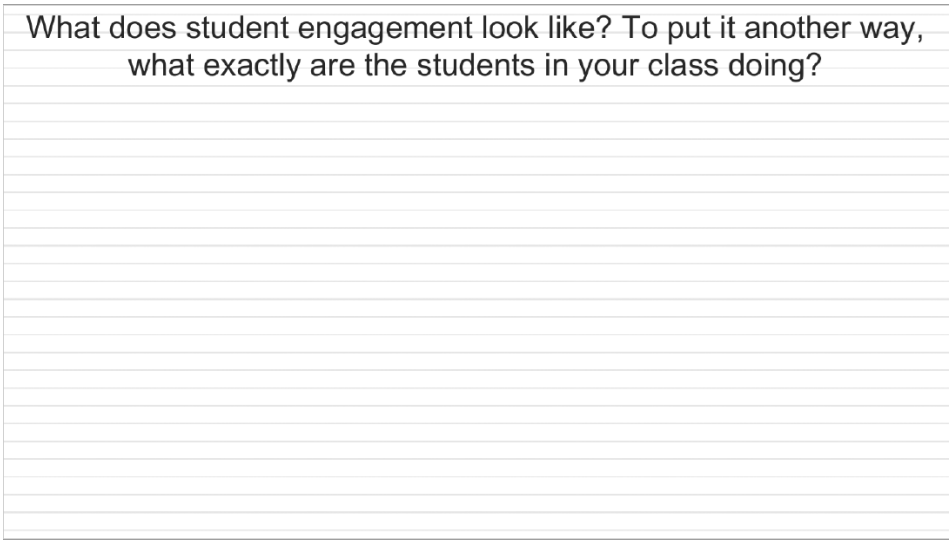
15:00

The presenter will model out how this game can be used with students to begin to build teamwork and collaboration skills amongst groups. The participants in the training will be the students as they complete this game. At the end of the activity participants will engage in a think-pair-share to discuss how this game could also be used within content areas to create engagement. The pairs will then share out amongst the whole group.

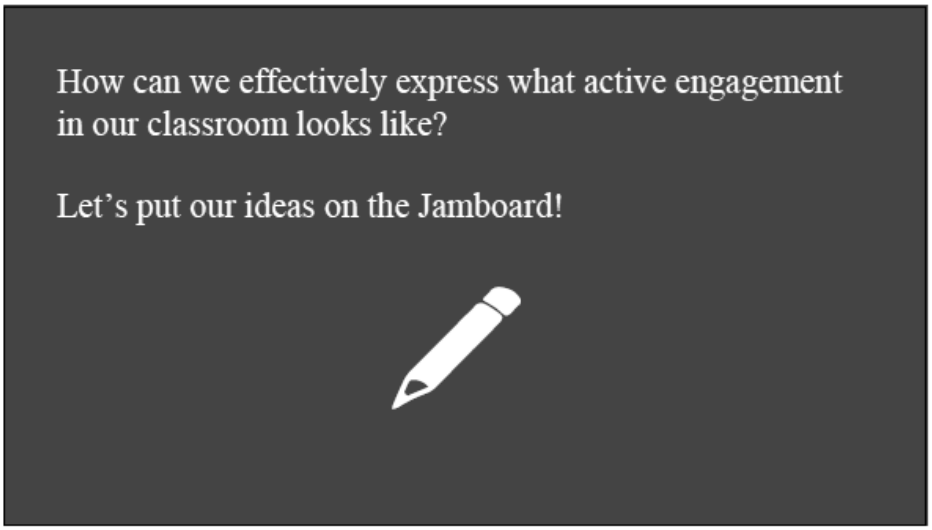



Engaging Students in Learning through 21st Century Tools
•••
Technology is simply a tool…engagement is where students begin to learn!

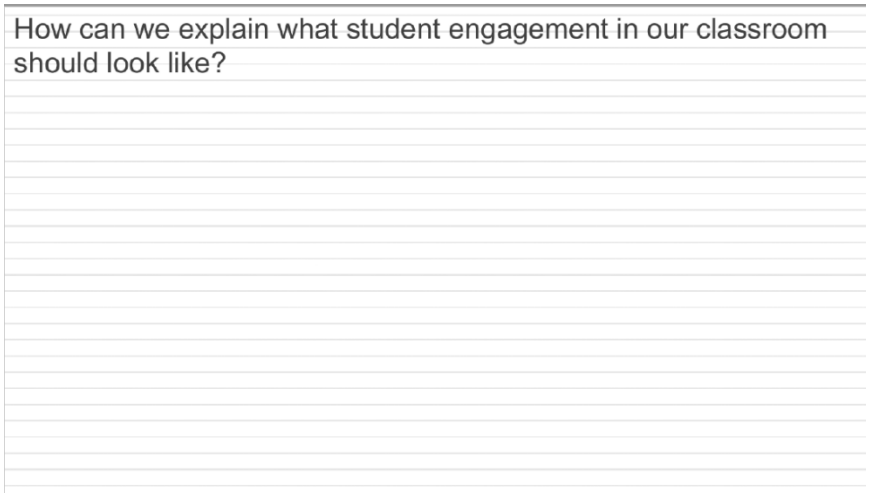

DO YOU BELIEVE YOUR STUDENTS KNOW THIS?

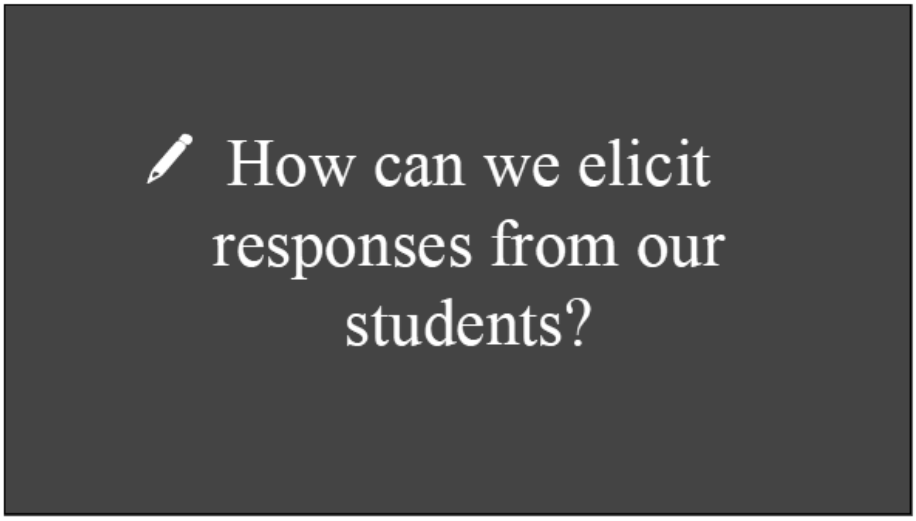


The presenter will share a pre-created Jamboard at this time. Following completion of frame 1 of Jamboard ("What does student engagement look like? In other words, "What are your students doing in your class?"), the presenter will pose this question. We rarely tell students what we expect of them. Which brings us to the following slide.



The presenter will ask participants to go to the second frame of the collaborative Jamboard. Ideas for sharing include rubrics, directly stating it, using imagery and cues (such as the pencil used to write something), developing some class norms that include student expectations, creating anchor charts to which you may return as needed, possibly including it in the student handbook. Also, validate the thoughts of others. We are developing engagement ideas together, and then you can do the same with students.





The presenter will explain that pedagogical practices in the classroom refer to the many tactics and strategies employed by teachers to encourage student involvement and support learning. Common pedagogical strategies for eliciting reactions from students include the following:

Lecture: This involves the teacher presenting information to students through a lecture format. This can be an effective way to introduce new concepts or information, but may not be the most engaging approach for all learners.

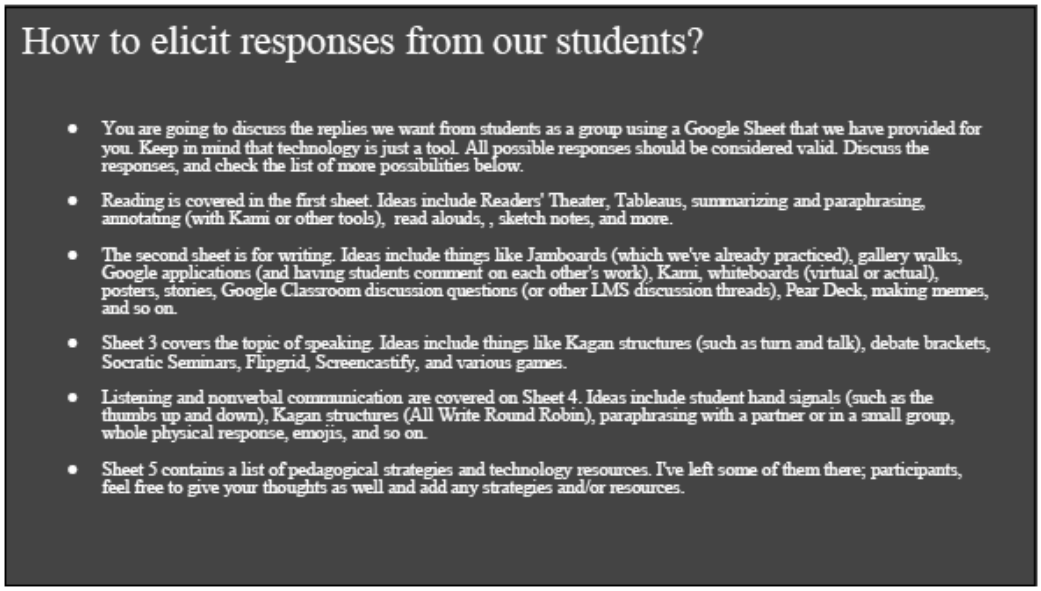
Discussion: This involves students sharing their thoughts and ideas with one another in a group discussion format. This can be an effective way to encourage critical thinking and collaboration among students.

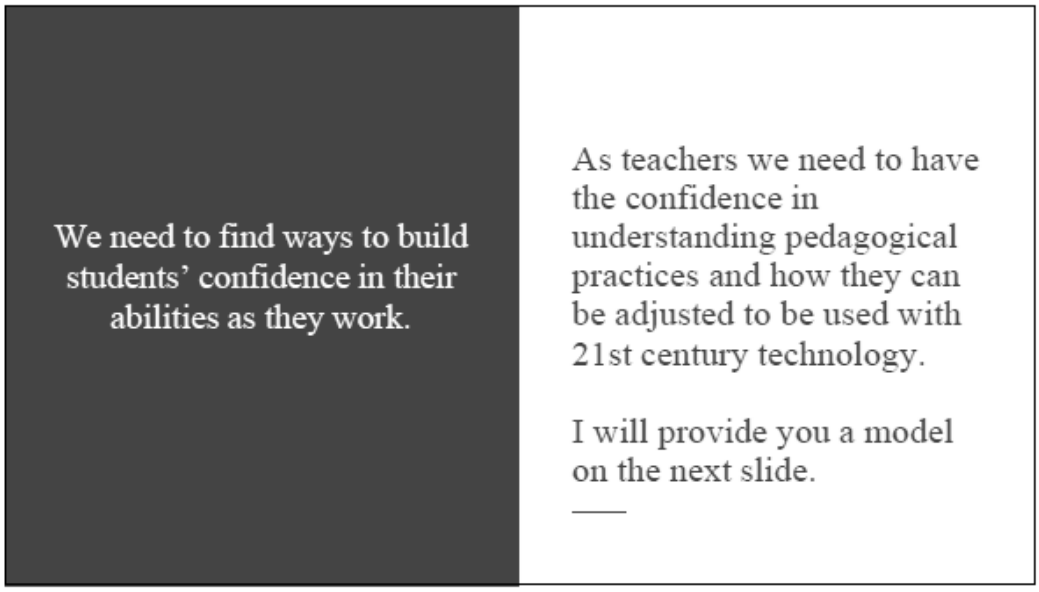
Inquiry-based learning: This approach involves students investigating a problem or question through research and exploration. This can be an effective way to promote student engagement and deeper learning.

Project-based learning: This approach involves students working on a long-term project or task that is designed to develop specific skills or knowledge. This can be an effective way to promote student engagement and provide opportunities for hands-on learning.

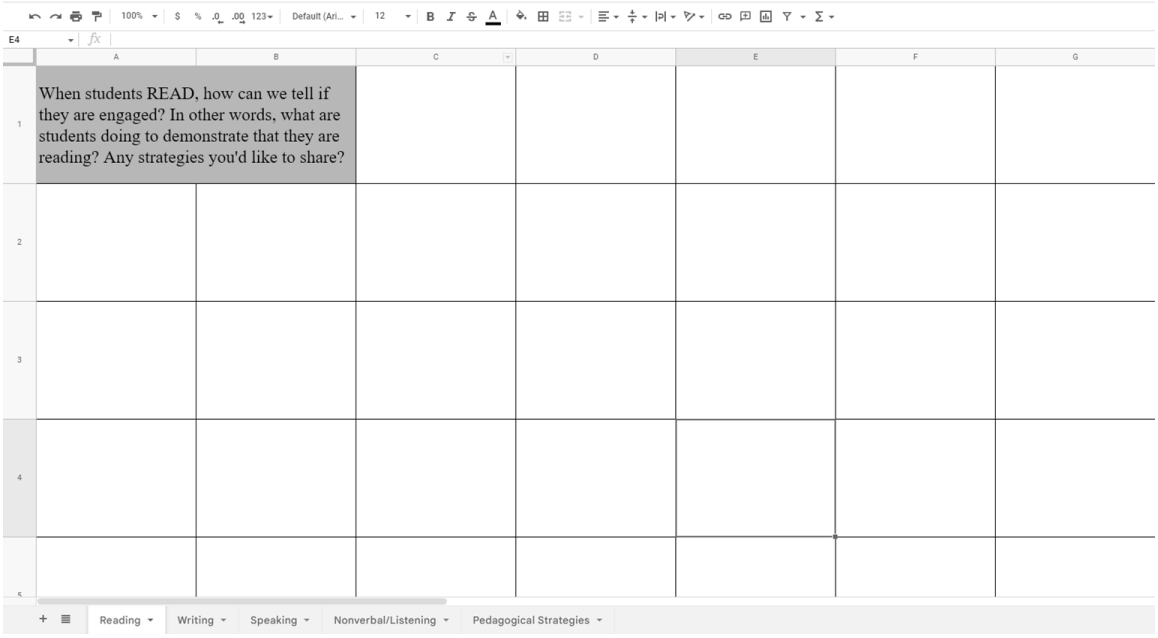
Flipped classroom: This approach involves students completing their learning outside of the classroom through videos, readings, or other resources, and then coming to class to work on activities or projects that apply their learning. This can be an effective way to promote active learning and student engagement.

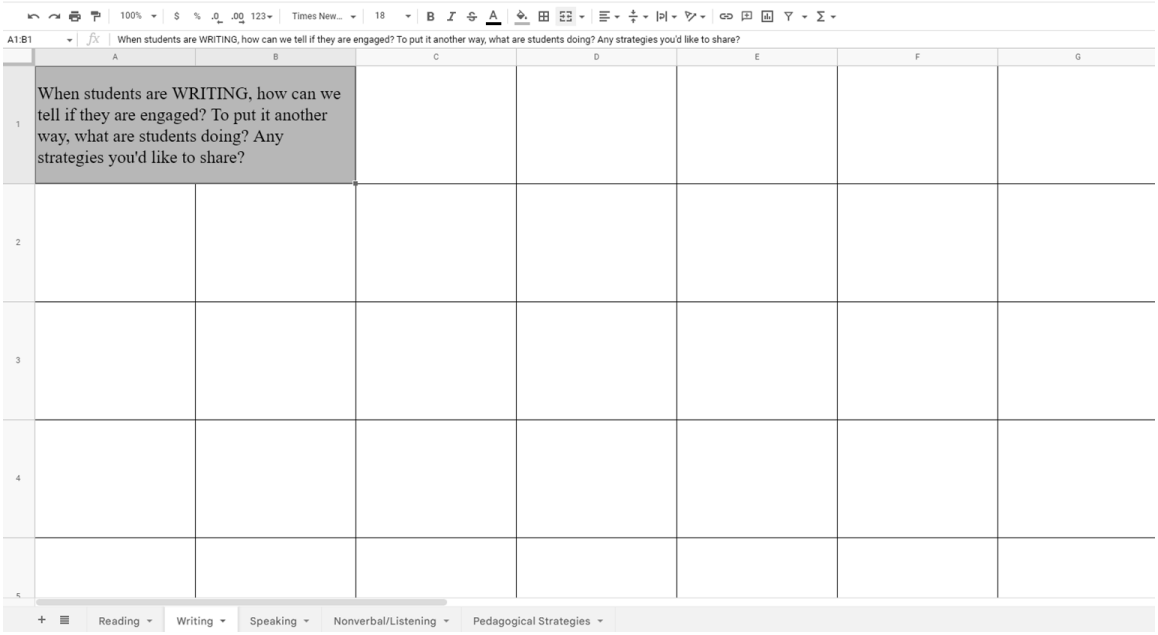
These are just a few examples of pedagogical practices that can be used in the classroom. The most effective approach will depend on the subject matter, learning objectives, and needs of the students. Effective teachers will often use a variety of pedagogical practices to promote student engagement and learning.

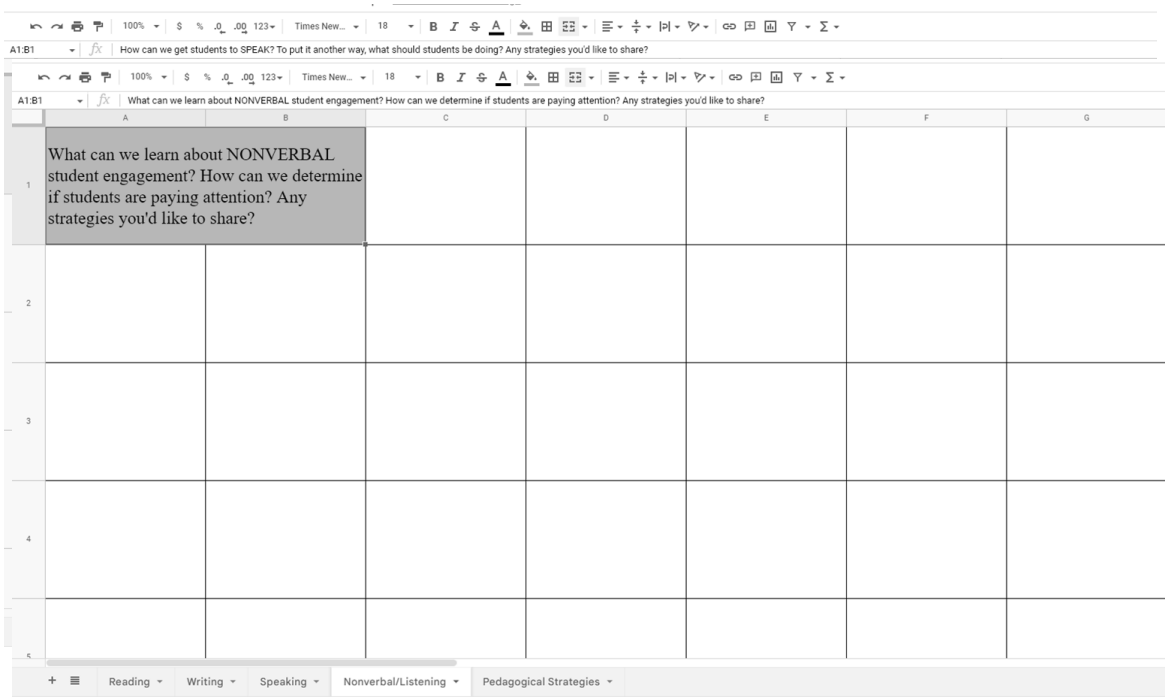




The presenter will share the following pre-created Google Sheets with participants.

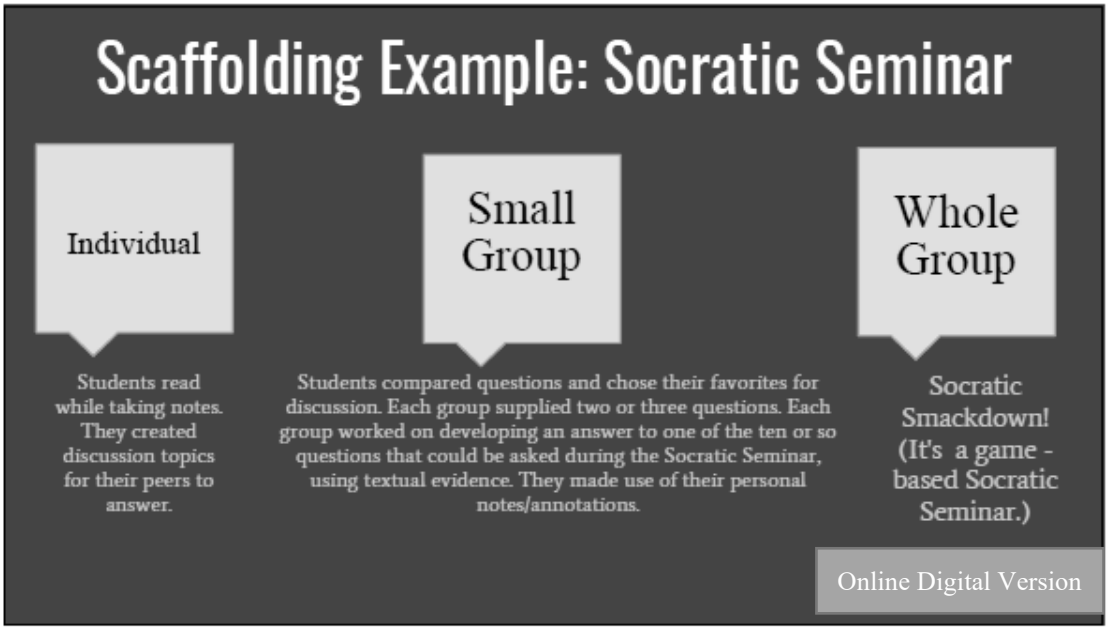






A1 | Pedagogical Strategy/Technology Tool

	A	B
1	**Pedagogical Strategy/Technology Tool**	**Why should we use this?**
2	Instructional Templates	There are Jamboards, Slides, Pear Decks that you can use as instructional templates.
3	Socratic Smackdown	Kids like competition and this is a way to gamify your Socratic Seminar. It has a step-by-step guide for you and your students.
4	Effective Closure Strategies	The brain craves closure, so if we want students to remember what we talked about in class, we need to add closure.
5	Marzano's Vocabulary Strategies	Make vocabulary more interesting and engaging by looking at these ideas
6	Student Talk Moves	These are sentence frames to support students during discourse
7	Graphic Organizers	Students need time to organize their thoughts, what they've read, etc. Don't start from scratch--use these!
8	Alice Keeler's Jigsaw Template	If you're going paperless, this gets kids into Google Slides and working together towards a final product. There is power in seeing what your classmates are doing and learning from them.
9	Kagan Cooperative Learning Strategies	Kagan knows how to get kids writing and speaking. Find an activity here to plug into your lesson plan. (All Write Round Robin, Carousel Feedback, Fan-N-Pick, Find Someone Who, Find-the-Fiction, Inside-Outside Circle, Jot Thoughts, Match Mine, Mix-Pair-Share, Numbered Heads Together, One Stray, Pairs Compare, Quiz-Quiz-Trade, Rally Coach, Rally Robin, Rally Table, Round Robin, Round Table, Round Table Consensus, Showdown, Simultaneous Round Table, Spend-A-Buck, Stand Up-Hand Up-Pair Up, Talking Chips, Team Stand-N-Share, Think-Write-Round Robin, Timed Pair Share)
10	DOK Question Stems	Have students write leveled questions with these question starters. (Or use them to write better questions for your own lesson plans!)
11		
12		
13		



The presenter will explain that this is how they scaffolded a Socratic Seminar in their 4th grade class. The presenter will explain how to scaffold learning from individual to small group to whole group and how to adjust the pedagogical strategy of a Socratic Seminar from traditional to digital. The presenter will explain how they scaffolded a Socratic Seminars in their 4th grade class and how the audience can adapt traditional Socratic Seminars to digital. The presenter will show how four to six student Socratic Smackdown teams discuss readings and use textual evidence to build connections and ask meaningful questions. Students earn points for beneficial contributions and lose points for inappropriate behavior such as interrupting teammates and clarify how the game will teach students how to collaborate as a class and engage in a discourse. The presenter will show how to use online tools and platforms for virtual dialogues and cooperation to digitize a Socratic seminar. First, the teacher will select a digital platform that is

appropriate for them and their students. The teacher will then develop a list of open-ended questions to foster student discussion. The questions should elicit critical thinking and reflection on the subject or literature and reflect Blooms Taxonomy. The teacher will then provide articles, films, or other digital resources to students to review and prepare for the debate.

The presenter will make clear how the teacher will then develop criteria for virtual discussions, such as turn-taking, active listening, and courteous dialogue. Following that, the class will debate the questions on the chosen platform. The teacher will encourage kid students to discuss and argue respectfully. Following the seminar, the teacher will ask students what they learned and how they performed.

The presenter will explain how this method can be used to digitize a Socratic seminar and foster critical thinking and participation among students through virtual conversations.

What encourages learning in small groups for students?

What works well for students during whole group instruction?

Things to remember:

- Remember the expression "less is more!" It is NOT required that you implement all of these principles into each and every lesson. Prepare for engagement that is intentional and purposeful.
- You can better differentiate your plan for ALL of your students if you account for two students who are really different from one another.
- Collect comments and suggestions from your students.
- If you fail don't give up! Remember to FAIL is your

  First

  Attempt

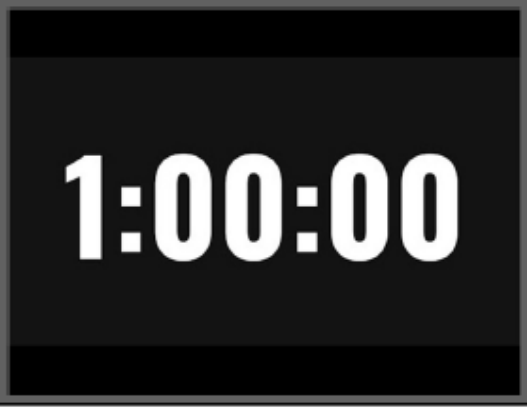
  In

  Learning!

PLC Collaboration/Work Time

1. Take your lesson plans developed in Session 1 yesterday and plug in ways students will need to engage and respond.
   a. Remember to plan for individual, small group, whole group.
   b. Remember to plan for how to adjust traditional pedagogy to incorporate technology.
2. Be prepared to share out!

LUNCH TIME!
12:00-1:00 PM



Learning Activity

schoology

How to use district provided resources and platforms to embed technology within instruction.

*Differentiated based on your level of understanding.

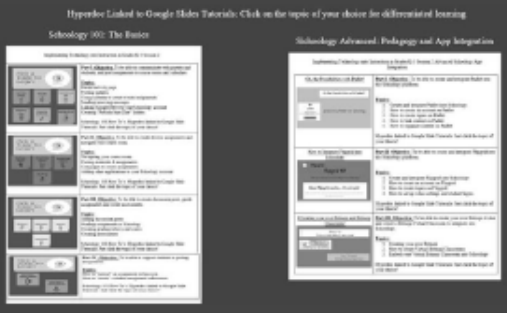
Learning Target(s): I can create diverse assignments and navigate my Schoology course room.

Success Criteria:

- I can use the basic functions of Schoology to embed technology within instruction.
- Create an assignment in Schoology as a teacher.
- Submit an assignment in Schoology as a student.
- I can embed different technology tools/resources into Schoology to aid in collaboration and cooperative learning amongst students.

Schoology 101

I Do:



schoology

Schoology is the digital platform used by your district to assign assignments, discussion posts, and provide a platform for resources and collaboration.

- As the teacher you must know how to use the platform both in accessibility for you and your students, but also how you can use the platform with current pedagogical approaches.
- This next activity will differentiate your learning to your level and show how you can have discussion board postings where students can collaborate, how to assign group assignments where students collaborate and can create digital gallery walks, or have collaboration and discussion sessions on embedded padlet activities. The possibilities are endless.

Implementing Technology into Instruction in Grades K-5 Session 2

<table>
<tr>
<td> 
</td>
<td>Part I -Objective: To be able to communicate with parents and students, and post assignments to course rooms and calendars.

<u>Topics:</u>
Recent activity page
Posting updates
Using calendar to create events/assignments
Sending/receiving messages
Linking Google Drive to your Schoology account
Creating “Publish Start Date” folders

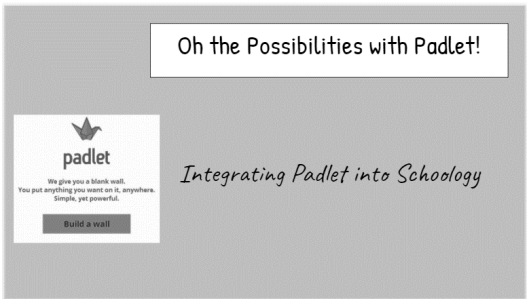
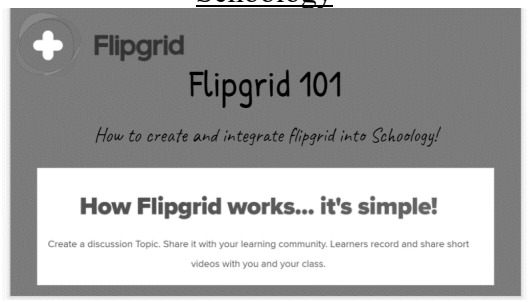
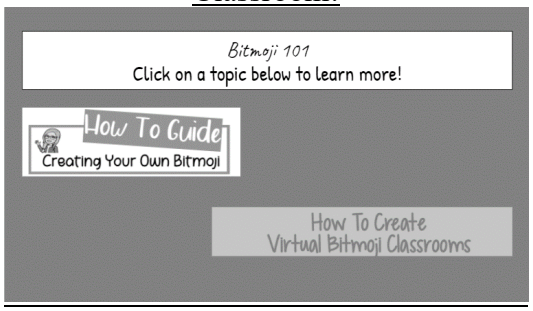
Schoology 101 How To’s: Hyperdoc linked to Google Slide Tutorials: Just click the topic of your choice!</td>
</tr>
<tr>
<td> 
</td>
<td>Part II- Objective: To be able to create diverse assignments and navigate your course room.

<u>Topics:</u>
Navigating your course room
Posting materials & assignments
Using apps to create assignments
Adding other applications to your Schoology account

Schoology 101 How To’s: Hyperdoc linked to Google Slide Tutorials: Just click the topic of your choice!</td>
</tr>
</table>

	**Part III- Objective**: To be able to create discussion posts, grade assignments and create assessments. **Topics:** Adding discussion posts Grading assignments in Schoology Creating grading rubrics and scales Creating assessments Schoology 101 How To's: Hyperdoc linked to Google Slide Tutorials: Just click the topic of your choice!
	**Part IV- Objective**: To be able to support students in posting assignments. **Topics:** How to "upload" an assignment submission How to "create" a student assignment submission Schoology 101 How To's: Hyperdoc linked to Google Slide Tutorials: Just click the topic of your choice!

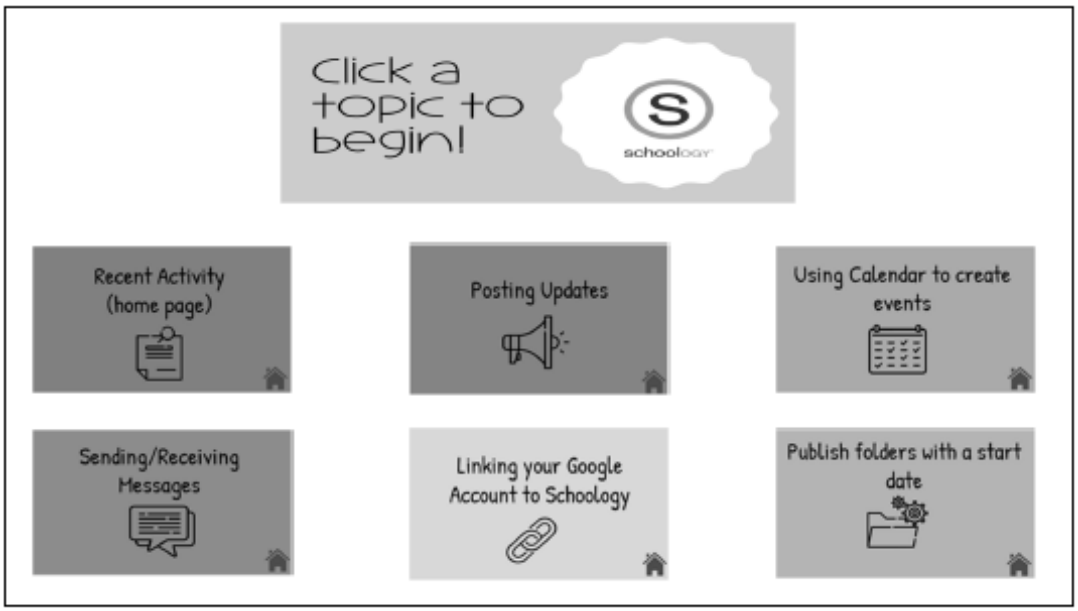
Implementing Technology into Instruction in Grades K-5 Session 2 Advanced Schoology App Integration

Oh, the Possibilities with Padlet! 	**Part I -Objective**: To be able to create and integrate Padlet into the Schoology platform. **Topics:** 1. Create and integrate Padlet into Schoology 2. How to create an account on Padlet 3. How to create topics on Padlet 4. How to link content on Padlet 5. How to organize content on Padlet Hyperdoc linked to Google Slide Tutorials: Just click the topic of your choice!
How to Integrate Flipgrid into Schoology 	**Part II- Objective**: To be able to create and integrate Flipgrid into the Schoology platform. **Topics:** 1. Create and integrate Flipgrid into Schoology 2. How to create an account on Flipgrid 3. How to create topics on Flipgrid 4. How to set up video settings and student logins Hyperdoc linked to Google Slide Tutorials: Just click the topic of your choice!
Creating your own Bitmoji and Bitmoji Classroom! 	**Part III- Objective**: To be able to create your own Bitmoji Avatar and create a Bitmoji Virtual Classroom to integrate into Schoology. **Topics:** 1. Creating your own Bitmoji 2. How to create Virtual Bitmoji Classrooms 3. Embed your Virtual Bitmoji Classroom into Schoology Hyperdoc linked to Google Slide Tutorials: Just click the topic of your choice!

We Do:

The following slide is now your turn to differentiate individually or in partners/groups depending on your personal level of expertise using the Schoology Digital Platform within your classroom instruction.

- You will choose what skill set you need to focus on:
  - This may be basic skills of how to create an assignment or folder.
    - (These skills are needed prior to embedding any pedagogical approaches within instruction when using Schoology).
  - You may be a more advanced user and would like to know how to embed pedagogical collaboration approaches within Schoology.
    - If you are an advanced user you will work on the Schoology Advanced App and Pedagogy Integration portion.



Your Turn:
Create an Assignment in
Schoology
From the Student Dashboard

schoology

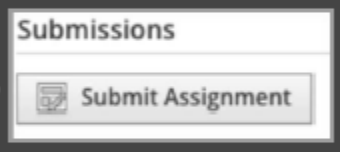
Learning objective: To upload an assignment into Schoology using the "create" feature as a student.

What you need to do <u>today to be successful</u>:

- Select the submit assignment button.
- To submit today you will have to *create* an assignment.
  - Select the *create button* and
  - Type your answers to the questions in complete sentences.
- When you have answered all questions in complete sentences click SUBMIT.
- Follow the directions carefully and have fun- I am SO excited to get to know you!

Directions: This activity will teach me a little more about you AND demonstrate that you know how to submit a "created" assignment in Schoology.

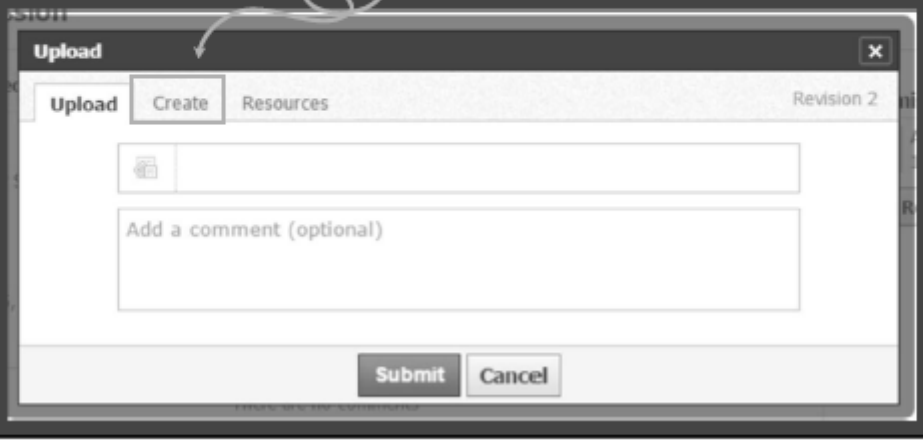
- **Step 1:** From this Schoology assignment page, select the "submit assignment" button.



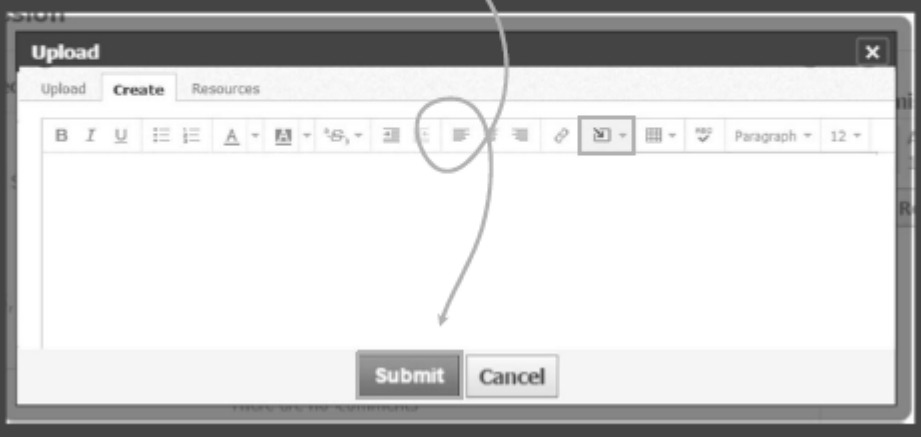
The button will be located on the left hand side of your screen, towards the top of the assignment page.

- **Step 2:** A new dialog box will automatically opens. There are many ways to submit an assignment in Schoology. Today, you will "create" an assignment.

- **Step 2, cont:** The dialog box will automatically open on "upload". Select the "create" menu by clicking it. This will bring you to a new screen.



- **Step 3:** In the "create" dialog box, type your answers to the questions on the next slide in complete sentences. When you are done, click submit!



YOU DO:

Individually take 5 minutes to brainstorm ideas of how you could use Schoology with your students and how you could embed pedagogical practices such as think-pair-share within discussion boards, integrate applications such as flipgrid or padlet to have collaborative conversations, or how you could upload assignments such as Google slides where students will research and collaborate in an online format to create an artifact of learning.

Teach:

Model:

Practice:

Apply:

Get Ready...Get Set...for...Speed 'Tech'ing in Session 3

Kind of like "Speed Dating" only with technology and much more fun!

Get your 'tech' on tomorrow in Session 3 with SPEED 'Tech"ing!

- Anyone can sign up
  - Any grade level teacher
  - Any instructional support staff
  - Any administrators
- …and those who sign up get to pitch their favorite technology tools and strategies in rapid succession.
- Oohs and aahs from the crowd are encouraged.
- Each presentation will be a max of 5 minutes, with time later for a breakout session for the presenter to demonstrate the tool or strategy more in-depth for those interested in learning more.
- The goal of this activity is that both novice and experienced users of educational technology will walk away with at least one new idea thanks to the sharing of information from their peers!

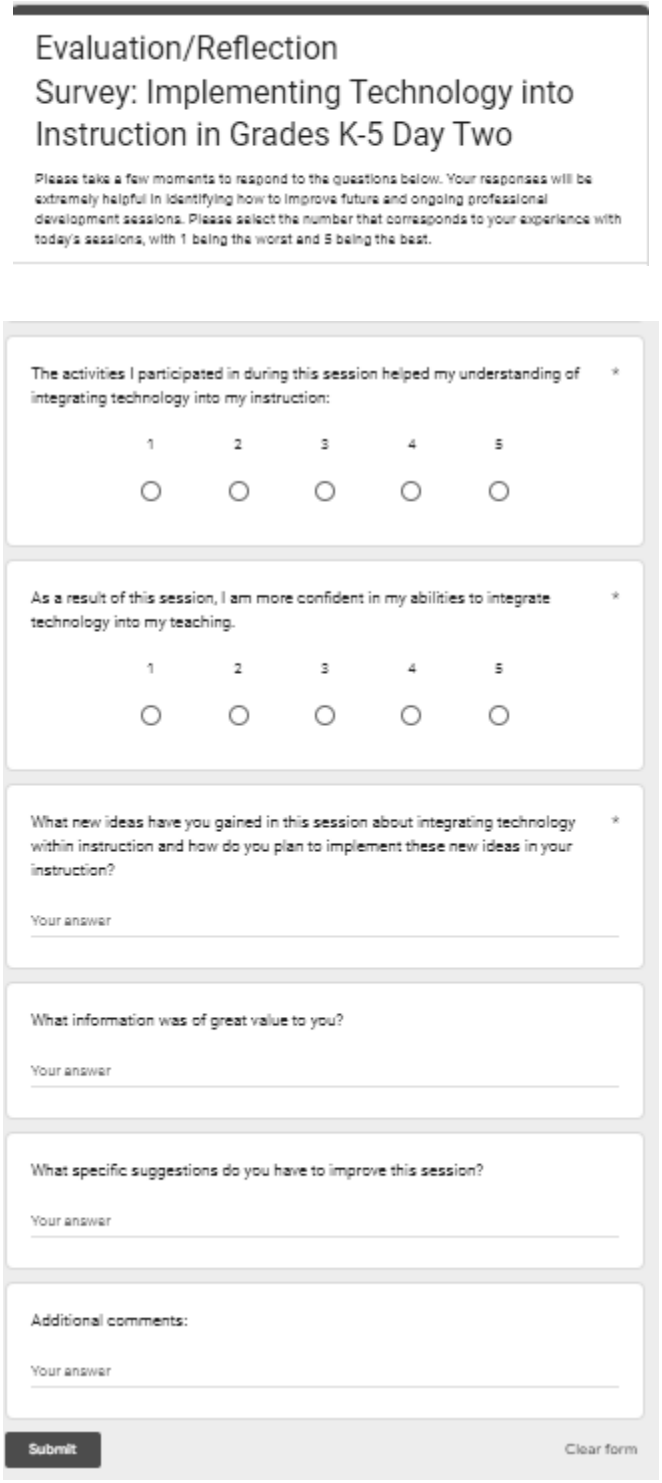
Sign Up by scanning the QR code below and filling out the form. Or go to: https://bit.ly/3VaTTkB

Scan the QR Code to complete the session evaluation for Day Two

OR..go to the following link https://bit.ly/3USuLqY

Implementing Technology into Instruction in Grades K-5

Session 2



Evaluation/Reflection
Survey: Implementing Technology into Instruction in Grades K-5 Day Two

Please take a few moments to respond to the questions below. Your responses will be extremely helpful in identifying how to improve future and ongoing professional development sessions. Please select the number that corresponds to your experience with today's sessions, with 1 being the worst and 5 being the best.

The activities I participated in during this session helped my understanding of integrating technology into my instruction: *

1 2 3 4 5

As a result of this session, I am more confident in my abilities to integrate technology into my teaching. *

1 2 3 4 5

What new ideas have you gained in this session about integrating technology within instruction and how do you plan to implement these new ideas in your instruction? *

Your answer

What information was of great value to you?

Your answer

What specific suggestions do you have to improve this session?

Your answer

Additional comments:

Your answer

Submit Clear form

Day 3

Session 3 Outcomes	
PD Objectives: Objectives: • Teachers will be able to explore, identify, and integrate technology enhanced activities to achieve learning objectives within their respective grade level. • Teachers will have opportunities to work with peers and build relationships that will facilitate continuing conversations and the development of their technology skills. • Teachers will be able to select appropriate technology components to embed within instruction when planning lessons based on state standards and curriculum approved by the district. • Teachers will be able to reflect on their classroom pedagogical practices and decide how to apply the strategies they learned during training.	
Agenda	
8:00-8:30	Breakfast provided for participants/Chat and Eat
8:30-8:45	Welcome and Agenda Review
8:45-9:00	Teambuilding Activity
9:00-10:30	Speed 'Tech'ing Presentations
10:30-10:45	Break
10:45-12:00	Speed 'Tech'ing Breakout Sessions
12:00-1:00	Lunch
1:00-2:30	Team PLC Collaboration/Work Time
2:30-3:00	Closing, Session Evaluation, & Next Steps

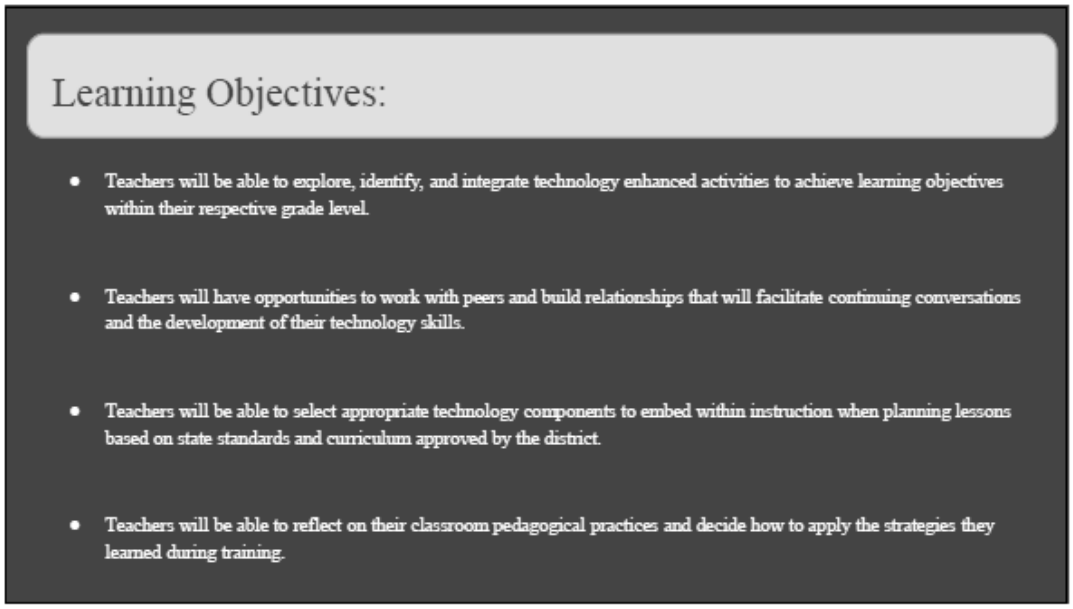
Implementing Technology into Instruction in Grades K-5 Session 3

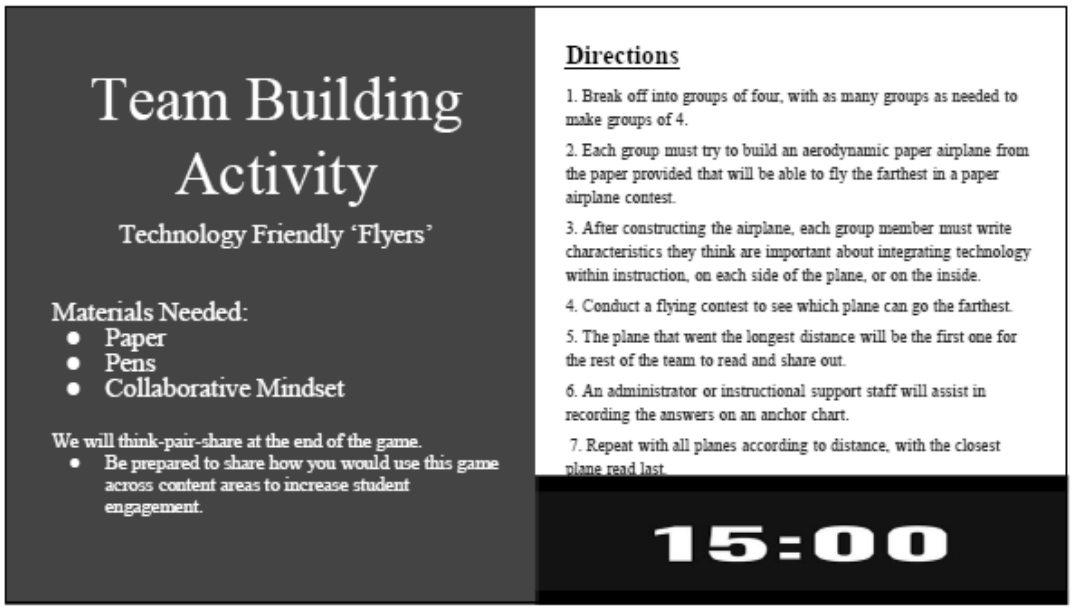
Presented By: Megan Bailey

Welcome!

Today's Agenda
Session 3

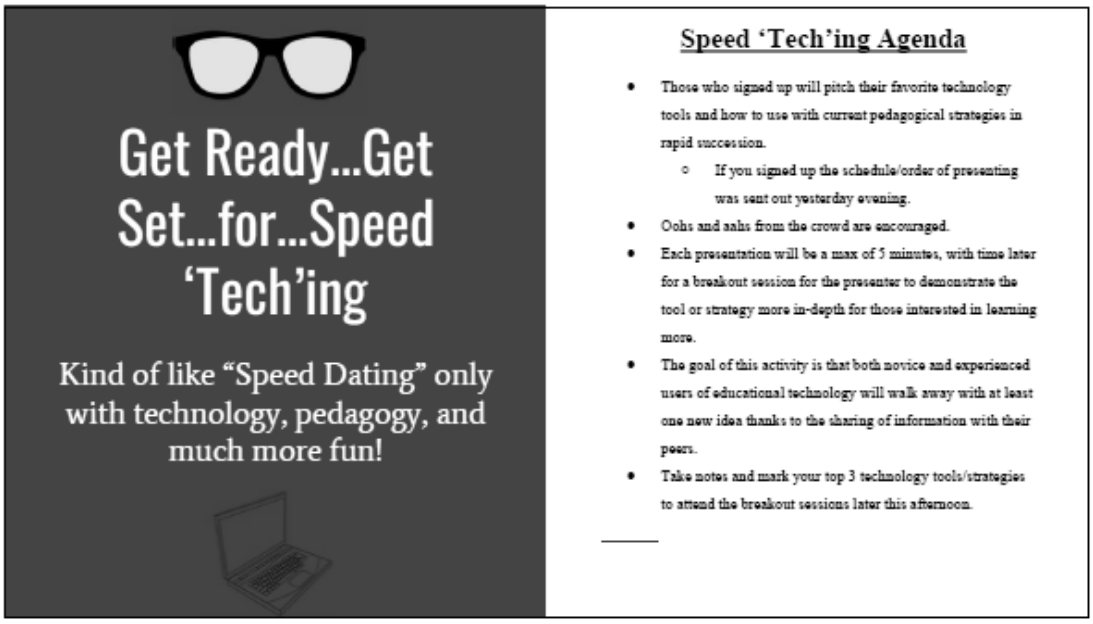
- Team Building Activity
- Speed 'Tech'ing Presentations
- Break
- Speed 'Tech'ing Breakout Sessions
- Lunch
- PLC Team Collaborative Work Time
- Closing, Session Evaluation
- Next Steps





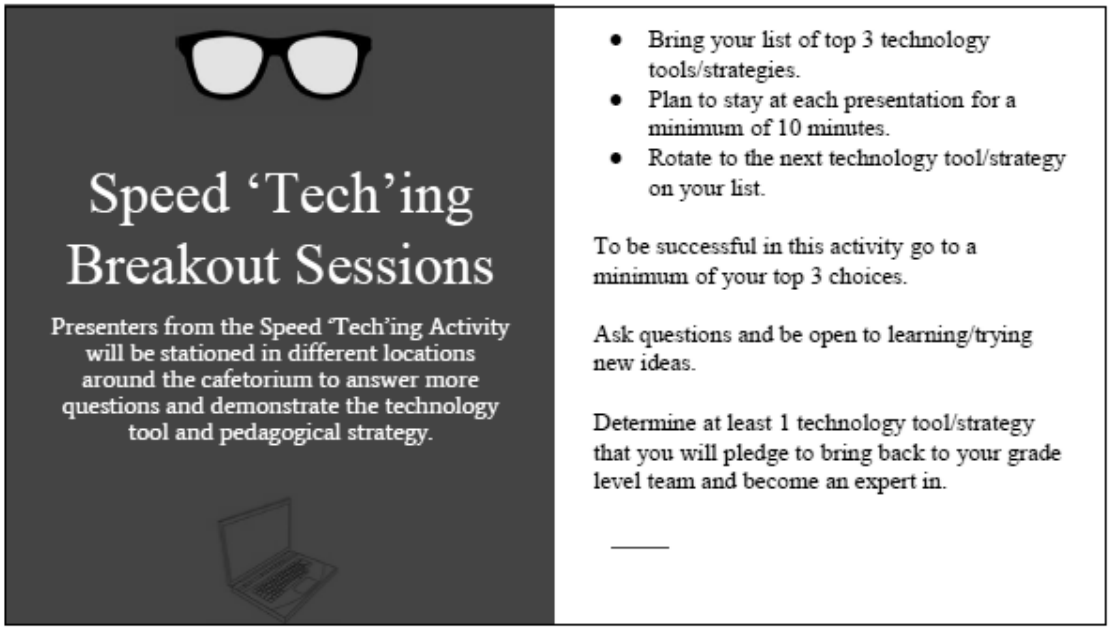
The presenter will model out how this game can be used with students to begin to build teamwork and collaboration skills amongst groups. The participants in the training

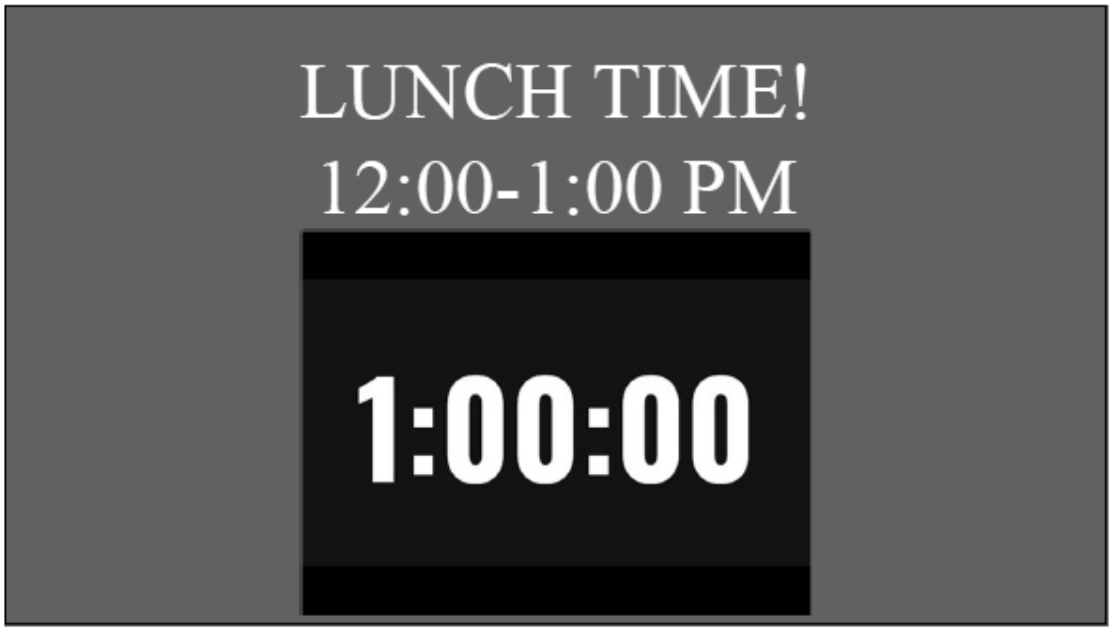
will be the students as they complete this game. At the end of the activity participants will engage in a think-pair-share to discuss how this game could also be used within content areas to create engagement. The pairs will then share out amongst the whole group.



The presenter will have pre-arranged the order of presentations based on the sign up link that participants could have signed up for in the previous session. The presenter will model a current digital technology that they use within instruction. The presenter will explain that not only the technology tool or site needs to be shared but how you could use the tool with a current pedagogical practice (i.e. All Write Round Robin, Carousel Feedback, Fan-N-Pick, Find Someone Who, Find-the-Fiction, Inside-Outside Circle, Jot Thoughts, Match Mine, Mix-Pair-Share, Numbered Heads Together, One Stray, Pairs Compare, Quiz-Quiz-Trade, Rally Coach, Rally Robin, Rally Table, Round Robin, Round Table, Round Table Consensus, Showdown, Simultaneous Round Table, Spend-

A-Buck, Stand Up-Hand Up-Pair Up, Talking Chips, Team Stand-N-Share, Think-Write-Round Robin, Timed Pair Share, Jigsaws, Gallery walks etc…these are only suggestions). The presenter will explain that during this time this is just a brief introduction of the tool and strategy and that later in the session participants will have the opportunity to choose a break out session to see a model of the tool/strategy in action and receive more information about how to use within instruction.


Speed 'Tech'ing Breakout Sessions
Presenters from the Speed 'Tech'ing Activity will be stationed in different locations around the cafetorium to answer more questions and demonstrate the technology tool and pedagogical strategy.
• Bring your list of top 3 technology tools/strategies.
• Plan to stay at each presentation for a minimum of 10 minutes.
• Rotate to the next technology tool/strategy on your list.
To be successful in this activity go to a minimum of your top 3 choices.
Ask questions and be open to learning/trying new ideas.
Determine at least 1 technology tool/strategy that you will pledge to bring back to your grade level team and become an expert in.


LUNCH TIME!
12:00-1:00 PM
1:00:00

PLC Team Collaboration/Work Time

1. Remember to plan for individual, small group, whole group.
1. Remember to plan for how to adjust traditional pedagogy to incorporate technology.
1. Be prepared to share out!

In grade-level PLC teams you will:

- Take the learning from the Speed 'Tech'ing and share your technology tool and pedagogical approach that you have committed to becoming a grade-level expert using within your instruction.
  - Each member from your grade level will write their name and technology tool/strategy on a piece of anchor chart paper for their grade level.
  - This chart for each grade level will be hung in the PLC room as a reminder of the commitments made by staff and for staff to reference for experts within the building.
- Continue to plan/build out your Schoology assignments and begin lesson planning/development for a new content area not previously planned for in the previous sessions.
- Trainers and administrators will be available to support grade-level teams during this work time.

Learning to Change, Changing to Learn

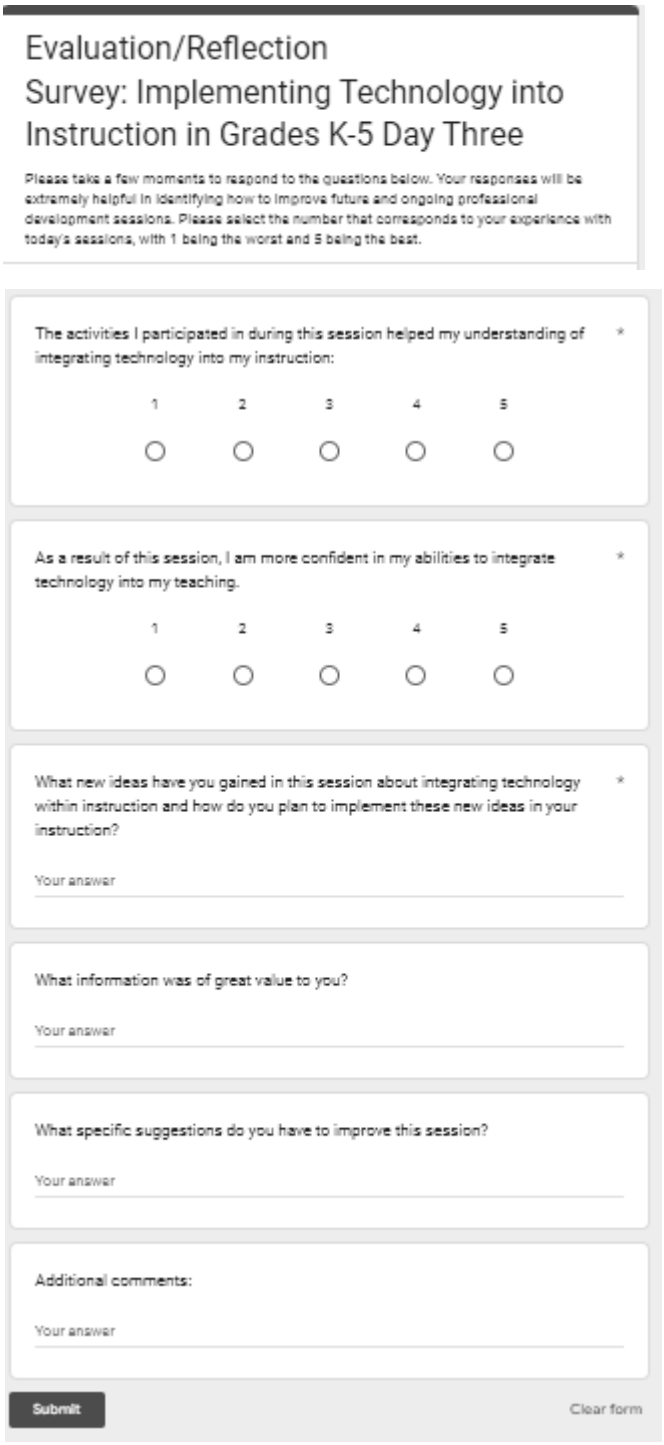
Next Steps:

- Continue to plan for the next few days.
- Schedule a meeting with your grade level team and the instructional coach to discuss how you will be deliberate in embedding technology into instruction on a consistent basis.
- Design an individual plan for becoming a grade-level expert on the technology tool and pedagogical strategy that you committed to in session 3.
- Plan for how your grade-level team will hold you accountable for becoming the team's expert on that technology tool or strategy.

Whitby, G. (2014, April 27). *Learning to Change, Changing to Learn*. YouTube. https://www.youtube.com/watch?v=kr0UlVC8DdQ&feature=youtu.be

The presenter will explain to the participants that with technological advancements occurring every year, it will be necessary to provide ongoing PD in order for implementation to continue and therefore PD will be ongoing through the use of instructional coaches, and administration, as well as future opportunities for PD. In order to improve the effectiveness of subsequent PD, every learner has been required to complete a summative evaluation and reflect on their experience at the conclusion of each session. A summary of the survey results will be distributed to both the administrative staff and the instructional support staff. The leadership team will be responsible to use the overall information about the effectiveness of the entire PD, to assist them in making decisions regarding the ongoing support that will be provided throughout the year that will be embedded throughout grade level PLCs as well as specified staff development days throughout the academic year.

Evaluation/Reflection Survey
Implementing Technology into Instruction in Grades K-5
Session 3
Day 3



Evaluation/Reflection Survey: Implementing Technology into Instruction in Grades K-5 Day Three

Please take a few moments to respond to the questions below. Your responses will be extremely helpful in identifying how to improve future and ongoing professional development sessions. Please select the number that corresponds to your experience with today's sessions, with 1 being the worst and 5 being the best.

The activities I participated in during this session helped my understanding of integrating technology into my instruction: *

1 2 3 4 5

As a result of this session, I am more confident in my abilities to integrate technology into my teaching. *

1 2 3 4 5

What new ideas have you gained in this session about integrating technology within instruction and how do you plan to implement these new ideas in your instruction? *

Your answer

What information was of great value to you?

Your answer

What specific suggestions do you have to improve this session?

Your answer

Additional comments:

Your answer

Submit Clear form

Appendix B: Interview Protocol and Questions

Name of Person Interviewed: _____

Date: _____ Time: _____ Video Platform: _____

Introduction: Thank you for your time in meeting via Zoom today. The interview will take approximately 45 min to one hour. The purpose of the interview is to gather your perceptions regarding technology integration and pedagogy in K-5 Education. I will be using the audio and video record function within the Zoom meeting platform while the interview takes place, and the video and audio file from Zoom will be downloaded at the end of the interview and uploaded and transcribed using Google Docs: Voice Typing. This study will not identify you as a participant, and all responses and videos are kept confidential. You may choose to end the interview at any time and may choose not to answer any question(s) of your choice. Before we begin, do you have any questions concerning the protocol of the interview I just explained?

Questions:

1. How do you normally teach? What type of instructional approach do you take within your daily instruction.
2. What types of engagement strategies do you currently use within classroom instruction?
3. How do you create collaboration between students in your classroom?
4. How does your teaching change based on the subject you are teaching?
5. How do you currently use technology within classroom instruction?
6. What do you want students to be able to learn by using technology within instruction?

7. What does technology integration mean to you?
8. How do you plan for technology integration within elementary for the primary or intermediate classroom?
9. What is your reason to use technology within classroom instruction?
10. What do you do you feel is necessary for you to successfully use technology consistently within classroom instruction?
11. What kind of technology integration strategies have you learned at school and/or have you learned any technology integration strategies from outside PDs?
12. What do you perceive as barriers or challenges to integrating technology within instruction?
13. What are some barriers to teaching with technology in the elementary classroom?
14. Do you see advantages for technology integration in the elementary classroom?
15. How do you feel about planning lessons with technology?
16. How is the use of technology within instruction pre planned?
17. What feelings do you have or have you about your ability to integrate technology within classroom instruction?
18. How is technology used in 1:1 activities?
19. What are the pedagogy needed to complete a technology activity?
20. How has your ability to integrate technology consistently within classroom instruction changed due to the COVID-19 pandemic?

Appendix C: Open-Ended Sentence Stems

Name of Person Interviewed: _____

Date: _____ Time: _____ Video Platform: _____

Open-Ended Sentence Stems:

1. Instructional strategies I use within my classroom are…
2. The learning environment within my classroom can be described as…
3. I would describe integrating technology within classroom instruction as…
4. I use technology in my classroom when…
5. My ability to integrate technology within classroom instruction consistently is…
6. I feel successful when…
7. I feel unsuccessful when…
8. A barrier(s) to integrating technology consistently within classroom instruction is/are…
9. The effect that the COVID-19 pandemic has had on my ability to integrating technology consistently within classroom instruction is…

Appendix D: Email to Subject Matter Expert Participants

Hello,

My name is Megan Bailey, and I am a doctoral student at Walden University. I have created an interview protocol to be reviewed by a panel of subject matter experts for my study. The panel will consist of five grade level teachers in grades K-5 who are considered building leaders in technology integration within instruction to ensure the interview protocol was an appropriate instrument for gathering the intended data and make edits based on any recommendations.

I am emailing you to invite you to be a part of the panel of experts in my study. Within this email, there is a consent form attached that outlines the study's procedures and protocol, researcher's role, and the study's goal.

After receiving your consent via email by replying, "I Consent," I will then notify you via email and ask that we set up a time to call and discuss the interview protocol. Please do not hesitate to contact me via email, text, or phone call if you have any questions, concerns, or comments about the study.

The study is entitled "Teachers' Perceptions of Technology Integration and Pedagogy in K-5 Education" The purpose of this study will be to explore the teachers' perceptions of integrating technology consistently within classroom instruction in Grades K-5 at the elementary school under study to understand why technology is not being implemented within instruction consistently.

Appreciatively,

Megan Bailey

Appendix E: Reflective Journal Template With Prompts

Name of Person Interviewed: _____

Date: _____ Time: _____ Video Platform: _____

Evaluating Source Material: Factors to Consider

- Relevance to the research question
- Relationship to other sources: agree, disagree, expand
- Accuracy: logical, consistent in itself and with other sources?
- Bias v. Objectivity: conveying knowledge or prejudice?

Summary:

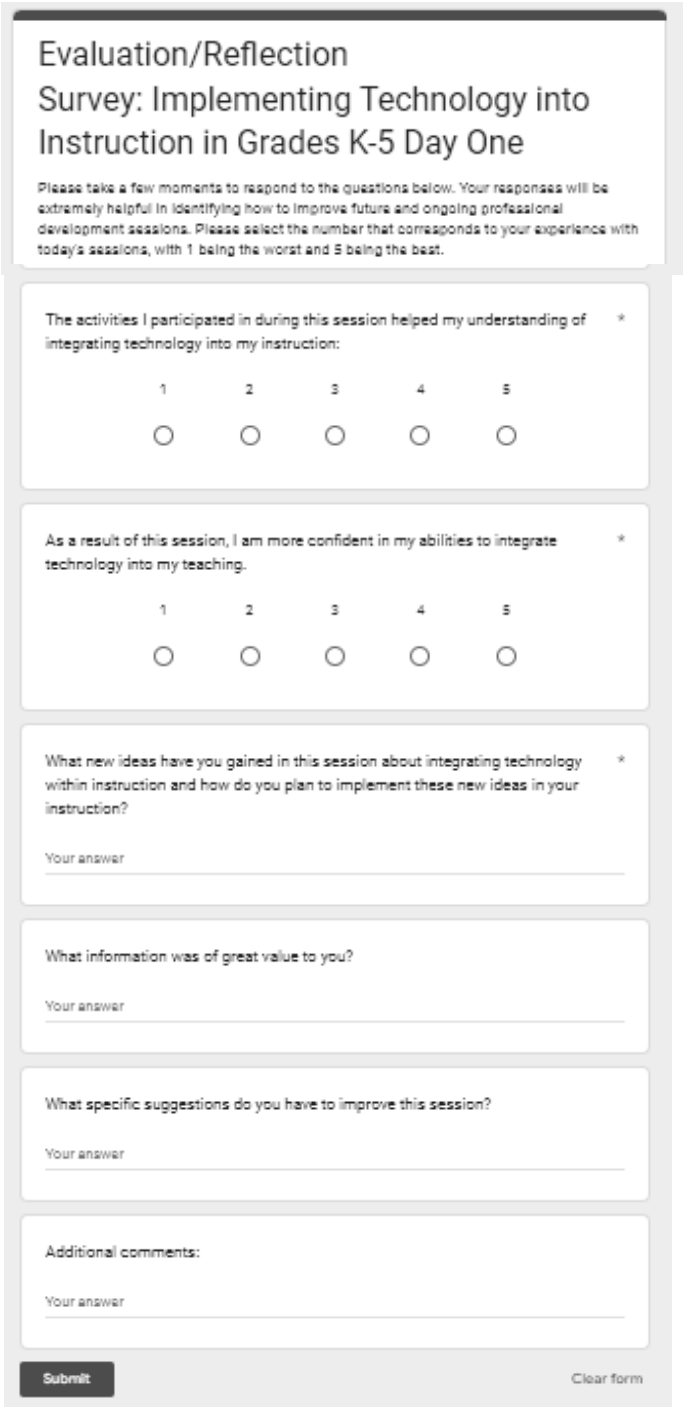
Evaluation**:** (*How thorough, accurate, and reliable does this source seem? See the factors to consider above*):

Relationship to other sources (*With whom does this interviewee agree or disagree, and on what particular issues?):*

Paraphrased ideas or direct quotations to use in the paper (*researcher reflections from interview):*

Appendix F: Evaluation/Reflection Survey

Evaluation/Reflection Survey
Implementing Technology into Instruction in Grades K-5
Session 1 Day 1



Evaluation/Reflection Survey: Implementing Technology into Instruction in Grades K-5 Day One

Please take a few moments to respond to the questions below. Your responses will be extremely helpful in identifying how to improve future and ongoing professional development sessions. Please select the number that corresponds to your experience with today's sessions, with 1 being the worst and 5 being the best.

The activities I participated in during this session helped my understanding of integrating technology into my instruction: *

1 2 3 4 5

As a result of this session, I am more confident in my abilities to integrate technology into my teaching. *

1 2 3 4 5

What new ideas have you gained in this session about integrating technology within instruction and how do you plan to implement these new ideas in your instruction? *

Your answer

What information was of great value to you?

Your answer

What specific suggestions do you have to improve this session?

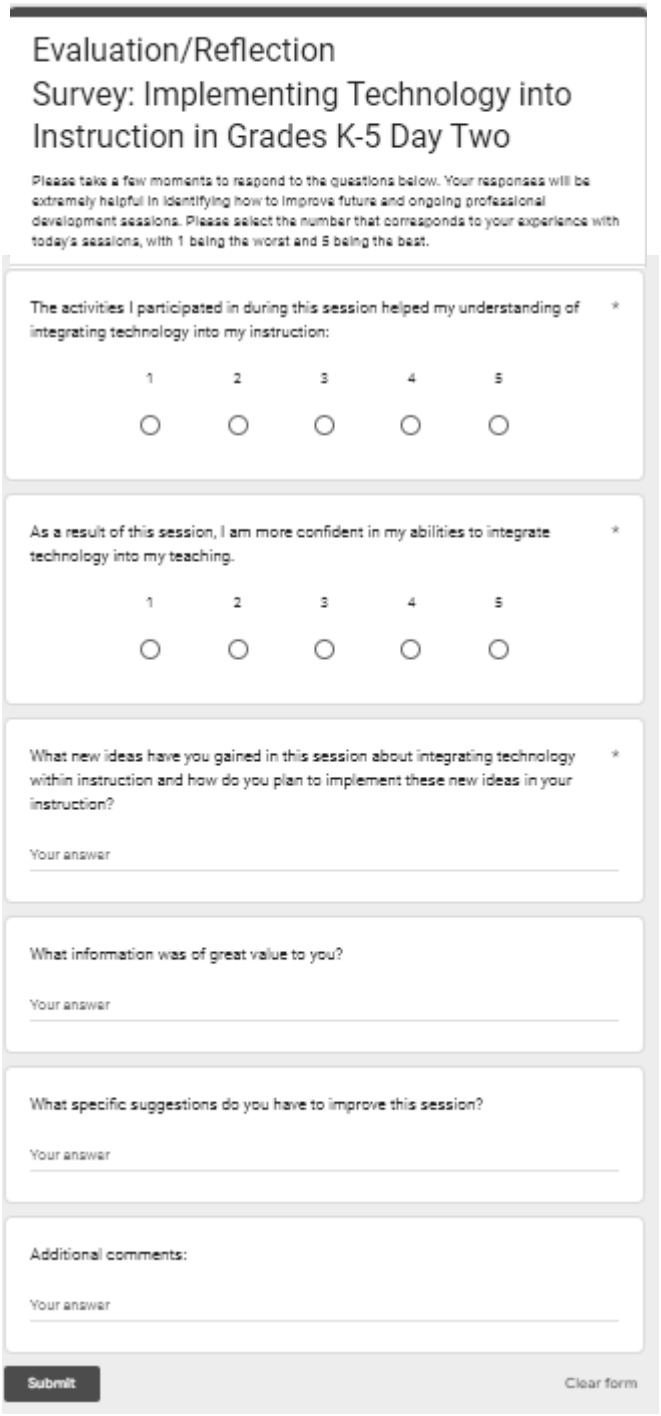
Your answer

Additional comments:

Your answer

Submit Clear form

Evaluation/Reflection Survey
Implementing Technology into Instruction in Grades K-5
Session 2
Day 2



Evaluation/Reflection Survey: Implementing Technology into Instruction in Grades K-5 Day Two

Please take a few moments to respond to the questions below. Your responses will be extremely helpful in identifying how to improve future and ongoing professional development sessions. Please select the number that corresponds to your experience with today's sessions, with 1 being the worst and 5 being the best.

The activities I participated in during this session helped my understanding of integrating technology into my instruction: *

1 2 3 4 5

As a result of this session, I am more confident in my abilities to integrate technology into my teaching. *

1 2 3 4 5

What new ideas have you gained in this session about integrating technology within instruction and how do you plan to implement these new ideas in your instruction? *

Your answer

What information was of great value to you?

Your answer

What specific suggestions do you have to improve this session?

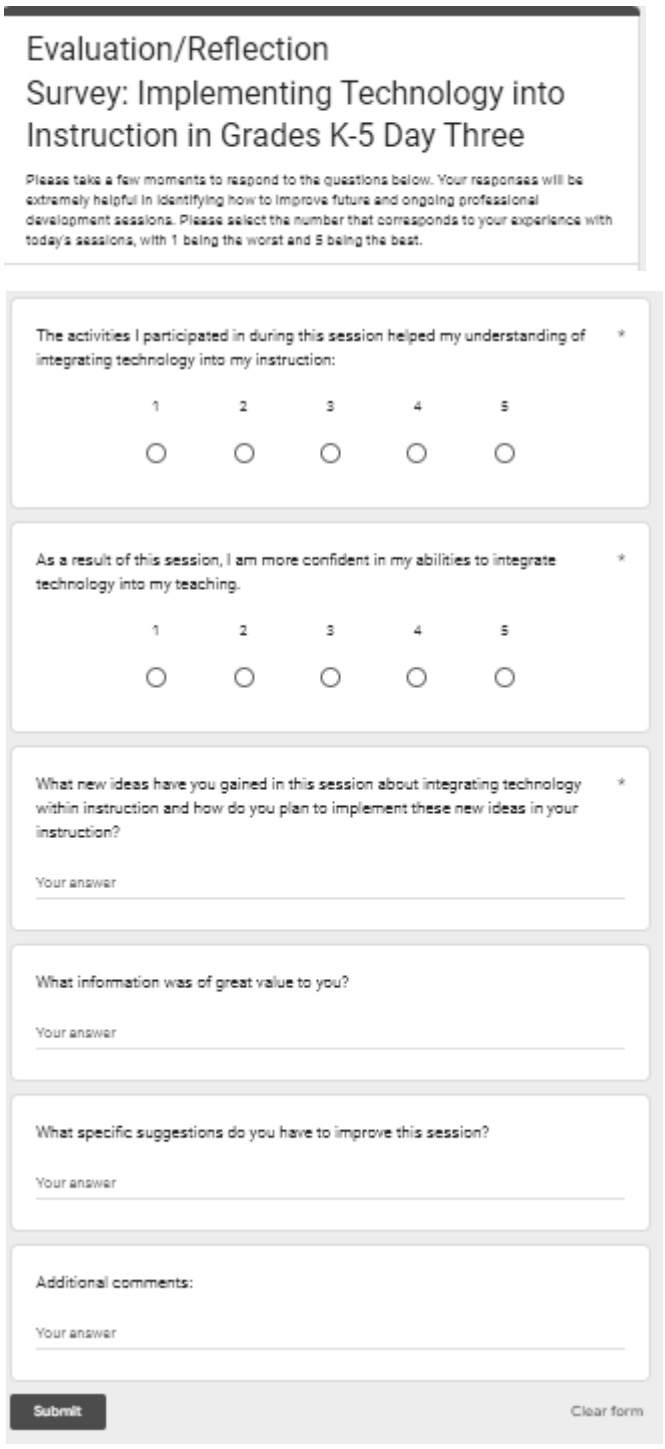
Your answer

Additional comments:

Your answer

Submit Clear form

Implementing Technology into Instruction in Grades K-5
Session 3
Day 3



Evaluation/Reflection
Survey: Implementing Technology into Instruction in Grades K-5 Day Three

Please take a few moments to respond to the questions below. Your responses will be extremely helpful in identifying how to improve future and ongoing professional development sessions. Please select the number that corresponds to your experience with today's sessions, with 1 being the worst and 5 being the best.

The activities I participated in during this session helped my understanding of integrating technology into my instruction: *

1 2 3 4 5

As a result of this session, I am more confident in my abilities to integrate technology into my teaching. *

1 2 3 4 5

What new ideas have you gained in this session about integrating technology within instruction and how do you plan to implement these new ideas in your instruction? *

Your answer

What information was of great value to you?

Your answer

What specific suggestions do you have to improve this session?

Your answer

Additional comments:

Your answer

Submit

Clear form

Appendix G: Lesson Plan Template

Lesson Plan Template

Teacher Name:
Date: _____ Title of the Lesson: _____
Subject: _____Unit of Study: _____
CCSS:

Lesson Outline (I Do, We Do, You Do):
Student Look Fors:
Bloom's Guiding Questions:
Additional Notes:
I Do (Teacher Models):
Bloom's Guiding Questions (i.e.: Can be answered in collaborative discussion, Padlet, Schoology discussion board, or Flipgrid):
Student Look Fors:
We Do :
Bloom's Guiding Questions (i.e.: Can be answered in collaborative discussion, Padlet, Schoology discussion board, or Flipgrid):
Student Look Fors:
You Do (See attached Exit Ticket): Students will independently answer the following question(s):