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Middle School Teachers' Perceptions Of The Integration Of Technology Into Pedagogy

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MIDDLE SCHOOL TEACHERS' PERCEPTIONS OF THE INTEGRATION OF

TECHNOLOGY INTO PEDAGOGY

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ABSTRACT

The aim of this qualitative exploratory case study was to examine middle school teachers' perceptions of the integration of technology into pedagogy. Data collection occurred from analyzing middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy. The evaluation of the study data included the analysis of surveys and interpretation of in-depth interviews of teachers. A pedagogical focus on teacher integration of technology supported by the self-determination theory as the research study's theoretical framework examining human motivation was appropriated to the case study. As educational leaders face significant challenges in understanding the impact of teachers' perceptions of the integration of technology into pedagogy, this study provides insight into confronting those difficulties. Though the case study, three emergent themes surfaced that included the importance of collaborative professional development, quality of student engagement, and teacher motivation to use technology. The findings may be useful to educational change agents who can use the case study to assist in understanding the importance of acknowledging the perception of teachers and the need for providing opportunities for teachers to engage in focused professional developments.

Keywords: engagement, middle school, motivation, professional development, self-determination theory, teachers' perceptions, technology integration, technology pedagogy

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CHAPTER 1

INTRODUCTION

Educational change agents struggle to understand how the reason why some technological initiatives targeting the integration of new technologies into pedagogy succeed while others do not. Tallvid (2016) analyzed the dilemma that there is an increase in the availability of technology within schools; however, the integration of technology into the pedagogy and curriculum has struggled to occur. Okojie, Olinzock, and Okojie-Boulder (2006) explain educational technology is any technical device, tool, software, or application used to enhance instruction (p. 66). Fullan (2007) indicated a failure for most schools and organizations to reform in the mid-20th century due to a lack of recognition or management of systemic changes (p. 5). The result has been a shortage of changes in classroom practices impacting pedagogy. Fullan (2007) explains that a history of change in education since the mid-20th century that had been constant, but not entirely successful due to some approaches in professional development and government mandates.

Numerous researchers have studied the integration of technology into pedagogy; however, researchers point out that there is a great deal of information we do not know. Fundamentally, there is little evidence as to why some technological initiatives fail, while others succeed. Morelock (2015) targeted the effectiveness of the use of technology. Through Moorlock (2015) study, technology use in the educational environment was described as a great support tool for information access, student academic support, and for individualization and personalization. However, a study conducted by Clarke (2016) revealed a positive correlation between student learning outside the school day and the use of technology; however, the study also indicated an imbalance of usage of the technology by subject matter. The effect has been a

shortage of consistent changes in the integration of technology into pedagogy. As a result, this study utilizes Deci and Ryan's (1985) self-determination theory examining motivation through intrinsic or as extrinsic motivation such as internal motivation to do a better job teacher verses external aims to improve students test scores avoid being criticized by peers or supervisors. Understanding intrinsic and extrinsic motivation may help change agents to understand the impact of teacher motivation during technological implementations.

As leaders hold the role of change agents, they must "begin with questions of justice and democracy, critiques of inequitable practices, and address both individual and public good" (Shields, 2010, p. 558). In 2010, a film named Waiting for Superman focused on "complex problems, such as the 'achievement gap,' teacher performance and turnover, and school infrastructures" (Marion & Gonzales, 2014, p. 155). The film presented the vast problems within the United States educational system. Within the text, it is explained that waiting for Superman did not just magnify the issues rooted in the educational system. Marion and Gonzales (2014) continue to explain that the fundamental theory of the film that leaders acting transformationally with a focus on individual behaviors can promote successful change within schools.

Research suggests that educational leaders may face notable difficulties in understanding the impact of teachers' perceptions of the integration of technology into pedagogy. Change-oriented leaders must not only shed light on deeply enriched problems, but they must also aim to illuminate what they believe to be a potential solution (Marion & Gonzales, 2014, p. 155). The need to address student learning has magnified a need to examine the perceptions of classroom teachers attempting to integrate technology. The central focus of this qualitative exploratory case study was to understand middle school teacher's experiences, observations, and motivation during a technological implementation into pedagogy.

Statement of the Problem

The research study was conducted in a middle school located in Southern California. The school is one of eight middle schools in the school district serving grades seven through eight. District-wide, the school district provides K-12 education to over forty-eight schools with over fifty-three thousand students (Ed-data, 2018). As a result of overcrowding, the site endured turnover in staff, administration, and a mass exodus of high socioeconomic status families to other schools and school districts to educate their children. The school serves a community dominant in Hispanic culture that entails little parent involvement or support. The middle school faces significant threats that include geographic challenges by being surrounded by higher performing schools and school districts (Ed-data, 2018).

The school and district have made strides in establishing a sense of urgency to enabling the local financial bond measure to be approved allowing for the needed additional funds to established infrastructure improvements as well as the creation of technological initiatives. According to Kotter's 2008 interview with *Harvard Business*, "urgency is a combination of thoughts, feelings, and actual behavior" (p. 1). The push to upgrade the school infrastructure, as well as the creation of technological initiatives, is significant in that they may be able to address the technological market demands in society. By attempting to address market demands and establishing a sense of urgency, Kotter's 2008 interview with *Harvard Business* also revealed that the fundamental reason for the need of urgency is that the rate of change is going up. In the age of technology, institutions strive to stay abreast of current advancements to support student learning. Kotter (2012) stated, "As the rate of change increases, the willingness and ability to keep developing becomes central to career success for individuals and to economic success for organizations" (p. 186).

Despite all of our knowledge around the problem of the integration of technology into pedagogy, researchers point out that there is a great deal of information we do not know such as the reason some technological initiatives succeed and why others struggle. Morelock (2015) explained that "administrators and technology support staff are not aware of the kinds of activities and experiences teachers require or desire in order to improve their practice using technology more effectively with students" (p. 122). The finding presents a concern about the preparedness of teachers to engage, support, and instruct in a technological learning environment emphasizing a need for professional development. Zheng, Arada, Niiya, and Warschauer (2014) explained that "Though a national consensus is developing towards increased use of technology in learning, there is no such consensus on how technology should be used" (p. 279). Furthermore, Ololube, Kpolovie, and Makewa (2015) explained we do not know how technological initiatives are impacted by a focus on pedagogy, curriculum implementation, as well as teacher motivation (p. 252).

Contemporary researchers are urging individuals to study three key areas impacting the successful integration of technology: teacher perceptions, motivation, and pedagogy (Heath, 2017; McDonald, 2015; Ololube et al., 2015; Tallvid, 2016). Researchers strive to understand the perceptions of teachers about the impact of technological initiatives integration into pedagogy. McDonald (2015) examined the perceptions of teachers and administrators engaging in technology to support student learning. Within the study, "Teachers and administrators both believed that the technological initiatives were not solely responsible for increases in student academic grades, but it did have an effect on engagement and increased student interest" (McDonald, 2015, p. 123). Morelock (2015) explained that perceptions from teachers and administrators are vastly different regarding the needs of training and support for teachers to

establish a successful implementation of technology focusing on student learning. Heath (2017) explained that "if technology is to support a meaningful pedagogical change in classrooms, teachers need to be given time, support, and trust to build positive beliefs about technology and a strong professional identity" (p. 103).

Purpose of the Study

The purpose of this qualitative exploratory case study was to examine middle school teachers' perceptions of the integration of technology into pedagogy. Within the study, data was collected from analyzing middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy. A pedagogical focus on teacher integration of technology was supported by the self-determination theory as the research study's theoretical framework examining human motivation. The instrument tools for the research study included the analysis of surveys and in-depth interviews of teachers.

Research Questions

The following research questions guided the study:

1. What responses or actions did you personally experience at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?

2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?

3. How did autonomy, competence, and collaboration (relatedness) impact middle school teachers' intrinsic and or extrinsic motivation during the technological implementation time-period of August 2017 to December 2018?

Conceptual Framework

An emphasis on pedagogy was used to explore the significance of the perspectives of teachers when implementing technology into pedagogical development. Through self-determination theory, the research study examined motivational factors impacting teachers that influence the success or failure of technological implementations into pedagogical development. Deci and Ryan's (1985) self-determination theory examines an individual's motivation through the understanding of autonomy, competence, and collaboration (relatedness). Self-determination theory enables researchers to explore teachers' motivation and its impact on the change effort of a technological initiative into pedagogy. The self-determination theory focus on understanding teachers' motivation allows leaders to focus on the needs of teachers in areas such as professional developments, as well as supporting them in the integration of technology into the curriculum.

Through addressing the motivational needs of teachers, collaboration targeting proper technology planning and instruction can occur (Okojie et al., 2006). Leh (2005) explained that although the integration of technology occurred within teachers' classrooms, the integration and impact on teaching and learning strategies varied. Opportunities for teachers to have pedagogical planning is critical in establishing that teachers have the technological confidence as well as plan to appropriately implement technology (Okojie et al., 2006). Through pedagogical planning, support, and training, teachers can become effective implementors of pedagogy targeting engagement and critical thinking for students through technology. Pedagogical and technology planning enables teachers to increase confidence, buy-in, and motivation for technological implementations.

Assumptions, Limitations, and Scope

This study was conducted with the assumption that the school technology data summarized correctly represented the school's student engagement. There was an assumption, that teachers engaged and participated in the technological implementation with students during the implementation time-period. An assumption was made that teachers participated in professional development activities targeting the implementation of technology into classroom curriculum.

Limitations of the study included the size of the study population that included 16 English and mathematics teachers. The participants from the school were intentionally selected because their teaching strategies and methods that are impacted by a technological implementation. The results of the study cannot be generalized to elementary or high schools as a result of the focus on a middle school. Results of the study may also not be applicable to middle school private or charter schools as a result of the availability of technology and socioeconomic differences.

There was a potential bias of the research study as a result of the researcher serving as an administrative designee and teacher on the school site who engaged in technology implementation at the school. However, the researcher's role as an administrative designee was not as the teacher's supervisor. The researcher's role was a collaborative role working with teachers on student corrective measures and supports. No prior communication about the research study was discussed with the sample group. As a result, the researcher anticipated honest and truthful responses from the sample group of participants.

An assumption was made that participants selected for the study all experienced a sense of urgency and stress when "managing and coordinating available instructional aids and

resources in order to facilitate learning" (Olinzock & Okojie-Boulder, 2006, p. 67) through the technology implementation. The researcher attempted to subdue potential bias during interview process while participants explained perceptions that may have differed from the interviewers.

The scope of this qualitative study was an exploratory investigation of a single case study. The school was a small public middle school in Southern California. The single setting study focused on 15 English and mathematics teacher's perceptions following a technology implementation initiative. Benefits of the study stretch to major stakeholders responsible for technology initiatives such as educational leaders, board members, and teachers attempting to close achievement gaps for students.

Significance

Even though some research studies have focused on the impact of technological initiatives targeting closing achievement gaps, few have focused on the perceptions of teachers as to why these initiatives succeed and how come some teachers struggle to show growth. "There were significant differences between what administrators and technology staff believe teachers want …and what teachers themselves believe is necessary or useful" (Clarke, 2016, p. 128). Conducting in-depth interviews of teachers allowed for quality reflection on technological implementation. Results from the study help school districts decide how to pursue and commit to a technological implementation to close achievement gaps for students by understanding the viewpoints of the teachers implementing the technology.

Definition of Terms

The educational profession is full of multiple definitions of terms as well as acronyms. The purpose of this section is to define significant definitions of terms as well as acronyms that were used in this research study.

At-risk Student: An at-risk student is generally defined as a student who is likely to fail at school and/or who has failed to achieve basic skills before leaving school (Kaufman, 1992, p. 2).

Autonomy: Autonomy is when a person seeks to experience oneself as independent (Deci & Ryan as cited in Ololube et al., 2015).

BYOD: BYOD refers to students bringing their own devices to use at school for use in the class (Selwyn, Nemorin, Bulfin, & Johnson 2017b).

Change agent: Change agent refers to leaders who need to reduce complacency and increase urgency, as well as create a change coalition, develop a guiding vision, sell that vision to others (Kotter, 2012, p. 46).

Competence: Competence means that an individual or group possesses sufficient knowledge resulting in the feeling of being qualified and capable of taking such action (Deci & Ryan, 2002, as cited in Ololube et al., 2015).

ELL: ELL refers to English language learners in the school setting (Warschauer, Zheng, Niiya, Cotten, & Farkas, 2014).

Extrinsic Motivation: Extrinsic motivation according to Deci and Ryan (1985) is a drive to behave in certain ways that comes from external sources and results in external rewards. Deci and Ryan (1985) further explain that external rewards include grading systems, employee evaluations, awards and accolades, as well as the respect and admiration of others." Extrinsic motivation is a construct that pertains whenever an activity is done in order to attain some separable outcome (Deci & Ryan, 2000, p. 60).

Intrinsic Motivation: Deci and Ryan (1985) explain that "intrinsic motivation comes from within. There are internal drives that motivate us to behave in certain ways, including our core values, our interests, and our personal sense of morality."

Local Control Funding Formula: The Local Control Funding Formula is how school districts

receive state funding through a combination of local property taxes and state aid. The

formula separates funding avenues for activities and instructional programs through the

establishment of a base, supplemental, and concentration grants (California Department

of Education, 2017).

Local Bond Measure: Local bond measure is a local financial bond passed on November 4,

2014. Voters approved the school district $396 million targeted at improving

deteriorating school infrastructures and technological advancement as well as

establishing college and career readiness programs focusing on teaching and learning

practices (Ballotpedia, 2014).

Pedagogy: Pedagogical knowledge is teachers' deep knowledge about the processes and

practices or methods of teaching and learning. It includes knowledge about techniques or

methods used in the classroom; the nature of the target audience; and strategies for

evaluating student understanding. A teacher with deep pedagogical knowledge

understands how students construct knowledge and acquire skills and how they develop

habits of mind and positive dispositions toward learning (Koehler & Mishra, 2009, p. 64).

Collaboration (relatedness): The action of individuals working together as a group resulting in

belonging and feeling connected to other group members. Deci & Ryan as cited in

Ololube et al. (2015) explain that relatedness results in people within a group becoming

of personal importance to one another.

Self-Determination Theory: The self-determination theory refers to three basic psychological

needs contributing to the development of self-determination motivation (Deci & Ryan as

cited in Ololube et al., 2015, p. 249).

SES: SES refers to student social economic status (Warschauer et al., 2014).

Technology in Education: Technology in Education is any technical device, tool, software, or

> application used to enhance instruction (Okojie et al., 2006, p. 66).

Technological Initiative: Technological Initiative is technological advancements for student

> learning through digital programs and teaching, as well as learning practices (Zheng et
>
> al., 2014).

Technological Integration: Technological Integration involves managing and coordinating

> available instructional aids and resources in order to facilitate learning (Boulder, 2006, p.
>
> 67).

Threats: Threats are obstacles impacting an organization (financial, environmental,

> technological, etc.) (Kotter, 2012).

Urgency: Urgency is a combination of thoughts, feelings, and actual behavior (Kotter's 2008

> interview with *Harvard Business*). Kotter (2008) explains that thoughts are opportunities
>
> as well as hazards, feelings are a gut-level belief that our actions will result in a positive
>
> outcome, and behaviors are entails a heightened focus exhibiting commitments to
>
> improve critical issues.

Conclusion

This study strived to explore middle school teachers' perceptions of the integration of

technology into pedagogy. Despite various research studies examining technological integration,

there is still a significant amount of information not understood as to the reason some

technological initiatives succeed and grasping the understanding as to why some present

marginal results. Researchers urge the continued study of the integration of technology into

pedagogy through examining teacher perceptions, motivation, and pedagogy (Heath, 2017;

McDonald, 2015; Ololube et al., 2015; Tallvid, 2016). Zheng et al. (2014) explained that "Though a national consensus is developing towards increased use of technology in learning, there is no such consensus on how technology should be used" (p. 279). The impact of technological initiatives on middle school teachers' perceptions is critical in validating or disproving the need to invest in educator training and professional development attempting to enhance pedagogy.

The research study was guided by the following questions: 1. What responses or actions did you personally experience at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? 2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? 3. How did autonomy, competence, and collaboration (relatedness) impact middle school teachers' intrinsic and or extrinsic motivation during the technological implementation time-period of August 2017 to December 2018?

Through these research questions, data was collected from analyzing the middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy. The results from the instrument tools for the research study, as well as surveys and in-depth interviews with teachers, provided insight into middle school teachers' perspectives for the need of trainings and professional developments.

This study utilized a conceptual framework with an emphasis on pedagogy and Deci and Ryan's (1985) self-determination theory. The pedagogical framework explored the perspectives of teachers when implementing technology into the curriculum. Deci and Ryan's (1985) self-determination theory enabled the researcher to examine teachers' motivations through the

classifications of behaviors as either intrinsic or as extrinsic motivation. The examination of intrinsic or as extrinsic motivation helps leaders to understand why some teachers' pupils perform higher during technological implementations. Addressing student learning through technological implementations persists to be a challenge for educational leaders enacting change. The central focus of this qualitative exploratory case study was to understand middle school teacher's experiences, observations, and motivation during a technological implementation into pedagogy.

Chapter 2 examined current literature impacting and influencing technological initiatives facing educational leaders. Furthermore, Chapter 2 explored the self-determination theory by Deci and Ryan (1985) examining the classification of motivation as either intrinsic or as extrinsic motivation, which helped to understand teacher motivation during technological implementations.

CHAPTER 2

LITERATURE REVIEW

The purpose of this qualitative exploratory case study was to examine middle school teachers' perceptions of the integration of technology into pedagogy. Data was collected targeting middle school teachers' experiences, observations, and motivation during a technological implementation into pedagogy. The data tools for the research study included the analysis of literature, as well as surveys and in-depth interviews of teachers. A pedagogical focus on teacher integration of technology into curriculum lead to the adoption of the self-determination theory as the research studies theoretical framework examining human motivation.

The literature review presented the concept of technological integration and examined the perceptions of teachers revealing barriers to integration, need for technology, and a theoretical framework that examined teacher's motivation that impacts the development of pedagogy. Through the literature review an overview of the prevalent literature was examined identifying themes influencing and impacting technological implementations, barriers to technological implementation, technological instructional approaches, supporting student learning through technology, technological pedagogy, professional development, as well as the need to examine teacher's motivation through a theoretical framework.

The literature examined the impact of a technological initiative on teacher's instruction that is critical in evaluating the need to invest in technology, training, and professional developments attempting to enhance teacher's methods as well as the practice of teaching. Heath's (2017) qualitative case study on middle school teachers self-efficacy and beliefs help to overcome barrier thresholds to technology implementations explains "If technology is to support

a meaningful pedagogical change in classrooms, teachers need to be given time, support, and trust to build positive beliefs about technology and a strong professional identity" (p. 103).

Organization of Body of Literature

This chapter presented an essential review of literature that examined teachers' perceptions of the integration of technology into pedagogy impacting teacher's methods and teaching practices. The literature review was theme based and focused on technological integrations into pedagogy, as well as subsequent themes such as student literacy through close reading, the development of authentic meaningful work, and collaboration as well as cooperation when engaged with technology. A need for technology integration strand of sub-themes developed that focused on motivation for teachers and closing achievement gaps for students. The literature review presented an understanding of the difficulties and barriers that impede technological integration, specifically teacher's perceptions and motivation. Barriers to technological integration influencing teachers' perceptions included training, implementation, and support. Relevant theories utilized to examine technological integrations included heuristic affect, appraisal theory, activity theory, the pedagogy of technology integration and self-determination theoretical framework.

Approach and Methods

The themes from the literature review research were searched through search engines such as Google, Google Scholar, databases such as ResearchGate, ERIC, EBSCO Host, and The University of New England database. Relevant documents included books, doctoral dissertations, websites, professional journals, video interviews, scholarly articles, and periodicals. Search keywords included *technology integration, 1:1 computing, technology implementation, teacher motivation, student motivation, digital literacy, digital wisdom,*

cooperative learning, learning design, one-to-one laptop classroom, academic achievement, at-risk students, achievement gaps, one-to-one technology, technology teacher belief, teacher leaders, teacher voice, activity theory, one-to-one programs, parents' perceptions of technology, parent participation in technology integration, laptops, digital education, twenty-first century learning, digital classroom, Bring your own Device (BYOD), technology literacy, pedagogy, and technology curriculum implementation. All literature focusing on theory was less than 20 years of age, and all technological articles were no more than 10 years old. In conjunction, all references were assembled and organized using RefWorks.

Technological Implementation

The integration of technology in schools has and continues to face steep opposition. Opposition comes in the form of monetary, learning practices, curriculum alignment, and definitive proof of the academic closure of achievement gaps for students. However, technology can provide a tool for change in learning structures. "It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners" (Office of Educational Technology, 2015, p. 5). Downes and Bishop's (2015) qualitative study explored the characteristics for the implementation of technology in a middle school, the impact of tensions, as well as the impact upon middle school learning practices. Tensions arise from the interpretation of successful technology integrations. "One-to-one programs are, therefore, problematic to study and compare, as they describe the ratio of technology access, not necessarily how that technology is being used to promote learning" (Downes & Bishop, 2015, p. 2). Thus, successful technological integrations must look at the not only access to technology but also the impact of technology on educational practices.

Multiple studies have addressed the concerns over the tensions which teachers endure as a result of a technological implementation.

While districts and schools have found solutions to first-order barriers, technology integration related to one-to-one initiatives continues to be challenging due to tensions between teachers' existing teaching and learning beliefs/practices and the types of practices that are possible using newer, Internet-based technologies (Peterson & Scharber, 2017, p. 61).

Tensions arise for multiple reasons, but administrators and teachers must understand teaching and learning strategies differ with the use of technology. Peterson and Scharber's (2017) qualitative secondary case study explained that even though teachers are reluctant to change their pedagogical practices, student having access to technology such as computers or tables often leads to a transformation of teaching and learning practices (p. 61). There is a need to establish a fertile learning environment as noted by Penuel (as cited in Peterson & Scharber, 2017) who "outlined several examples of the way one-to-one computing has had a positive effect on education, including closing gaps in testing between advantaged and disadvantaged populations, fostering collaborative learning processes, and providing access to information and simulations" (p. 62).

Barriers to Technology Implementation

The ability to predict potential shortcomings within a technological integration is significant in targeting measures to combat those barriers. Schools may select technological integrations as a result of falling for the *shiny object syndrome.* The shiny object syndrome refers to school's purchasing technology due to it being the most current and newest innovation. Quality technological integrations withstand multiple years of implementation and service to

student academic learning. Swallow's (2015) qualitative single case study at a middle school on a technological initiative examined the negative effects of a one-to-one technology initiative during the second year of the implementation. The significance of the study is that it considered the factors that influence and impact the long-term success and stability of a technology initiative program. The study did exhibit and present a limitation in that the multi-year study was conducted at one site for data collection. The researcher utilized data instruments such as interviews of teachers and students, as well as participant observations, along with document reviews. "Data suggest that participants felt the goals of the initiative were not being met, evidenced by a significant decrease in the desired teaching and learning outcomes" (Swallow, 2015, p. 122). As a result of the data, the study provided an understanding of the need to shift fundamental pedagogical practices to avoid the plateauing that may occur within the second year of technological initiative implementation.

Students involved in technological initiatives are faced with many challenges. Schools that have established a bring-your-own-personal-device policy, as well as schools who have developed a one-to-one laptop integration have encountered significant obstacles in that students now have a potentially major distraction tool in front of them at their desks. Selwyn et al.'s (2017b) qualitative case study on three secondary schools focused on the challenges facing student learning within classrooms such as technological distractions that included students attempting to multi-task among classroom instruction, note taking, personal communication, web surfing, and other technological forms of engagement. Through interviews and formal as well as informal observations of students within the classroom setting, the study revealed inhibiting factors such as "backchat, mild resistance, time wasting, and other non-digital displays of disengagement" impacting student learning as a result of a technological initiative (Selwyn et al.,

2017b, p. 300). Peck et al. (as cited in Selwyn et al., 2017b) stated "our research concurs with recent US studies that conclude that the presence of personal devices in school is associated at best with moderate 'incremental change'" (p. 308). The literature is critical in that it addressed the potential harmful influences or inhibiting factors that a technological initiative within schools can cause.

The inclusion of teachers is essential in attaining a rich understanding of the success and struggles of a technological implementation within and outside of a classroom or school setting including in students' homes. Jin and Schmidt-Crawford (2017) mixed-methods case study focused on perceptions of major stakeholders impacted by a technological initiative detailed the importance of evaluating the effectiveness of teaching and learning as a result of technology initiatives as viewed from parents and guardians of the students. With parents and guardians at the focal point, the researchers used a pre- and post-study design within a mix-method research providing validity in the change in perceptions from the impact of the technology initiative. Jin and Schmidt-Crawford (2017) data instruments consisted of surveys examining key elements such as home demographics, technology use within the home, perceptions about the technology initiative, technological skills developed, possible changes in behaviors or interests, and the initiative's advantages as well as concerns. "Results revealed that a majority of parents had high regard for the program" (Jin & Schmidt-Crawford, 2017, p. 73). However, data describing parent concerns revealed a wide array of preoccupation with students spending too much time on social media, inability to focus on assignments, potential loss or breaking of the device, and inability to monitor online engagement.

Technological Instructional Approaches

Educational leaders face a continuous challenge grappling with forms of technology. Zheng et al.'s (2014) mix-methods study focused on major stakeholders in a primary and secondary educational setting and explain, "While the role of digital technology in schools has been an important policy question for more than a quarter century, the United States appears to be at a tipping point for this matter as issues of online education, digital reading and writing, and one-to-one digital devices come to the fore" (Zheng et al., 2014, p. 279). Kotter's (2012) emphasis on organizational change encompassing a need for urgency, and Wheatley's (2006) premise on discovering order in the midst of chaos interweave perfectly within our ever-changing world and need to close achievement gaps for students. "This was a world where order and change, autonomy and control were not the great opposites that we had thought them to be" (Wheatley, 2006, p. 289). The establishment of new initiatives should not be about sustaining order but rather addressing the need for change, urgent change. Leaders must then continue to adapt to the changing organization, environment, region, culture, and setting and not "bulldoze change" (Fullan, 2001, p. 9). Understanding urgency is critical in continuing to support the strengths of an organization as well as seeking to tap into potential opportunities to improve student learning.

To address the continuous rate of increasing change within our educational system Ololube et al. (2015) explained there needs to be a focus on pedagogy, curriculum implementation, as well as teacher motivation (p. 252). Fundamentally, according to Kotter's 2008 interview with *Harvard Business*, "urgency is a combination of thoughts, feelings, and actual behavior" (p. 1). Education leaders need to model, inspire, challenge, enable, and encourage with a sense of urgency within organizational and environmental chaos to address

weaknesses, opportunities, and threats to close achievement gaps for students. However, leaders

must remember that "There can never be a recipe or cookbook for change, nor a step-by-step

process" (Fullan, 2001, p. 44). Leaders need to customize the change process to the needs of the

followers and organization. Leadership teams can develop a change effort based on Kotter's

(1996) eight-stage process of creating major change. Kotter's process included establishing a

sense of urgency, creating the guiding coalition, developing a vision and strategy,

communicating the change vision, empowering bias-based action, generating short-term wins,

consolidating gains and producing more change, and anchoring new approaches in the culture (p.

24).

Educational leaders face a need to understand the short-term and long-term effects of a

technological initiative targeting teaching and student achievement. Zheng et al. (2014)

explained, "Though a national consensus is developing towards increased use of technology in

learning, there is no such consensus on how technology should be used" (p. 279). Understanding

the impact of a technological initiative on teaching and student achievement is critical in

validating or disproving the need to invest financial resources in technology, training, and

infrastructure upgrades attempting to enhance professional education and close achievement gaps

for students.

Supporting Student Learning Through Technology

The purpose of the technology initiative is to personalize student learning through a

multi-level response technological intervention initiative. Through the technological and

infrastructure advancements, teachers can develop learning practices that identify struggling

students and provide interventions necessary to close achievement gaps. Selwyn et al. (2017a)

explained a primary focus of technology is to support and improve academic achievement for

students and to close the gap for students. Technology is rooted in the belief that it can empower teachers as well as students to gain extensive access to information. This empowerment is critical in that it can foster student-driven learning beyond the classroom setting and school day. As a result of technology, teachers can better differentiate instruction allowing for the tailoring of student interests, curriculum materials, and course objectives. Closing achievement gaps requires active change within the school setting and targeting technological interventions to support and improve student learning.

Closing achievement gaps requires identification selection of at-risk students. Seeking to improve teaching and learning, Warschauer et al. (2014) study examined technology integration by three school districts in three different states seeking to close the academic gap for ELL and SES students. Warschauer et al.'s (2014) quantitative study identified at-risk students within their study as English Language Learners (ELL) and low Social Economic Status (SES). State by state school districts look for new technologies and strategies to close achievement gaps. School districts within Warschauer et al.'s (2014) study strived to close the achievement gap with the implementation of a one-to-one laptop program. However nationwide, "As more students gain computer and Internet access, disparities in computer use may exacerbate the challenges that disadvantaged learners face" (Warschauer et al., 2014, p. 46). As students from low-income homes slowly gain access to technology, data from surveys and interviews revealed obstacles still may persist at home in the form of the "lack of a home computer and Internet access" (Warschauer et al., 2014, p. 46).

Schools are faced with the daunting task of educating various types of learners through a single new technological initiative. Selwyn et al.'s (2017a) qualitative study examined the increase in the use of technology in schools and noted the increase has not dispelled the "broader

belief that today's schools are not doing a good job" (Selwyn et al., 2017a, p. 5). As schools attempt to close achievement gaps, they must understand cookie-cutter solutions do not work for every student. Teachers in schools face a tremendous challenge when educating students from different cultures, languages, social classes, and social economic statuses. A study conducted by Clarke's (2016) mix-methods case study targeting secondary students revealed a positive correlation between student learning outside the school day and the use of technology. As administrators seek new ways to close the achievement gaps for students, technology provides teachers an opportunity to extend student learning beyond the school day.

Rawls (as cited in Thompson, 2015) explained education should contribute to individuals in three fundamental ways: enriching the personal, providing a secure sense of self-worth via culture, and forming persons who adhere to laws and endorse the structures of a society (p. 157). Student academic motivation can be challenging for regular students but even more trying for at-risk students. The implementation of technology such as laptops enables students to engage, explore, and create assignments. Mouza's (2008) mix-methods case-study targeting under-privileged kids revealed "laptop integration created enhanced motivation and engagement with schoolwork, influenced classroom interactions, and empowered students" (p. 447).

Enhanced student motivation enables students to persist through difficult tasks and learning objectives. "Students viewed the computer as a tool that could provide information and help people learn more about the world, particularly through the use of the Internet" (Mouza, 2008, p. 446). The ability of students to grasp the significance of the role of technology is critical in understanding the learning opportunities. However, "Computers might tell you something or show you how to do something, but they will not help you understand it. Only the teacher will do that" (Mouza, 2008, p. 446).

Measuring student motivation can be a difficult task. However, a quantitative case study by Harris, Al-Bataineh, M., and Al-Bataineh, A.'s (2016) that focused on achievement by tracking motivation through a daily instrument not requiring student feedback and defined technology as a tool or device utilized to impact or manipulate student learning. "To gauge the motivational aspect of this research, monthly attendance records for each class were used" (Harris et al., 2016, p. 374). Using the attendance instrument, researchers were able to establish a pre- and post-test data collection. The study used a mathematical assessment from Discovery Education. Discovery Education's assessment is a benchmark used to assess the connection between curriculum standards and subskills. The study provided insight into using current instrument tools to develop the proposed study examining teachers' perceptions of the integration of technology into pedagogy.

Tallvid's (2016) qualitative study was of teachers' reluctance to integrate technology into pedagogy. The study analyzed the dilemma that there is an increase in the availability of technology within schools, but the integration of technology into the curriculum is lacking. The result has been a shortage of changes in classroom practices. Tallvid (2016) suggested that future research is needed to target the struggle and understand the inability of technology implementation to gain success for pupils, in particular, at-risk students. Tallvid (2016) explained the lack of technological integration in instructional practices and its impacted-on motivation noting several themes including the lack of technological competence, lack of connection to importance, insufficient materials, and loss of instructional time (p. 503). Furthermore, the study revealed that the themes displayed and impacted both student and teacher motivation towards technological integration.

Technology Pedagogy

Technological literacy skills such as writing are at the forefront of a significant portion of technology initiative programs. "The world is changing, and we will need to adapt schooling to prepare students for the changing world they are entering" (Collins & Halverson, 2009, p. 9). Zheng, Warschauer, and Farkas's (2013) mix-methods case study focusing on primary and secondary schools examined the impact of a one-to-one laptop initiative on student writing. In particular, researchers collected data illustrating the impact on at-risk students. Zheng et al. (2013) identified at-risk students as Hispanics and low-income earners. Through interviews, observations, and surveys, the year-long study revealed significant gains of at-risk students. "School laptop programs focusing on student writing can help improve literacy and educational equity for at-risk learners" (Zheng et al., 2013, p. 296). The study furthermore highlighted data that suggested at-risk students engaged in technology more outside of the classroom than students not identified as at-risk. Collins and Halverson (2009) explained that technological advances require individuals "to develop skills to find the information they are looking for, to evaluate its usefulness and quality, and to synthesize the information they glean from the different sources they locate" (p. 10). Zheng et al. (2013) explained that there was a notably higher level of frequency engagement of at-risk students that could lead to a future study comparing students not identified as at-risk with at-risk student's technological gains focusing on a connection between motivation and technological literacy.

Among the various skills students need to be successful in the generation to come, collaboration and cooperation continue to transcend time. Andersson, Wiklund, and Hatakka's (2016) qualitative case study targeted how one-to-one classrooms impact collaboration practices among upper primary and secondary education students. Research findings discovered a

connection of not only collaboration but the cooperation of inter-workings of students utilizing one-to-one laptops within a classroom setting. Andersson et al., (2016) stated, "Very often we found that they used some file-sharing program so that they could write in the same document at the same time, more in accordance with definitions of collaboration" (p. 421). As a result of the collaboration and cooperation through the use of technology, most students were engaged and active in their learning through writing, researching, and collaborating. The findings are critical and relevant as it alters the perceptions of a one-to-one classroom to a potential two-to-two or even a three-to-three classroom setting. Student collaboration and cooperation within a technology-driven classroom can allow teachers to modify practices addressing the needs of students within a classroom. As explained by Papa (2011), "Today's students need to be able to compete tomorrow within a multinational global workforce, perform jobs that may not exist, and work with people of different cultural and ethnic backgrounds" (p. 167).

Close reading is a concept in which readers direct special attention to and interact with the text they are working with in class as an assignment. Catterson's (2017) mix-methods dissertation focusing on primary and secondary students examined the impact of technology on reading focuses on everyday digital close reading best practices. The case study examined digital close reading and instructional practices "through the lens of culture-historical activity theory" (Catterson, 2017, p. 2). Several concepts emerged influencing the success for all students of best practices within close reading: building background knowledge, authentic reading and writing, critical literacy, awareness, and organized discussion. Findings from the study are critical in understanding how technology integration can foster technology literacy by promoting student-directed learning extending outside of the classroom for all student subgroups.

Furthermore, the research study is essential to understanding "the needs of a diverse adolescent population, and the demands of literacy in the 21st century" (Catterson, 2017, p. 3).

Zheng et al. (2014) explored the opinions of significant stakeholder groups typically omitted from providing valuable input, particularly the students. Within Zheng et al.'s (2014) case study, the researchers explored the opinions of K-12 students regarding the implementation of a one-to-one laptop program and their classwork. Data collection from student surveys enabled researchers to examine and develop potential sub-categories of themes about the influence of technologies upon differentiated instruction through the use of laptops. "This study suggested that, when new technology tools are used in schools, students should not only be viewed as learners but also be considered as real writers with valuable opinions" (Zheng et al., 2014, p. 279). The study furthermore highlighted the importance of providing students the opportunity to write with a purpose, as well as identifying an audience to provide authentic meaning in work.

Professional Development

Often technological implementations struggle to take into account the role of the teachers. Heath's (2017) qualitative case study on middle school teachers investigated the correlations between the implementation of a one-to-one initiative and teacher beliefs within a school setting. The study is significant in that it reveals and identifies a potential barrier threshold that may impact the success of a technology initiative. Research goals included examining teachers who demonstrated a strong sense of self-efficacy and were motivated to engage in technology and strive towards successful implementation. The two-year case study concluded that effective implementation of a technology initiative occurs through a wide array of impacting factors. An unintended influencing factor emerged from the research study.

Teacher's beliefs about their professional agency displayed underlying beliefs influencing teachers persisting through difficulties of one-to-one initiative implementations. "If technology is to support a meaningful pedagogical change in classrooms, teachers need to be given time, support, and trust to build positive beliefs about technology and a strong professional identity" (Heath, 2017, p. 103). The study provided insight into successes and difficulties of new pedagogy implementations with technology initiatives.

Blau, Peled, and Nusan's (2016) qualitative study examined middle school teacher and investigated a one-to-one laptop initiative within a school setting that aimed to enhance the engagement of learning and focus on the development of technological skills. The study was conducted with seventh-grade students in 15 teacher's classrooms in a junior high school setting. Researchers examined the second year of a digital laptop initiative. Through observations and interviews, researchers collected data that critically analyzed and established a significant correlation between the success of technology initiatives and the technological knowledge of teachers. The research is important in that it identified the struggle to manage a one-to-one classroom setting. "It appears that the availability of technology in the classroom in general and in 1X1 classrooms, in particular, is insufficient in order to develop 'digital wisdom' by educators" (Blau et al., 2016, p. 1227). This study not only identified the obstacles for teachers but provided insight into the possible pushback from teachers to resist the full inclusion of a one-to-one classroom setting. Furthermore, the concept of teacher difficulty within the classroom may illustrate concerns for placing students in a one-to-one classroom setting.

Expanding the depth of research on understanding the impact of teachers on the influence of technology on student learning, Nielsen, Miller, and Hoban's (2014) qualitative case study explored the perceptions and beliefs of teachers involved in a digital technology laptop computer

rollout within a high school setting. It was the goal of the rollout to transform new instructional teaching practices for teachers (p. 421). The importance of the study rests on the findings that despite competent and experienced teachers, some students were still not engaged in learning opportunities. The research findings are significant as they provide insight into exploring multiple factors inhibiting and supporting academic growth through technology initiatives as learning tools. Data collection included classroom observations and in-depth teacher interviews revealing a notable finding of the direct impact of a technology initiative on classroom management. The presence of laptops resulted in new factors for teachers to manage such as teacher-to-student redirection to ensure students were engaged in assignments. "The findings from this study have implications for the continued engagement of teachers" (Nielsen et al., 2014, p. 417). Teacher engagement of new technology is essential for leaders to recognize when attempting to close achievement gaps for students in schools considering the implementation of a one-to-one laptop program.

Understanding the first-hand struggles and successes of technological implementation is essential in targeting integration changes. Sahin, Top, and Delen's (2016) mix-methods case study examined teachers experiences during an investigation of the use of Chromebook laptops in a grade 6-12 classroom setting. Through the collection of surveys, their study focused on the teacher's perspective on the integration of technology and a possible correlation to the teacher's experience in the classroom. The study found "teachers' positive attitudes on the implementation of technology into learning practices significantly decreased after teaching with Chromebooks for a year" (Sahin et al., 2016, p. 361). The research study illustrated survey data indicating unrest in teachers in regard to scheduling, lack of technical support, and insufficient training.

Teacher's attitudes towards technology were influenced by the years of experience of the teachers, available technology tools, and teacher's level of comfort with technology as a whole. Kirschner (2015) article explained that "Most people resist change" (p. 5). Furthermore, he illustrated that organizations also tend to resist change efforts. As leaders work to understand the perspectives of teachers, they can raise the level of opportunity for technological change efforts to succeed through a focus on the teacher perceived needs for successful pedagogy. Leaders must work towards the establishment of "leadership through inquiry' as school technology attempts to better understand both 'where they are' as well as 'where they want to go' with technology in schools by learning how to ask the right questions" (Dickerson, Coleman, & Geer, 2012, p. 53).

Conceptual Framework

A Pedagogical theory was utilized to examine the significance of teacher perspectives with the implementation of technology in pedagogical development seeking to close achievement gaps for students. Pedagogical preparation may be critical in providing teachers the technological abilities needed to effectively implement technology. With pedagogical preparation, support, and training, teachers can become productive implementers of pedagogy leading to engagement and critical thinking for students through technology. Pedagogical and technology preparation permits teachers to develop confidence, buy-in, and motivation for technological implementation as seen in Figure 1. Miles and Huberman (as cited in Baxter & Jack, 2008) note that a conceptual framework provides several purposes such as identifying who will participate in the study, presenting potential relationships in the study, and the formulation of general constructs for the researcher (p. 553). Furthermore, Baxter and Jack (2008) describes

conceptual frameworks "as an anchor for the study and is referred at the stage of data interpretation" (p. 553).

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┌─────────────────┐      ┌─────────────────┐      ┌─────────────────┐
│     Teacher     │      │    Increased    │      │   Successful    │
│   Pedagogical   │  ▶   │     Teacher     │  ▶   │     Teacher     │
│  and Technology │      │  Motivation and │      │  Technological  │
│    Planning     │      │    Practices    │      │  Implimentation │
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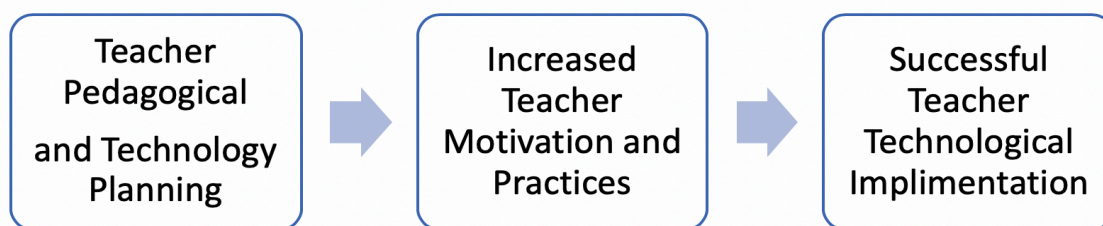
Figure 1. Conceptual Framework.

The successful implementation of a technological initiative attempting to close achievement gaps for students must begin with the pedagogical process of technology implementation. Educators need to understand that technology integration and pedagogy need to be constructed together. "Technology in education is commonly defined as a technical device or tool used to enhance instruction" (Okojie et al., 2006, p. 66). However, defining technology integration is far more complex and includes equipment, media tools, platforms, or any technological integration attempting to enhance student learning. Okojie et al. (2006) explained that technological integration "involves managing and coordinating available instructional aids and resources in order to facilitate learning" (p. 67).

As teachers are utilizing technological tools to facilitate student learning through implementation and activities, individual teachers struggle to have the "ability to select suitable technology while planning instruction" (Okojie et al., 2006, p. 67). The ability of a teacher to design and implement appropriate planning instruction requires the integration of technology in pedagogy. Through appropriate pedagogical planning, teachers can design strategies, implement instruction, and establish the evaluation of instruction to help design future lessons. According to Bruner (1966) "the essence of teaching and learning is to help learners acquire knowledge and use the knowledge they have acquired to create other knowledge" (as cited in Okojie et al., 2006,

p. 67). As a result, the goal is not to fill students with the knowledge, but rather to help students to understand how to use the knowledge they have acquired. To attain this level of learning, teachers need to develop strategies to motivate students and provide differentiated instruction targeting all students. "Technology integration should incorporate the technical skill and ability to use pedagogical knowledge as a base for integrating technology into teaching and learning" (Okojie et al., 2006, p. 68).

Engaging students in technological integration requires the engagement of teachers with the pedagogical concepts targeting student's critical thinking. However, Leh (2005) revealed that teachers admitted "they did not resist technology per se but agreed that they could not fully integrate it into their practices because of the organizational, administrative, pedagogical, or personal constraints" (as cited in Okojie et al., 2006, p. 67). The opportunities for teachers to have pedagogical planning is essential in establishing that teachers have the technological confidence as well as plan to appropriately implement technology. Furthermore, pedagogical planning revealed needs for teacher support and training for technology implementation. Only through the pedagogical planning, support, and training are teachers going to be effective at designing a dynamic classroom. "Designing a dynamic classroom using technology requires teachers to provide a learning environment that is colorful, engaging, exciting, interactive and energetic" (Okojie et al., 2006, p. 70).

Theoretical Framework

The theoretical framework for this study is based on self-determination theory. Self-determination theory by Deci and Ryan (1985) is used as a theoretical framework for this research study because its constructs examine human motivation through the understanding of the influence of autonomy, competence, and collaboration (relatedness). With the use of self-

determination theory, motivation is classified as either intrinsic motivation or as extrinsic motivation, which helps understand teacher motivation. Through self-determination theory, the research study examined the motivational factors impacting teachers that influence the success or failure of technological implementations.

      Self-determination theory. The pedagogical focus of the gap between technological initiatives and their implementation by teachers led to the selection of a theoretical framework examining human motivation. Deci and Ryan's (2000) self-determination theory provided a framework for examining human motivation as well as personalities. Through the use of self-determination, theory motivation is classified as either intrinsic motivation or as extrinsic motivation. "Intrinsic motivation is defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence" (Deci & Ryan, 2000, p. 56). Activities often classified as having a personal interest are characterized as intrinsic. "In contrast, extrinsic motivation is a construct that pertains whenever an activity is done in order to attain some separable outcome" (Deci & Ryan, 2000, p. 60). Extrinsic motivation could thus be classified as a teacher pursuing an optional technological professional development opportunity to close achievement gaps for students in their classroom.

      Deci and Ryan (2000) explained that self-determination theory refers to three basic psychological needs: autonomy, competence, and collaboration (relatedness) (as cited in Ololube et al., 2015, p. 249). Autonomy refers to the individual's behaviors which result in them seeking experiences as a result of their self or choices. Competence is an individual's desire to be capable of mastering tasks within their environment. Collaboration (relatedness) is fundamentally individuals seeking to belong and feel connected to other individuals or a group. Furthermore, collaboration (relatedness) includes the idea of individuals seeking praise for

accomplishments. "Conditions supporting the individual's experience of autonomy, competence, and collaboration (relatedness) are argued to foster the most volitional and high-quality forms of motivation and engagement for activities, including enhanced performance, persistence, and creativity" (Self-Determination Theory, 2018).
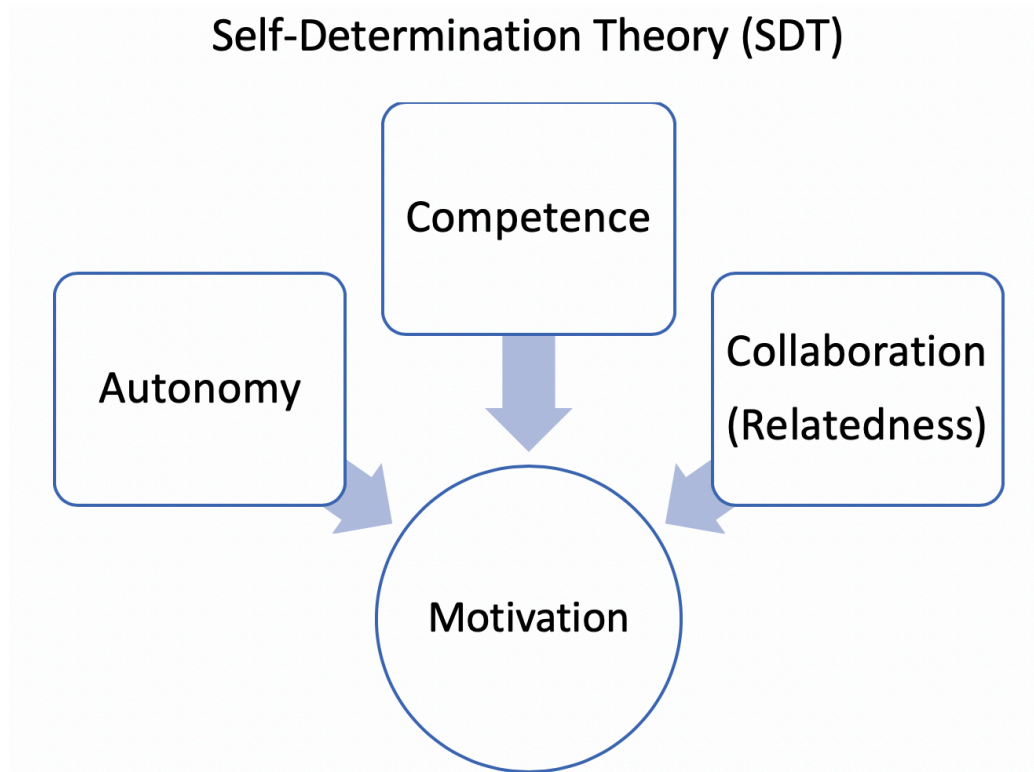
Figure 2. Self-Determination Theory.

Self-determination theory enabled Ololube et al.'s (2015) research study to examine the motivational factors impacting teachers thus influencing the success or failure of technological implementation. Ololube et al. (2015) explained that "teacher autonomy and creativity has been curtailed by more control and regulation, and that teachers are being asked to do more with less" (p. 245). Less teacher control and more regulations have led to pedagogical developments with little or no teacher input. "Teachers also complain about the lack of variety and role differentiation in their careers, the limited incentives for them to improve their practice and

develop as professionals, and the limited linkages between their performance, teacher

compensation, and teacher development" (Ololube et al., 2015, p. 245).

Through the theoretical lens of the self-determination theory, teacher motivation can be

examined through job satisfaction. Examining teacher's job satisfaction leads to the examination

of teacher professional autonomy, intellectual competence, and school site collaboration

(relatedness) to staff and administration. "Amid these negative realities and challenges that

threaten the teaching profession, research has consistently found that 'working with children' is

the main determinant of teacher job satisfaction" (Ololube et al., 2015, p. 245). Consequently,

collaboration (relatedness) should be the strongest component for teacher motivation. However,

with low autonomy and feelings of competence teacher motivation dwindles. Hartnett (2016)

elaborated the importance of autonomy and competence by explaining "The more individuals'

experience having their autonomy and competence needs to be met within a supportive

relationship, the more connected and trusting they feel" (p. 22).

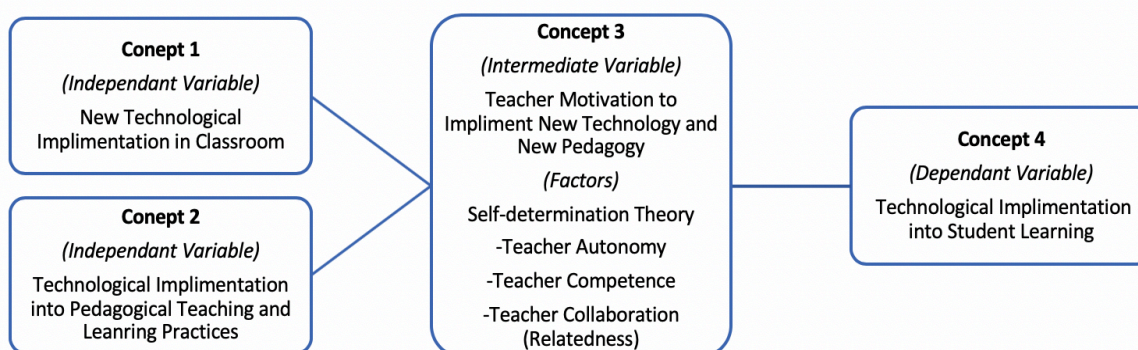*Figure 3.* Framework for examining teachers' perceptions.

Hartnett (2016) explained that for teachers to attain a high level of self-determination

motivation, they must engage in pedagogical developments addressing content, methods, goals,

planning, and decision-making (p. 5). Thus, for pedagogical changes and technological

initiatives to succeed, Hartnett (2016) explained that "teacher involvement in terms of the

amount of time invested, care taken, and attention is given" must occur (p. 22). Ololube et al. (2015) presented an understanding that "participation in decision-making is not so much a question of whether or not teachers should be involved in but rather to what extent and under what circumstances decision making should be participatory" (p. 247). Teacher motivation can be raised by providing opportunities for teachers to be included in decision-making, creating curriculum, developing new pedagogy, exhibiting creativity, and engaging in collaboration with peers.

Self-determination theory criticisms. The self-determination theory does hold some questions about perception that may be considered a gray area. For example, Deci and Ryan (as cited in Hartnett, 2016) stated for those who are intrinsically motivated, outside incentives are unnecessary as the reward lies in the doing of the activity; in contrast, individuals who are extrinsically motivated undertake activities for reasons separate from the activity itself (p. 20). However, this leads to the assumption that everyone can be intrinsically motivated from children to even babies. It would appear that an individual's age might influence intrinsic motivation. In contrast, extrinsic motivation may appear in individuals of all ages.

Self-determination theory strengths. Self-determination Theory (2018) centers on three constructs that include autonomy, competence, and collaboration (relatedness). The three constructs focused on all individuals having three basic needs. Through teachers satisfying their own basic needs, they can focus on helping students satisfy their basic needs, raising intrinsic motivation for teachers as well as students. As a result of raised self-determination motivation, teachers can attempt to increase technological implementation focusing on higher student learning and performance. With teachers engaging in pedagogical strategies targeting students' autonomy, competence, and collaboration (relatedness), the opportunities for technological

implementations to succeed increase as long as leaders also address teachers' autonomy, competence, and collaboration (relatedness).

Conclusion

Through this qualitative exploratory case study, Teachers' perceptions of the integration of technology into pedagogy was examined. Within the study, data was collected from teachers targeting changes in teaching strategies and learning structures. Through the review of the literature, exploration of various themes influencing technological initiatives impacting student's academic achievement are distinguished. Such topics included technological integration, barriers to technological implementation, need for technology, teachers' perspectives, as well as theoretical frameworks. The pedagogical focus of teacher integration of technology led to the examination of the self-determination theoretical framework examining human motivation. The literature examined the impact of a technological initiative on instruction established that student achievement is critical in evaluating the need to invest financial resources in technology, training, and infrastructure upgrades attempting to enhance teachers' methods as well as the practice of teaching.

CHAPTER 3

METHODOLOGY

This case study was conducted as a single case study at a middle school in Southern

California. The case study utilized an exploratory method and qualitative strategy that included

instrument tools analyzing surveys and in-depth interviews of teachers. Surveys and in-depth

interviews of teachers provided insight into middle school teachers' perspectives for the

integration of technology into pedagogy. Stake (1995) and Yin (2003) use of a case study model

as a result of "Constructivists claim that truth is relative and that it is dependent on one's

perspective" (as cited in Baxter & Jack, 2008, p. 545). Yin (as cited in Baxter & Jack, 2008)

explained that an exploratory case study "is used to explore those situations in which the

intervention being evaluated has no clear, single set of outcomes" (p. 548). The utilization of

case studies enables researchers to examine questions that focus on the how, the manipulation of

participant behaviors, and the effect of various contextual conditions influence on a research

phenomenon (Yin as cited in Baxter & Jack, 2008, p. 545).

Through a pedagogical conceptual framework and the self-determination theory as a

theoretical framework, the case study sought to gain an in-depth understanding of the impact of

motivation on middle school teachers' experiences during a technological implementation into

pedagogy. Baxter and Jack (2008) note "One of the drawbacks of a conceptual framework is

that it may limit the inductive approach when exploring a phenomenon" (p. 553). However,

through the strategy of journaling and discussing findings with other researchers, the study

attempted "to safeguard against becoming deductive" to ensure the research has not begun to be

driven by the frameworks (Baxter & Jack, 2008, p. 553). The case study research questions

included: 1. What responses or actions did you personally experience at the middle school during

the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? 2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? 3. How did autonomy, competence, and collaboration (relatedness) impact middle school teachers' intrinsic and or extrinsic motivation during the technological implementation time-period of August 2017 to December 2018?

As seen in figure 4, the case study included, a. review of the literature of current and historical literature on technological implementations impact on teaching practices and student learning, b. analysis of teacher surveys that examined the impact of motivation and teaching practices from the technological implementation, c. further analysis of teacher interviews examining the impact of motivation and teaching practices from the technological implementation, d. synthesis of the data analysis and an interpretation of the findings, and e. findings considering conclusions and recommendations.
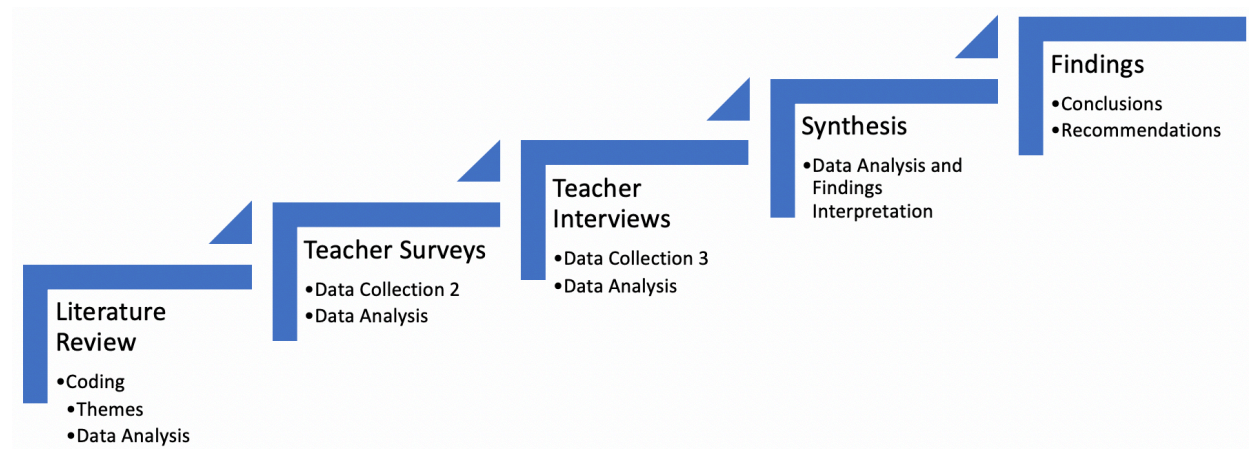

Figure 4. Research Design Flowchart.

Setting

The researcher served as an administrative designee and a teacher at the middle school site that engaged in technology implementation. The researcher's role as an administrative designee did not include any form of supervision authority over the teachers at the middle school site. Within the position, the researcher's primary role was working in collaboration with the middle teachers in the area of providing corrective measures for students. The study required approval from the middle school's district office. The school district required a one-page summary of the project, methodology, and implications, along with school district Institutional Review Board (IRB) application, as well as IRB approval notification from the researcher's university, and a criminal history clearance. Furthermore, all researchers are required to follow the school district Guidelines for Research, Evaluation, and School Improvement, as well as the school board's Research Policy and Admin Regulations. In conjunction, the school district requires researchers to sign a Board Policy Certification Page, sign a Research Applicant Acknowledgement Page, and provide participants with an invitation letter and consent form.

The research study school site opened in 1980 and was located in Southern California. The middle school site was located in a semi-rural area in Southern California. The school was one of eight middle schools in the school district serving grades seven through eight. District-wide, the school district provided K-12 education to over forty-eight schools with over fifty-three thousand students (Ed-data, 2018). The middle school was the school districts third middle school built. The need for the third middle school arose when the school districts other middle schools reached enrollments over fifteen hundred students. Overcrowding negatively impacted the schools. The site had endured turnover in staff, administration, and a mass exodus of high socioeconomic status families to other schools and school districts to educate their children. The

school site was in a community that is dominant in Hispanic culture and had minimal parent involvement or support. Geographic threats faced the middle school as a result of being surrounded by higher performing schools and school districts (Ed-data, 2018).

Financially, the school was funded through the Local Control Funding Formula (California Department of Education, 2017). Fundamentally the district received the autonomy to decide how to spend money on programs and services. Additionally, the formula took into account high-needs students, English learners, low-income students, and foster children. The new formula since enacted in 2013, increased the revenue to the district and enabled significant improvements in infrastructure and technology to support student learning. As a result of the Local Control Funding Formula and a local bond measure (Ballotpedia, 2014), the district and its schools targeted student learning through district-wide technological infrastructure upgrades and resources as well as tools for teaching and learning practices through digital initiatives. The Local Control Funding Formula was a formula separating funding avenues for activities and instructional programs through the establishment of a base, supplemental, and concentration grants. The local bond measure awarded the school district $396 million to establish a college and career readiness programs.

Participants/Sample

Purposeful sampling was the selection strategy for choosing participants for the study. "The logic of purposeful sampling lies in selecting information-rich cases, with the objective of yielding insight and understanding of the phenomenon under investigation" (Bloomberg & Volpe, 2016, p. 148). The survey was sent to all teachers who taught middle school English or math, at the target setting, and have participated in the implementation of technology into pedagogy. On completion of the surveys, participants were asked to volunteer for interviews.

From those who volunteer, up to 13 participants were randomly chosen to participate in in-depth interviews. Participants were randomly selected through a Kagan Cooperative Learning Mega-Timer. Each participant was assigned a number 1 to N. Once participants were assigned a numerical identifier, the researcher inputted the sample group into the timer and select the random selection until the desired interview sample group of 13 was met. The random criteria selection for participants that participated in the in-depth interviews enabled the selection of teachers who are a representative of the surveyed group. The initial sample group selected to participate in the study's survey included seventh and eighth-grade English and mathematics teachers at the middle school site recruited through an invitation to participate in a research study (Appendix A). The participants from the school were intentionally selected because that site conducted a technological implementation into pedagogy.

Potential Limitations

Limitations of the study included the size of the population that was English and mathematics teachers from a small middle school in Southern California. The participants from the school were purposefully sampled because their teaching strategies and methods were impacted by a technological implementation in pedagogy. As a result of the purposeful sample of English and mathematics participants, there was a limited representation of perceptions for teachers in all subject areas in middle school.

The technological implementation occurred from August 2017 to December 2018. If the desired sample size of 13 was not able to be reached, the study would have employed a snowball, network, or chain sampling strategy. The snowball sampling strategy is explained by Bloomberg and Volpe (2016) as when a few participants who possess required characteristics are asked to identify other individuals they know who share the same qualifications and refer them to the

researcher to complete the sample group (p. 170). The criteria for participants to be selected for the sample group are that they must be a middle school teacher on the school site and have been engaged in a technological initiative implementing technology into pedagogy during the August 2017 to December 2018 timeframe.

Participant Rights

Confidentiality of all participants were protected through a multitude of methods including providing a pseudonym to the school site as well as participants, coding all data documents removing any participant identifiers, locking all participant data in a secure file cabinet, and properly destroying research study data after five years. There were no foreseeable risks associated with the participation of individuals in this study as they were co-workers with the researcher and not the researcher's subordinates. In the event that a participant felt uncomfortable, they had the option to inform the researcher and every attempt would have been made to ease the discomfort. Risks were attempted to be identified and minimized before dissemination of questionnaires and interviews through researcher journaling. Participation in the study was strictly voluntary. Participants were able to opt-out of data collection methods or withdraw from the study at any time. Before questionnaires were disseminated and the participation of interviews, participants received a copy of an informational letter. In conjunction, participants agreed to digitally consent to participate in the study at the beginning of the participant survey.

The informational letter outlined the participant protections for the study as well as the name of the study, information about the researcher, purpose of the study, the study's sample, benefits and risks of the study, requirements of the participants, and contact information for the researcher. All forms were stored on a thumb drive, locked in a file cabinet, and maintained for

five years. Data collected from the research was cataloged and complied using REDCap,

RecUp/Drop Box, and Microsoft Word. REDCap is a secure web-application for building and

managing online survey as well as databases (Vanderbilt University, 2019). RecUp/Drop Box

allowed interviews to be recorded, transcribed, and transferred to a Drop Box file. Microsoft

Word includes easy to use tables allowing the researcher to divide interview, separate sections,

divide initial themes, and extract common themes.

Data was collected without individual identification notations providing confidentiality in

the study. Only the researcher of the study had access to participant identifiers. However, the

researcher's lead advisor, secondary advisor, and the University of New England's Institutional

Review Board (IRB) department had the option to access to all data excluding participant

information. The identity of the school, school district, and participants were protected

throughout the study by the use of pseudonyms. Member checking was followed to allow

interview transcripts to be shared with participants for factual accuracy as well as obtain

permission for the use of direct quotes in the study. Furthermore, each participant received a

copy of the completed study.

Data

A strength of the case study approach was that it provided an opportunity for

"participants to tell their stories" (Crabtree & Miller, 1999, as cited in Baxter & Jack, 2008, p.

545). Yin (as cited in Merriam, 2009), defined case study in terms of the research process, "A

case study is an empirical inquiry that investigates a contemporary phenomenon (the 'case')

within its real-life context, especially when the boundaries between phenomenon and context

may not be clearly evident" (p. 37). Furthermore, Baxter and Jack (2008) elaborate that a

qualitative case study approach enables the "exploration of a phenomenon with its context using a variety of data sources" (p. 554).

This qualitative exploratory case study intended to examine teachers' perceptions of the integration of technology into pedagogy. Through a pedagogical conceptual framework and the self-determination theory as a theoretical framework, the case study sought to gain an in-depth understanding of the impact of teacher motivation on teaching and learning practices specifically related to the implementation of technology in the classroom.

The inclusion of multiple data sources enhances data credibility (Patton, 1990; Yin, 2003 as cited in Baxter & Jack, 2008, p. 554). Data was collected from analyzing middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy. Instruments for the research study included surveys, and in-depth interviews of participants. Within real life context stories, "participants are able to describe their views of reality and this enables the researcher to better understand the participants' actions" (Lather, 1992; Robottom & Hart, 1993 as cited in Baxter & Jack, 2008, p. 545).

A qualitative data coding analysis procedure was utilized for the case study. The researcher designed a classification method following a data analysis model proposed by Anfara et al. (2002) that included multiple iterations of data analysis. Transcribed participants responses were read examining repeated words, phrases, and concepts to extract patterns and categories. The researcher developed an organized framework for data analysis and interpretation (Glesne, 2006). The framework assisted the researcher in tracking research questions that provided

insightful data. The information was placed in the left column labeled with participants' pseudonyms (Participant #1, #2, etc.). In the right column participant's responses were recorded.

The researcher attempted to demonstrate the trustworthiness of the research data through the creation of an iteration table (Anfara et al., 2002). The iteration table format from Anfara et al. (2002), displayed the analysis process demonstrating what the participants said using their words. The researcher then combined the words into concepts that then revealed themes. Annotations were made to note similar responses from multiple participants to compare common factors and phrases, extract them as themes, and classify them for further analysis. The groups of related ideas were combined to establish over-arching categories for the study. The researcher produced categories to address research questions and place them in an iteration table (Anfara et al., 2002). In the first iteration process, initial codes were formed from the surface content analysis to create categories to answer research questions placing them in an iteration table (Anfara et al., 2002). The second iteration investigated patterns. Through the third iteration, essential themes were extracted from the data to address the research questions (Anfara et al., 2002).

Surveys

Baxter and Jack (2008) note that "Unique in comparison to other qualitative approaches, within case study research, investigators can collect and integrate quantitative survey data, which facilitates reaching a holistic understanding of the phenomenon being studied" (p. 554). The research studies instrument tools included online survey and in-depth interviews of participants. The research study used an adapted Vannatta and Bannister's (2009) Teacher Technology Integration Survey (TTIS). Some modifications to the survey included updating the types of technology teachers, as well as student use at home and in a classroom setting. In conjunction,

the sections in the TTIS attempted to measure "teachers' technology integration practices by measuring a variety of beliefs and behaviors with respect to classroom technology use" (p. 3). TTIS provided a multi-dimensional instrument to examine teacher technology integration. A letter of invitation (Appendix A) was sent to potential participants explaining the online survey process and option to volunteer for a chance to be selected for an in-depth interview. Participants who choose to participate in the online survey were able to type in the link on the invitation letter.

The online survey provided participants with participant consent information (Appendix B) prior to answering any questions. Participants had the option to give their informed consent to participate in taking the survey or exit the survey and opt-out. Detailed records were kept acknowledging which individuals agreed to participate and the people who opt-out. At the end of the survey, participants were asked if they would like to volunteer to participate in an interview. Participants who choose to participate in an interview had the opportunity to provide their contact information for interview scheduling purposes. Contact information from participants was used for arranging interviews only, no personally identifiable information was used in the research study. Once interview volunteer request forms were received, participants were randomly selected for in-depth interviews and received a participant consent information letter (Appendix C) at the time of the interview.

TTIS (Appendix D) provided questions attempting to "measure teacher technology integration, which encompasses risk-taking behaviors and comfort with technology; perceived benefits of using classroom technology; beliefs and behaviors about classroom technology use; technology support and access; teacher technology use for communication, instruction and instructional support purposes; and facilitation of student technology use" (Vannatta &

Bannister, 2009, p. 1). A pedological conceptual focus framed the study within Deci and Ryan's (1985) self-determination theory examining teachers' motivation and its impact on a technological implementation. Survey questions strived to provide insight into changes impacting teaching strategies and classroom learning structures. The survey was administered through REDCap providing data tallies and results.

Interviews

Survey participants who volunteered for an interview provided a sample group from which the researcher randomly selected participants for the in-depth interviews. Stake (as cited in Creswell, 2013) explains that bounded studies are a way of examining a system in the parameters of a particular place and in a selected timeframe. The survey and interviews provided the researcher participants who shared common experience, but not necessarily a common result. Interviews provided insight into understanding teachers' perceptions in the case study examining a technological implementation.

Individual semi-structured interviews (Appendix E) of approximately 30 minutes were conducted. The interviews were open-ended and follow-up questions focused on providing participants an opportunity to share with the researcher a deeper understanding of how the technological implementation impacted their motivation. The semi-structured format provided an opportunity for free responses from participants. Interviews were recorded that allowed for coding of essential emerging themes. Interview data was transcribed, the researcher designed a classification method following a data analysis model proposed by Anfara et al. (2002) that included multiple iterations of data analysis. The method was created to reveal duplicated phrases that determined three initial codes. Initial codes were separated into major categories with the second iteration. The third iteration revealed themes from these categories. The

interviews were conducted in person. The identity of participants was protected throughout the study by the use of pseudonyms. Interviews provided an opportunity to collected individual background information, clarification of participant roles as an implementor of technology, and perspectives on the impact of technological implementation on pedagogy and motivation.

This study utilized member checking so participants could address any misunderstanding of responses to the researcher. All interviews were audio recorded to allow for transcription. Transcription software called Just Press Record and Simon Says assisted in the transfer of the data from audio to Microsoft Word format. Member checking occurred with all transcribed data. Creswell (2015) explained that "Through member checking, we asked participants to comment on the accuracy of verbatim quotes and obtained their approval to use their direct personal quotes in written or verbal reports of the study" (p. 46). Once the interviews were transcribed, the researcher provided a copy of the transcription to the participants to validate data and provide approval for the use of quotes within the study.

Analysis

Credibility was provided through member checking of interview transcriptions, coding the interview transcriptions, and double coding of transcriptions. Interview transcripts were coded to identify themes for data analysis and then the coded data was double-coded. To attain a high level of credibility, data analysis occurred from teacher surveys and from in-depth interviews. The process of double coding was utilized for the study. Double coding is when a "set of data are coded, and then after a period of time the researcher returns and codes the same data set and compares the results" (Baxter and Jack, 2008, p. 556).

Interview data was transcribed, allowing the researcher to design a classification method utilizing a data analysis model proposed by Anfara et al. (2002) that includes multiple iterations

of data analysis. The method was created to reveal duplicated phrases that determined initial codes. The initial codes were separated into several major categories with the second iteration. The third iteration potentially revealed several themes from these categories.

The researcher attempted to demonstrate the trustworthiness of the research data though the creation of an iteration table (Anfara et al., 2002). The iteration table format from Anfara et al. (2002), displayed the analysis process demonstrating what the participants said using their words. The researcher then combined the words into concepts that then reveal themes. Annotations were made to note similar responses from multiple participants to compare common factors and phrases, extract them as themes, and classify them for further analysis. Groups of related ideas were combined to establish over-arching categories for the study. The researcher attempted to produce categories to address research questions and place them in an iteration table (Anfara et al., 2002). In the first iteration process, initial codes were formed from the surface content analysis to create categories to answer research questions placing them in an iteration table (Anfara et al., 2002). The second iteration investigated patterns. Through the third iteration, essential themes were extracted from the data to address the research questions (Anfara et al., 2002).

CHAPTER 4

DATA ANALYSIS AND FINDINGS

The purpose of this qualitative exploratory case study was to examine middle school teachers' perceptions of the integration of technology into pedagogy. Within the study, data was collected from analyzing middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy. A pedagogical focus on teacher integration of technology was supported by the self-determination theory as the research study's theoretical framework examining human motivation. The researcher analyzed survey responses and transcripts of in-depth interviews of participants. The sample group consisted of all teachers from one school who taught middle school English or math and participated in the implementation of technology into pedagogy during the implementation time-period. Chapter 4 presents the findings of this research study and describes topics or themes that emerged from the analysis of data.

The researcher believed that the understanding of teacher's perceptions and its impact on pedagogy allows for educators to better prepare for future integrations of technology into pedagogy.

The following research questions guided the study:

1. What responses or actions did you personally experience at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?

2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?

3. How did autonomy, competence, and collaboration (relatedness) impact middle school teachers' intrinsic and or extrinsic motivation during the technological implementation time-period of August 2017 to December 2018?

Chapter 4 describes the methods utilized to organize and analyze data collected from 16 surveys and 13 interviews of middle school participants. Descriptive statistics were utilized to explain survey data. Interview transcripts were coded into categories to extract emergent themes. The chapter concludes with a summary of results analyzed from the research data.

Analysis Method

Focus on survey data: The research study participants received a random numerical identifier, from 1 to 16, based on the order they completed the research study survey. The research study survey was conducted through REDCap. REDCap is a secure web application for building and managing online survey as well as databases (Vanderbilt University, 2019. The web application sent each participant an invitation to participate in the study and collected the survey results. REDCap allowed the researcher to organize the data and develop descriptive statistics. The Teacher Technology Integration Survey (TTIS) (Appendix D) provided questions measuring teacher technology integration, perceived benefits of the use of classroom technology, and teachers' beliefs and behaviors about classroom technology use. Deci and Ryan's (1985) self-determination theory examining teachers' motivation and its impact on a technological implementation served as a pedological conceptual focus for the data presented below.

Focus on interview data: Qualitative data analysis was conducted on interview transcripts in two segments. Data was analyzed through coding the participant interviews examining emergent themes. The coding process included the researcher designing a classification method following a data analysis model proposed by Anfara et al. (2002) that includes multiple iterations

of data analysis. Interviews were conducted in-person with participants and with a recording application. The duration of the interviews with the participants ranged from 20 to 40 minutes. The audio recordings of interviews were transcribed into Microsoft Word files for member checking and coding. Audio recordings from an application named Just Press Record was uploaded to a website called Simon Says. The Simon Says website transcribed the audio file into a word processing file. The researcher listened to each audio file to validate the transcription was correct for each word and sentence. Word files were then downloaded directly from the Simon Says website, and all interview information was deleted from the site. The application and website process allowed for transcription member checking of each interview to occur within 24 hours of each interview.

Qualitative data analysis was conducted in two segments. The researcher first analyzed the trends from the participant survey data, and the second segment, analyzed emergent themes in participant interviews. In the second segment of analysis, interview transcriptions were reviewed, compared to audio recordings, and edited for errors. A copy of the transcripts was given to each participant for member checking. Upon member checking verification, recorded interviews were coded to identify and develop themes. Following the coding from audio files, transcriptions of interviews were coded for occurring themes then double coded after some time for prevailing themes.

Upon the completion of data collection, a qualitative data coding analysis procedure was utilized for the case study following a data analysis model proposed by Anfara et al. (2002) that included multiple iterations of data analysis. During the second segment of interview data analysis, transcribed participants' responses were read examining repeated words, phrases, and concepts to extract patterns and categories. The process enabled the researcher to develop an

organized framework for data analysis and interpretation (Glesne, 2006). Research questions that provided insightful data were placed in the left column labeled with participants' pseudonyms (Participant #1, #2, etc.). The right column was utilized to record the participant's responses. The iteration table format from Anfara et al. (2002), displayed the analysis process demonstrating what the participants said using their words. The researcher then combined the words into concepts that then revealed themes. Annotations were made to note similar responses from multiple participants to compare common factors and phrases, extract them as themes, and classify them for further analysis. The groups of related ideas were combined to establish over-arching categories for the study. The researcher produced categories to address research questions and place them in an iteration table (Anfara et al., 2002). In the first iteration process, initial codes were formed from the surface content analysis to create categories to answer research questions placing them in an iteration table (Anfara et al., 2002). The second iteration investigated patterns. Through the third iteration, essential themes were extracted from the data to address the research questions (Anfara et al., 2002).

Presentation of Results

Study findings were displayed initially as descriptive informational statistical data of the survey. Subsequently, interview analysis was exhibited thematically.

Demographic Data and Descriptive Statistics

Each participant completed Vannatta and Bannister's (2009) Teacher Technology Integration Survey (TTIS) survey before the interview. The survey provided data such as participants' perceived benefits of the use of classroom technology and teachers' beliefs and behaviors about classroom technology use. Descriptive statistics for the survey are explained below. The survey was sent to all 16 participants who taught middle school English or math, at

the targeted school, and had participated in the implementation of technology into pedagogy. Of the 16 participants eligible for the case study, 16 participants completed the survey. Eight participants at the middle school taught English, and eight taught mathematics. Thirteen of the 16 participants volunteered to participate in an interview. Six interview participants taught English, and seven interview participants taught mathematics.

Participants were asked to rate the level of agreement with a series of statements with the first set of statements asking them to focus on their risk-taking and comfort level with technology. When responding to "I feel comfortable in my ability to work with computer technologies" 68.8% of the participants responded "Agree." A response of "Strongly Agree" was selected by 25.0% of the participants. The remaining responses can be found in Figure 5. Data indicated that most teacher were comfortable with using technology.
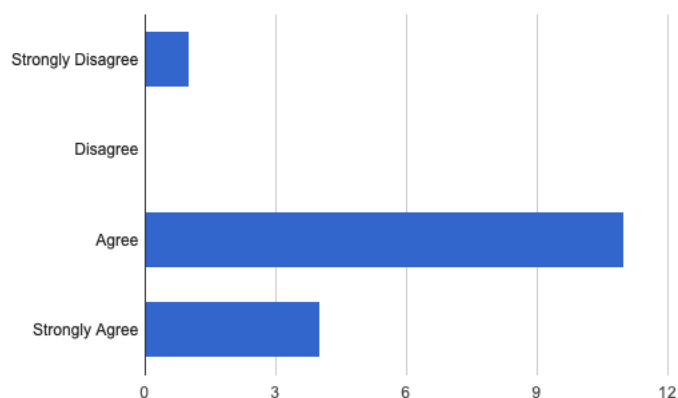
Figure 5. Comfort Level with Technology.

Note. Counts/frequency: Strongly Disagree (1, 6.3%), Disagree (0, 0.0%), Agree (11, 68.8%), Strongly Agree (4, 25.0%)

Participants were asked to rate the level of agreement to the statement "I get excited when I am able to show my students a new technology application or tool." A response of "Agree" was selected by 50.0% of the participants. A response of "Strongly Agree" was selected by 43.8% of the participants. The remaining responses can be seen in Figure 6.

Participants were asked to rate the level of agreement to the statement "I enjoy finding new ways that my students and I can use technology in the classroom." A response of "Agree" was selected by 37.5% of the participants. A response of "Strongly Agree" was selected by 43.8% of the participants. The remaining responses can be seen in Figure 7. Participants were asked to rate the level of agreement to the statement "Learning new technologies that I can use in the classroom is important to me." A response of "Agree" was selected by 31.3% of the participants. A response of "Strongly Agree" was selected by 50.0% of the participants. The remaining responses can be seen in Figure 8. Data exhibited high levels of teacher's intrinsic motivation towards the use and application of technology when teaching students in the classroom.

Figure 6. Excitement when using Technology.

Note. Counts/frequency: Strongly Disagree (0, 0.0%), Disagree (1, 6.3%), Agree (8, 50.0%), Strongly Agree (7, 43.8%)
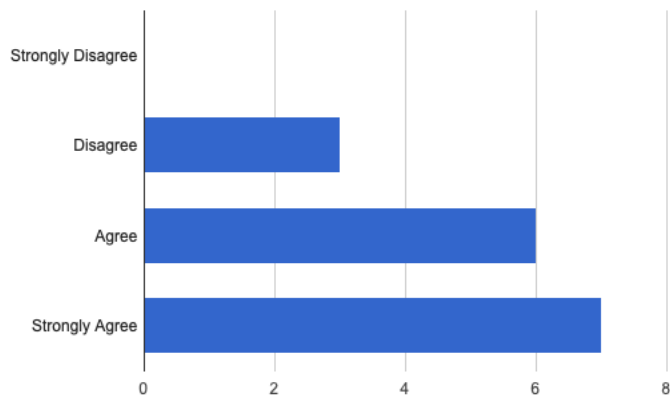
Figure 7. Enjoyment when using New Technology.

Note. Counts/frequency: Strongly Disagree (0, 0.0%), Disagree (3, 18.8%), Agree (6, 37.5%), Strongly

Agree (7, 43.8%)

Figure 8. Importance of using New Technology.

Note. Counts/frequency: Strongly Disagree (0, 0.0%), Disagree (3, 18.8%), Agree (5, 31.3%), Strongly

Agree (8, 50.0%)

The following statement asked participants to rate their level of agreement with their

perceived benefits of technology. Participants were asked to rate the level of agreement to the

statement "My students get excited when they use technology in the learning process." A

response of "Agree" was selected by 50.0% of the participants. A response of "Strongly Agree"

was selected by 37.5% of the participants. The remaining responses can be seen in Figure 9.

Data presented indicated that teacher's observed high levels of student motivation when they are engaged with technology in the learning process.
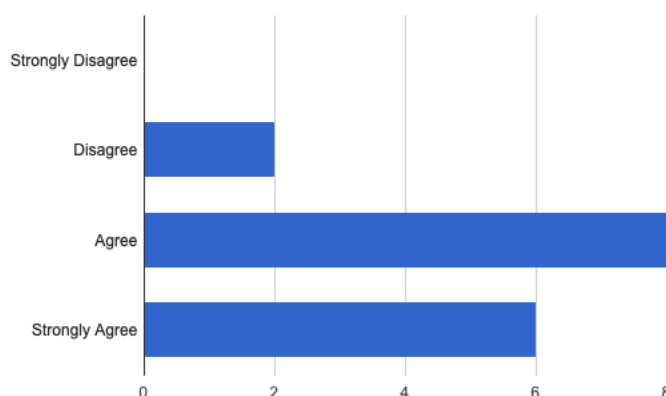
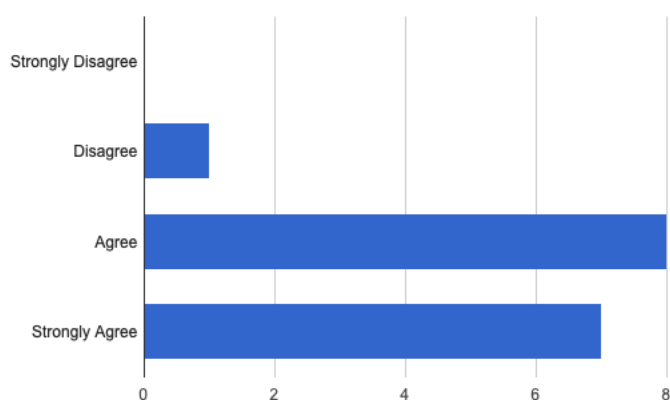*Figure 9.* Student Excitement when Using Technology.

Note. Counts/frequency: Strongly Disagree (0, 0.0%), Disagree (2, 12.5%), Agree (8, 50.0%), Strongly Agree (6, 37.5%)

The next set of statements asked participants to rate their level of agreement with their beliefs and behaviors about classroom use of technology. Participants were asked to rate the level of agreement to the statement "Teaching students how to use technology is a part of my job." A response of "Agree" was selected by 81.3% of the participants. A response of "Strongly Agree" was selected by 6.3% of the participants. The remaining responses can be seen in Figure 10. Participants were asked to rate the level of agreement to the statement "Using technology in the classroom is a priority for me." A response of "Agree" was selected by 62.5% of the participants. A response of "Strongly Agree" was selected by 6.3% of the participants. The remaining responses can be seen in Figure 11. Data exhibited high levels of teacher's extrinsic motivation towards the need to teach students how to use technology for learning.
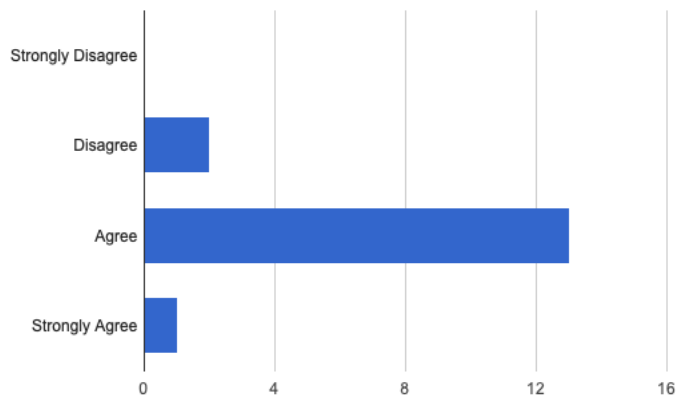
Figure 10. Using Technology is a part of my Job.

Note. Counts/frequency: Strongly Disagree (0, 0.0%), Disagree (2, 12.5%), Agree (13, 81.3%),

Strongly Agree (1, 6.3%)
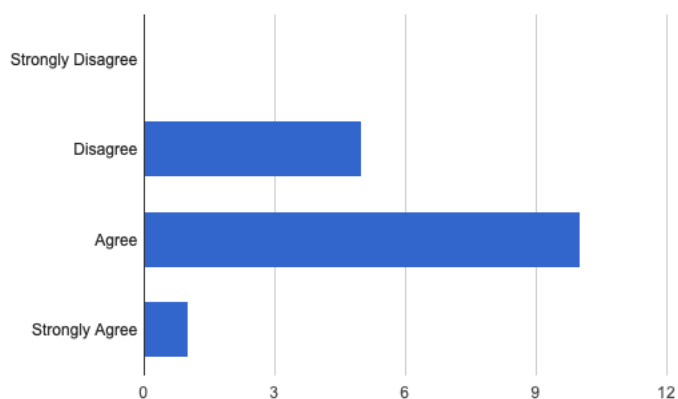
Figure 11. Priority of Technology Use.

Note. Counts/frequency: Strongly Disagree (0, 0.0%), Disagree (5, 31.3%), Agree (10, 62.5%),

Strongly Agree (1, 6.3%)

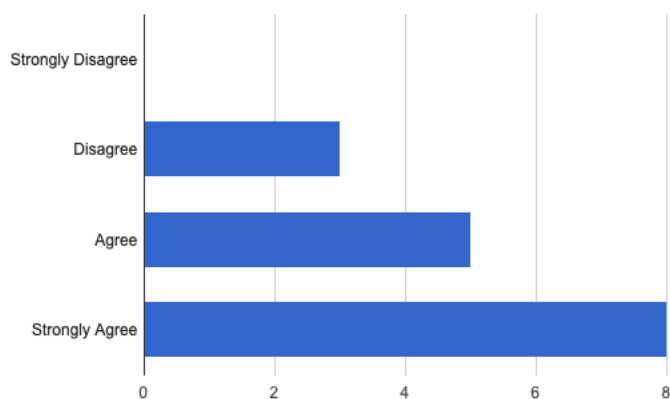The subsequent series of statements asked participants to rate their level of agreement

with their perception of technology encouragement, vision, and support. Participants were asked

to rate the level of agreement to the statement "I'm encouraged to integrate technology into the

classroom." A response of "Agree" was selected by 43.8% of the participants. A response of

"Strongly Agree" was selected by 12.5% of the participants. The remaining responses can be

seen in Figure 12. Participants were asked to rate the level of agreement to the statement: A

vision for technology use in our school is clearly communicated to faculty. A response of

"Agree" was selected by 12.5% of the participants. A response of "Strongly Agree" was

selected by 6.3% of the participants. The remaining responses can be seen in Figure 13. Data

exhibited a nearly split level of teacher's perceptions of receiving encouragement to use

technology in the classroom. Furthermore, 81.3% of participants perceived that there was not a

clear vision of technology use communicated to the faculty.
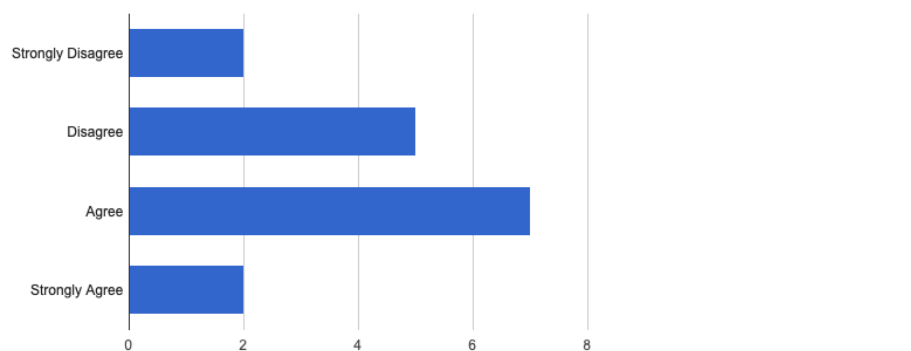
Figure 12. Encouragement of Technology Use.

Note. Counts/frequency: Strongly Disagree (2, 12.5%), Disagree (5, 31.3%), Agree (7, 43.8%),

Strongly Agree (2, 12.5%)
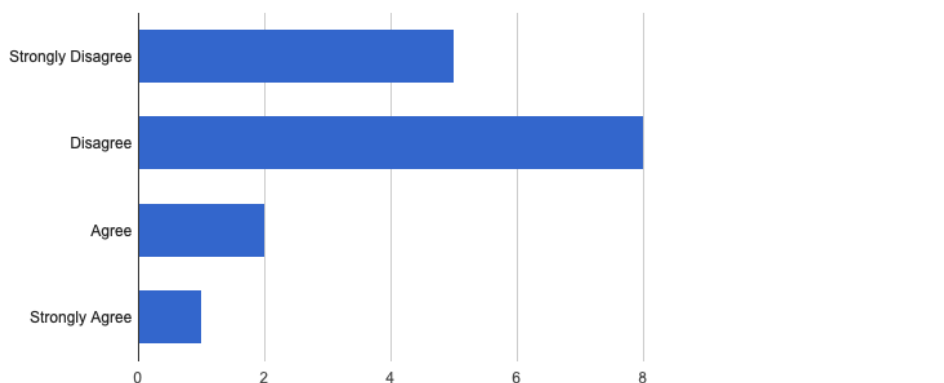
Figure 13. Clear Vision for Technology Use.

Note. Counts/frequency: Strongly Disagree (5, 31.3%), Disagree (8, 50.0%), Agree (2, 12.5%),

Strongly Agree (1, 6.3%)

Participants were asked to rate the level of agreement to the statement "My colleagues are committed to integrating technology in the classroom." A response of "Agree" was selected by 43.8% of the participants. A response of "Strongly Agree" was selected by 0.0% of the participants. The remaining responses can be seen in Figure 14. Data showed an almost split level of teacher's perceptions of the staff's commitment to the integration of technology.
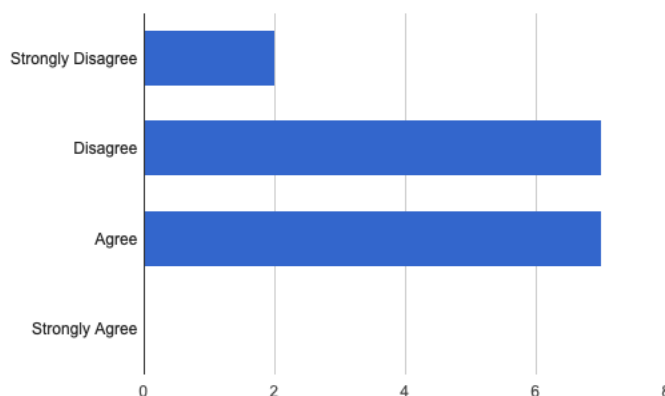
Figure 14. Staff Commitment to the Integration of Technology.

Note. Counts/frequency: Strongly Disagree (2, 12.5%), Disagree (7, 43.8%), Agree (7, 43.8%), Strongly Agree (0, 0.0%)

Participants were asked to rate the level of agreement to the statement "Curriculum support is available in my school to assist with technology integration ideas. A response of "Agree" was selected by 18.8% of the participants. A response of "Strongly Agree" was selected by 0.0% of the participants. The remaining responses can be seen in Figure 15. A clear response from participants indicated 81.3% of participants perceived that there was not available support to assist with the technological integration.
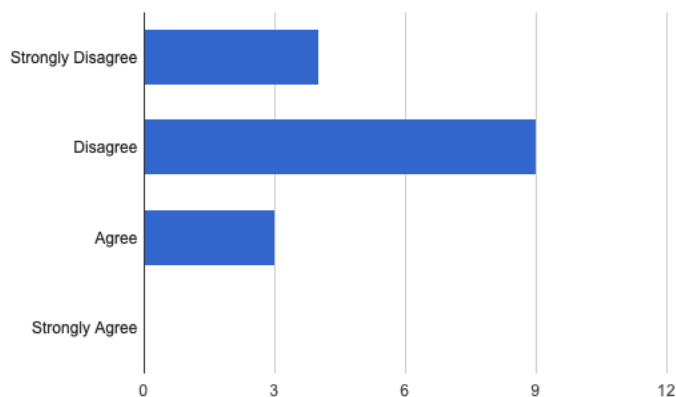
Figure 15. Technology Curriculum Support.

Note. Counts/frequency: Strongly Disagree (4, 25.0%), Disagree (9, 56.3%), Agree (3, 18.8%),

Strongly Agree (0, 0.0%)

Summary of Survey Data

The case study survey indicated a high level of participants were comfortable with the

use of technology as noted in the question, "Comfort Level with Technology." The data

indicated that participant comfort levels with technology had limited impediment on the

implementation of technology. Participant responses for the questions inquiring about

excitement when using technology, the enjoyment when using new technology, and the

importance of using new technology all indicated over 80.0% "Agree" or "Strongly Agree" as to

their intrinsic motivation towards the use and application of technology in the classroom.

Participants then examined their perception of student motivation with the use of

technology. Nearly 90.0% of participants perceived high student motivation when they are

engaged with technology in the learning process in the question inquiring about student

excitement when using technology. There was a nearly 20.0% statistical difference from

teacher's perceptions of using technology is a part of my job versus the survey question inquiring

about technology use being a priority. The data revealed that nearly 90.0% of the participants

perceived technology was a part of their job, but only 69.0% percent received the use of technology in the classroom was a priority for them.

A discrepancy also occurred between the responses to participants encouragement of technology use and participants having a clear vision for technology use. Roughly 60.0% of participants believed they are encouraged to use technology while just 18.0% of participants reported having a clear vision of the use of technology. Thus, even though more than half of the participants felt encouraged to use technology, only 18.0% believed they had a vision for the application of technology into teaching practices. The low participant perception of having a clear vision of technology use appears to correlate to participants believing their peers having a 43.8% low commitment to the integration of technology. Furthermore, connections can be made to participants perceiving an 18.8% low technology curriculum support.

Emergent Themes from Interviews

Thirteen of 16 surveyed participants agreed to be interviewed. Themes were generated as a result of the coding process modeled after Anfara et al. (2002) that includes multiple iterations of data analysis and have been classified as professional development, engagement, and motivation. Upon transcription of interview data, the classification process followed a data analysis process by Anfara et al. (2002) that included multiple iterations of data analysis (See in Table 1). Anfara et al. (2002) data analysis process extracted repeated phrases, emergent categories, and resulted in the surfacing of three themes. Overall, three themes emerged from the coding and analyses of 31,761 words from 67 pages of interview transcription data (See table 1).

Table 1 *Code Mapping: Teachers' Experiences, Observations, and Motivation*

Third Iteration: Themes	Second Iteration: Categories/Patterns	First Iteration: Repeated Phrases/Initial Codes
1. Professional Development: Most participants' beliefs exhibited a need for quality professional developments that prepares them to become adaptable in 21st-century learning technology competencies.	1a. Most participants believed they need the training to support becoming an effective facilitator and identifying knowledge gaps. 1b. Most participants believed technology promotes student exploration. 1c. Most participants believed they needed quality professional developments to create data-driven lesson and not lose valuable class time. 1d. Most participants believed district level training to be the most effective form of professional developments. 1e. Most participants believed training should be hands-on with a human presence. 1f. Most participants believed there needs to be greater availability of training with opportunities for collaboration. 1g. Some participants believed there was a lack of collaboration of site and school district professional developments forcing them to seek opportunities on their own. 1h. Some participants believed there was a loss of instructional time as a result of technological integration. 1i. Some participants believed technology is taking the role of the teacher away.	1. Need for Quality Professional Development • Need Professional Developments • Data-driven Lessons • Role as Facilitators • Identify Knowledge Gaps • Exploration • Goals • Access to Resources • Collaboration • Monitor • Instructional Time • Identify Strengths and Weaknesses • Visual • Lesson Planning • Training • Effective Professional Developments • Hands-on Training • Human Presence • More Opportunities • 21st Century Learners • Technology Competencies • In-Services • Teaching Yourself • Prepare Students • Include Technology in Curriculum • Not enough Professional Developments • More Technology in Curriculum Training • Teachers Role Changing • Financial Cost to Teachers • Less Teacher Instruction • Not all Departments Collaborating

Third Iteration: Themes	Second Iteration: Categories/Patterns	First Iteration: Repeated Phrases/Initial Codes
2. Engagement: Most participants perceived that overall, students were more engaged when technology was effectively incorporated into the classroom.	2a. Most participants perceived an increase in student engagement with the inclusion of technology into the learning structures. 2b. Most participants perceived technology prompted learning to be student-centered. 2c. Most participants perceived technology created learning opportunities that enabled student exploration, inquiry, and collaboration. 2d. Most participants perceived technology as being useful for diagnosing student needs resulting in individualized learning and motivating students to engage in the learning. 2e. Some participants perceived levels of frustration with technological integration. 2f. Some participants perceived the technological data as not being informative. 2g. Some participants perceived the technological integration did not meet all student needs.	2. Student more Engaged with Technology • Engagement • Inclusion • Student-centered • Learning Opportunities • Student Exploration • Inquiry • Collaboration • Track Student Progress • Relevance • Increased Engagement • Various Tools • Embedded Technology • Enhanced Teaching • Diagnosing Student Needs • Individualized Learning • Motivating Students in Learning • Bridging Gaps • Grouping Students • Making Growth • Data • Lesson Planning • Exciting • Interactions • Data not Informative • Not all Student Needs Met • Prefer Alternative Curriculum • Not Useful for All Students • Teachers Not Sure How to Use Data • Teachers Not Sure if the Data is Correct • Too Early to Tell if Successful • Some Kids are Burning Out • Decreased Motivation Over Time

Table 1 (continued)

Third Iteration: Themes	Second Iteration: Categories/Patterns	First Iteration: Repeated Phrases/Initial Codes
3. Motivation: Most participants were intrinsically motivated to use technology to help support student success as well as extrinsically motivated to identify gaps of understanding to assist in differentiating instruction.	3a. Most participants explained that technology had provided the resources to monitor students' progress, identify learning gaps, and provide academic support. 3b. Most participants explained that technology had assisted them with providing students a least restrictive environment. 3c. Most participants explained that technology supported scaffold learning and student interaction through purposefully embedded planning. 3d. Most participants explained that technology fosters 21st-century student learners. 3e. Most participants explained that technology supported student learning by keeping students engaged and excited by showing students growth in their learning. 3f. Most participants explained that technology provided an opportunity to demonstrate data-driven approaches in pedagogy. 3g. Some participants explained the technology resulted in a loss of 20% of instructional time. 3h. Some participants explained they were concerned about the depth of the learning topics. 3i. Some participants explained they were concerned about the increased planning time. 3j. Some participants explained they were concerned that the technology did not meet the various learning needs of students. 3k. Some participants explained they were concerned the technological integration was not a choice.	3. Motivation from Student Success • Support Student Learning • Identify Gaps in Understanding • Differentiated Instruction • Resources • Monitor Progress • Provide Support • Empower Learners • Instructional Time • Classroom Comes Alive with Excitement • Least Restrictive Environment • Support Student Needs • Setting Goals • Motivational Level • Depth into Topics • Self-Motivated • Scaffold Learning • Embedded Planning and Curriculum • Inclusion • Embedded Technological Activities • 21st Century Learners • Demonstrate Knowledge • Data-driven Approaches • Excitement and Interest in Technology • Student Growth • Engaging Students in Lessons • Instantaneous Feedback • Successful • New Ways of Teaching • Foster Cooperative and Inquire Learning • Lack of Depth into Topics • 20% Loss of Instructional Time • Not Enough Data • More Planning Time • Not Everyone Learns the Same Way • Technological Integration Not a Choice

Professional Development. Most participants exhibited a need for quality professional developments that prepares them to become adaptable in 21st-century learning technology competencies. When participants were asked how their role as a teacher has changed as a result of technological implementations, responses varied. Some responses exhibited concern over the change in role as a teacher as well as the loss of instructional time:

> I feel some of the technology implementations have reduced my role as a teacher. (Participant 11)

> It has been more of an impediment to my commitment to my teaching. It's taken out 20 percent of my instructional time and I don't feel like I'm getting the same bang for my buck with it. (Participant 4)

Some participants also exhibited feelings of concern for the dependability of the use of technology for instruction:

I always had to have some sort of a back-up plan if the technology isn't working and if I don't have that pre-planned I am completely lost. (Participant 1)

Most participants expressed positive feedback on their role during the technological implementation:

Technology has changed my role in the sense that it has allowed me to be more of a facilitator of instruction. (Participant 2)

I've taken on that role as more of a facilitator within a set of parameters that I give students of essentially solving a problem and working towards a common goal. (Participant 5)

It gives you relevant information as far as knowing student levels and my role as a teacher has become easier. (Participant 13)

I find myself acting more as a facilitator in the learning because they are finding the answers and exploring and doing more discussion then versus when I'm sitting here giving a presentation and then taking notes" (Participant 3)

Technology allows me to let the students kind of advocate for themselves. (Participant 2)

I think it's really interesting to see how data helps to identify students' strengths, needs, and pops-up with suggested lessons for each student. And sometimes I feel like they're just doing my job for me but it's making a lot of decisions that just would say providing areas I could possibly address that I wouldn't be aware of without that technology. (Participant 6)

When participants were asked what steps, they take to gain growth and mastery of new technological initiatives impacting teaching and learning practices, responses varied. Most responses from participants indicated a need for collaboration:

I check with other teachers in my department and collaborate to learn what people say about it. (Participant)

Most responses from participants indicated frustration and lack of support:

A lot of the training we participated in were so watered down that it's a little frustrating. (Participant 1)

I feel that you're left out to dry alone with no proper training as to what we were really doing. The training didn't really help out. But I think it comes down to me just playing with the program and teaching yourself. (Participant 3)

Most responses from participants indicated a need for hands-on learning:

> I'm a hands-on learner. One of the things that we did when we came together as a team is collaborating on technology. (Participant 7)

> I'm constantly just going through the program figuring out ways to better implement it better, analyze data. (Participant 12)

When participants were asked how they seek opportunities to grow as an educator to implement technological initiatives for students, responses varied. Some responses from participants indicated they were educating themselves:

> I search pretty much on my own and then I try it in class and it's a trial by error process. (Participant 1)

Some responses from participants indicated they were frustrated with the minimal opportunities for professional development and disappointed in the technology training they have attended:

> I signed up for the professional development training myself but unfortunately, we are only allowed four days so if you wanted to learn multiple things I'm limited for the year. (Participant 3)

> I was disappointed with our technology training. I hoped to get a better understanding of it of its capabilities. (Participant 15)

Some responses from participants indicated they collaborate with peers, search online and attend various professional development opportunities:

> I collaborate with my colleagues. (Participant 14)

> I will attend any training that I'm able to that piques my technological interest. (Participant 4)

> I collaborate with peers and go online I speak to peers who were already using technology. (Participant 5)

> I'm always keeping an eye out for district-offered professional development days and always look for technology sessions that I can gain more knowledge. (Participant 5)

When participants were asked how technology implementation has changed their need for professional development, responses varied. Some responses from participants indicated they felt isolated:

> Unfortunately, like I said you are kind of on your own. (Participant 3)

Most responses from participants indicated they felt an increase their focus has shifted towards technology-based professional developments:

> I think my professional focus has shifted on how to best access technology in my classroom. (Participant 11)

> I look of technology professional developments focused on technology lesson planning. (Participant 1)

> I try to take any tech professional developments that I can to use in my class and help my students. (Participant 4)

> It's had increased my awareness of how beneficial technology is in the classroom and when it comes to professional development areas. It's always the first area I look for when classes are available. (Participant 6)

> I'm constantly looking for professional development through the technology spectrum. (Participant 12)

> I look for not just any technology but technology that would be useful to me in the classroom. (Participant 13)

Engagement. Most participants perceived that overall, students were more engaged when technology was effectively incorporated into the classroom. When participants were asked how they would describe their current experiences as to student engagement with technology into their teaching practices, responses varied. Some responses from participants indicated it was not engaging and frustrating:

> I don't feel it's been a particularly useful use of my time and of the student's time. I think we could use it in a different way that might be more effective. (Participant 4)

> I get frustrated if the kids know more than I do. (Participant 15)

Most responses from participants indicated enabled the analyzation of student growth, instilled

engagement, and enhanced teaching in the classroom:

> I've had a very positive experience and I think kids react better with technology, they are more engaged. (Participant 8)

> I'm a big data guy. I use it for students to help analyze their own growth. (Participant 12)

> I think it's a little very interactive for students. (Participant 11)

> Technology enhances my teaching in the classroom. (Participant 14)

> Students look forward to interacting with the program. (Participant 13)

> The engagement is a lot higher. It makes our jobs a lot easier. (Participant 11)

> They tend to be more focused. (Participant 5)

> Some students are intrinsically motivated and want to learn, I will observe them actually following the instruction following the prompts. (Participant 7)

When participants were asked how their experiences with student learning through technology

changed as a result of the technological implementation, responses varied. Some responses from

participants indicated using technology was scary and the data did not lead to change in

instruction:

> Using technology was scary at first when you do not know how to really use it. (Participant 3)

> I feel like the diagnostic is skewed for what my kids can really do. (Participant 15)

> It shows gaps in learning, but I don't really have the time to get to that those gaps. (Participant 15).

Most responses from participants indicated using technology-enabled engagement from students,

identification of learning gaps, and the individualization of student learning:

> I'm able to design and target specific learning areas of need for each individual student. (Participant 2)

> It allows me to identify and bridge the learning gap. (Participant 2)

Students became super engaged in the lesson and test scores were much higher. (Participant 3)

I see that they're making growth and it motivates me to use the technology. (Participant 7)

They like to do more self-exploration versus sitting here with me just blurting out facts. (Participant 3)

Motivation. Most participants were intrinsically motivated to use technology to help support student success as well as extrinsically motivated to identify gaps of understanding to assist in differentiating instruction. When participants were asked what changes occurred to their teaching strategies during the technological implementation, responses varied. Half of the responses from participants indicated they were forced to have a back-up plan and that they felt rushed as a result of the loss of instructional time:

I have a back-up plan to be flexible because you never know when things are not going to work. (Participant 1)

I've just been a little more rushed because I've been losing 20 percent of my instructional time. (Participant 4)

Most responses from participants indicated that it provided insight into student learning, allow the student to engage in inquiry-based learning, and take on a new role as a facilitator:

It has enabled me to allow students to sort of released into their own learning. (Participant 2)

I'm becoming the facilitator versus the person just regurgitating a bunch of facts and literary terms. (Participant 3)

Technology overall has changed in that way it has made my classroom come alive for the students. (Participant 7)

The students are positively engaging with the lessons to support through gaps in their knowledge. (Participant 8)

It has provided an insight into each student's progress allowing me to look at data create lessons to address those areas. (Participant 6)

I'm able to target students who are struggling. (Participant 8)

When participants were asked to describe the types of measures, they took to address changes in learning structures for students, responses varied. Some responses from participants indicated they felt rushed during instruction:

> I'm not able to go as depth into the topics and I'm having to rush a little more to try to get the time back which is resulting in me not going into topics as deep as I would like. (Participant 4)

Most responses from participants indicated that technology provide an opportunity to create a least restrictive environment and provide strategies that best support student needs:

> Technology in the classroom allowed me to give students the best opportunity for learning providing them a least restrictive environment. (Participant 2)

> I'm guiding them towards finding knowledge. (Participant 3)

> It has allowed me to look at each student on an individual basis seeing what strategies best support their needs. (Participant 2)

When participants were asked what intrinsic or extrinsic motivation, they have to implement technology into pedagogy, responses varied. Most responses from participants indicated it reduced behavioral problems:

> I feel like the use of technology reduces some of the behavior problems. (Participant 11)

Most responses from participants indicated it provided technology provided intrinsic and extrinsic motivational factors:

> It's a refreshing feeling of having a new way of teaching something. (Participant 15)

> I'm motivated by seeing them be successful. (Participant 8)

> I'm constantly thinking of new ways to implement technology to motivate my students. (Participant 12)

I like being able to use technology and get instantaneous feedback or more diverse feedback. Extrinsically, I know that the district wants us to use technology. I try to keep my bosses happy. (Participant 4)

It makes it easier to differentiate instruction and it helps to foster 21st-century students where they're set up for any kind, they're set up to work in an economy that's really technologically driven. (Participant 5)

I think of extrinsic motivation and the fact that I know that if I can get the kids more involved it makes a better educational process. (Participant 6)

I want you to be successful. (Participant 13)

I want to be a better teacher. (Participant 14).

I want the kids to be engaged and fill their learning gaps. (Participant 8)

I want to make lessons more engaging. (Participant 11)

I would want my own kid's teachers technologically preparing them for the future. (Participant 3)

When participants were asked how technology implementations has changed their pedagogical planning in their content area, responses varied. Most responses from participants indicated they needed to be intentional in implementing the technology:

I have to be deliberate in making sure that I incorporate technology into my planning because I've never been able to rely on technology in my classroom. (Participant 5)

Most responses from participants indicated technology helps decrease planning time and focus in the best ways to make students successful:

It allowed me to prepare a little more intensely for what I need to do in order to make sure that I can deliver the curriculum to my students in the best way possible so that they can be successful. (Participant 2)

I don't think I plan to put technology into my lessons. But it happens because every time I find a new app or a new program, I put it like in my mental goodie bag of things that I can put in my lesson planning. (Participant 1)

It helps me with decreasing time planning and lets me be more data-driven in planning. (Participant 15)

Summary of the Findings

Sixteen middle school teachers participated in the case study. The sample group consisted of all teachers who taught middle school English or math, at the target setting, and participated in the implementation of technology into pedagogy during the implementation time-period. The evaluation of the study data included the analysis of surveys and interpretation of in-depth interviews of teachers. The chapter described the methods utilized to organize and analyze data collected form 16 surveys and 13 interviews from middle school teachers. Descriptive statistics are utilized to explain data from the Teacher Technology Integration Survey (TTIS) as well as describe interview coding into categories to extract emergent themes in Chapter 4. Using an interview protocol, along with the survey instrument, ensured trustworthiness of the study.

Qualitative data analysis was conducted in two segments. Initial codes were formed from the surface content analysis followed by the investigation of patterns. Essential themes were used to cluster the data to address the research questions. Subsequently, data analysis deduced the common words, expressions, and ideas and created an iteration table (Table 1) to remove familiar themes through the iterations and reveal patterns and categories. Data analysis revealed three emergent themes that included professional development, engagement, and motivation were summarized. The case study finding for the research questions are discussed in Chapter 5, including the interpretation of findings, implications, recommendations for action, and recommendations for further study.

CHAPTER 5

CONCLUSION

This case study explored middle school teachers' perspectives of the integration of technology into pedagogy. The study utilized an exploratory method and qualitative strategy that included analyzing surveys and interpreting in-depth interviews of teachers. Sixteen middle school teachers participated in the study. The participants represented the English and mathematics teachers of the middle school. Thirteen participants volunteered for interviews. Interviews were conducted in May 2019. Survey data was analyzed to identify teachers' perceptions of comfort with technology, benefits of technology, classroom technology use, and technology support. Interview data was transcribed, and the classification followed an analysis process by Anfara et al. (2002) that included multiple iterations of data analysis. Interview data was analyzed to deduce common words, expressions, and ideas; the researcher then created an iteration table that captured familiar themes through the iterations and revealed patterns and categories.

The following research questions guided the study:

1. What responses or actions did you personally experience at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?

2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?

3. How did autonomy, competence, and collaboration (relatedness) impact middle
   school teachers' intrinsic and or extrinsic motivation during the technological
   implementation time-period of August 2017 to December 2018?

Interpretation of Findings

Chapter 5 examines the results from the data in a qualitative format. Connections are made from the literature review from Chapter 2. The purpose of this qualitative exploratory case study was to examine middle school teachers' perceptions of the integration of technology into pedagogy. The researcher collected data from analyzing middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy.

A pedagogical focus on teacher integration of technology was supported by the self-determination theory as the research study's theoretical framework examining human motivation. Instrument tools for the research study included teacher surveys as well as in-depth interviews. The three themes exhibited in Chapter 4 are the basis for the discussion of the findings: a. professional development, b. engagement, and c. motivation. Following the coding and analysis process of data resulted in the researcher reaching conclusions based on the three case study research questions (See table 2).

Table 2 *Emergent Themes*

Identified Themes	Research Questions
1. Professional Development	1. What responses or actions did you personally experience, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?
2. Engagement	2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation?
3. Motivation	3. How did autonomy, competence, and collaboration (relatedness) impact middle school teachers' intrinsic and or extrinsic motivation during the technological implementation time-period of August 2017 to December 2018?

Research Question 1. What responses or actions did you personally experience at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? This study examined teachers' perspectives on their

experiences during a technological implementation. As previously noted, Fullan (2007) explains that a history of change in education since the mid-20th century had been constant, but not entirely successful due to some approaches in professional development and government mandates. The Teacher Technology Integration Survey (TTIS) data revealed that although some teachers felt comfortable with the use of technology, not all were comfortable. Furthermore, some participants did not believe there was encouragement of technology usage or a clear vision for technology practice, nor feel there was technology curriculum support.

Professional development. Participants during the interviews discussed the changes to their role within the classroom during the technological implementation. Some participants exhibited concerns over the loss in instruction time as well as the dependability of the use of technology for instruction. The researcher noted some participants indicated a need for collaboration to attain growth and mastery of new technological initiatives impacting their teaching and learning practices. Need for collaboration was also exhibited by participants as a result of frustration and lack of support.

It was observed by the researcher from the data that some participants were seeking opportunities to grow as an educator to implement technological initiatives for students on their own via websites, blog, self-exploration. Some participants explained seeking growth opportunities led to frustration as a result of minimal opportunities for professional development and disappointment in technology training they attended. Interview data revealed that participants felt isolated when seeking professional development. According to Tallvid (2016), the lack of technological integration in instructional practices and its impacted-on motivation noting several themes including the lack of technological competence, lack of connection to importance, insufficient materials, and loss of instructional time (p. 503).

Some participants' beliefs exhibited a need for quality professional developments that prepares them to become adaptable in 21st-century learning technology competencies. The disparities in professional developments is a culmination of several factors. Heath (2017) explains that, "If technology is to support a meaningful pedagogical change in classrooms, teachers need to be given time, support and trust to build positive beliefs about technology and a strong professional identity" (p. 103).

Research Question 2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? In the study, participants' observations were examined during the technological implementation. Mouza's (2008) mix-methods case-study continues to provide insight into the impact of engagement, noting when a technological "integration created enhanced motivation and engagement with schoolwork, influenced classroom interactions, and empowered students" (p. 447). The teacher technology survey also yielded information that revealed most participants observed student excitement when using technology. Furthermore, the data from the teacher survey also depicted that most participants viewed the use of technology as important in their teaching practices.

Engagement. The data showed that most participants experience as to student engagement with technology into their teaching practices resulted in enabled the analyzation of student growth, instilled engagement, and enhanced teaching in the classroom. Nonetheless, there was a collaboration between participants who experienced frustration and low or nonengagement from students in their classroom. McDonald (2015) explained that "technological initiatives were not solely responsible for increases in student academic grades, but it did have an effect on engagement and increased student interest" (p. 123).

The researcher noted that most participants' perceptions of student learning through technology changed as a result of the technological implementation as a result of technology-enabled engagement from students, identification of learning gaps, and the individualization of student learning. Data also revealed that most participants experienced the implementation of technology as scary but perceive that the data led to change in instruction. From the perspectives of students, Mauza (2008), explained that students view technology as a tool that could provide information and help people learn more about the world (Mouza, 2008, p. 446).

Notwithstanding, Zheng et al. (2013) explained that there was a notably higher level of frequency engagement when student technological gains focus on a connection between motivation and technological literacy. Most participants perceived that students were more engaged when technology was effectively incorporated into the classroom during the technological implementation.

Research Question 3. How did autonomy, competence, and collaboration (relatedness) impact middle school teachers' intrinsic and or extrinsic motivation during the technological implementation time-period of August 2017 to December 2018? The study utilized Deci and Ryan's (1985) self-determination theory to examine participants' motivation and its impact on technological implementations. Ololube et al. (2015) noted the significance of focusing on teacher motivation to the same level that we focus on pedagogy and curriculum implementation (p. 252). The teacher technology survey also generated data that most participants' perspectives excitement when using technology as well as enjoyment when using new technology, revealing that the use of technology is a priority to them.

Motivation. The researcher asked participants to explain the changes that occurred to their teaching strategies during technological implementation. Most participants responded that

it provided them insight into student learning and allow the student to engage in inquiry-based learning. Furthermore, most participants explained they took on a new role as a facilitator during instruction. Nevertheless, most participants did express they felt rushed as a result of the loss of instruction time. However, the researcher noted that participants who felt rushed as a result of instructional time also felt the need to have a back-up plan for instruction. The researcher perceived this need for a back-up plan as a sign of the teacher's lack of motivation in the technological implementation. Notwithstanding, most participants indicated that technology provided an opportunity to create a least restrictive environment as well as provide strategies that best-supported student needs.

The researcher collected data on participants' intrinsic as well as extrinsic motivation for the implementation of technology into pedagogy. The data pointed to most participants' intrinsic motive to be a better teacher and to provide the best opportunities for their students to be successful. Extrinsic motivation was described in a wide range by most participants, who observed reduced behavioral problems in the classroom, decreased planning time, and greater satisfaction on the part of their administrators.

Hartnett (2016) provides insight into motivations impact on instruction practices by explaining that for teachers to attain a high level of self-determination, they must engage in pedagogical developments addressing content, methods, goals, planning, and decision-making (p. 5). Most participants were intrinsically motivated to use technology to help support student success as well as extrinsically motivated to identify gaps of understanding to assist in differentiating instruction during the technological implementation.

Implications

Educational change agents struggle to comprehend the rationale of why some technological initiatives focusing on the integration of new technologies into pedagogy succeed while others struggle. Tallvid (2016) explained that there is an increase in the availability of technology within schools; however, the integration of technology into the pedagogy and curriculum has been a struggle for many teachers. Fullan (2007) indicated a failure for most schools and organizations to reform in the mid-20th century was due to a lack of recognition or management of systemic changes (p. 5). The results of this study show some participants indicated a need for collaborative professional development to attain mastery of the use of the technology in the integration. Some participants in the study exhibited frustration and a lack of support when not having opportunities to collaborate or engage in quality professional development training. Frustration from some participants in the study also was expressed from feeling isolated and having to self-explore or search to find ways to learn the new technology.

The data from the study showed that most participants experience as to student engagement with technology into their teaching practices resulted in the analyzation of student growth, student engagement, and enhanced teaching in the classroom. Data on participants' motivation for the implementation of technology into pedagogy pointed to most participants seeking to provide the best opportunities for their students to be successful. The study revealed that most participants' experiences with student learning through technology changed as a result of the technological implementation that resulted in the use of technology-enabled engagement from students, identification of learning gaps, and the individualization of student learning.

Educational leaders may face significant challenges in understanding the impact of teachers' perceptions of the integration of technology into pedagogy. However, change-oriented

leaders must not only shed light on deeply enriched problems, but they must also aim to illuminate what they believe to be a potential solution (Marion & Gonzales, 2014, p. 155). The need to address student learning has magnified a need to examine the perceptions of classroom teachers attempting to integrate technology. Marion and Gonzales (2014) explained that leaders acting transformationally with a focus on individual behaviors can promote successful change within schools. To avoid a shortage of technological change in teaching practices, educational change agents need to acknowledge the perception of teachers and provide opportunities for teachers to engage in high-quality professional developments.

Recommendations for Action

Through analysis of the case study data, the subsequent recommendations for actions were generated to avoid a shortage of technological change in teaching practices. As leaders hold the role of change agents, they must "begin with questions of justice and democracy, critiques of inequitable practices, and address both individual and public good" (Shields, 2010, p. 558). In an attempt to maximize technological educational change, leaders must not only recognize the perceptions of teachers but validate their perceptions by providing them opportunities to engage in high-quality professional developments.

Transformative educational change agents must act to provide and develop professional developments that are engaging, equitable, and focus on teachers' intrinsic as well as extrinsic motivation. Addressing the need to focusing on individuals' behaviors, Marion and Gonzales (2014) revealed that leaders acting transformationally with a focus on individual behaviors can promote successful change within schools. Teachers' beliefs exhibited a need for quality professional developments that prepares them to become adaptable in 21st-century learning technology competencies.

In as such, the teachers need support for understanding how technology will change their role as an educator allowing them to be more of a facilitator of the instruction but still be able to create an inclusive environment to promoting student success. Professional development opportunities should target teachers' intrinsic motivation to support student success by identifying the way technology will identify students' strengths while providing gaps in knowledge that will enable targeting student needs fostering data-driven lesson planning.

Educational leaders should develop and promote training opportunities for teachers that provide specific professional developments, acknowledging the diverse levels of training, education, personal experiences. Technology growth opportunities for teachers should anticipate potential frustration components with the technology and provide multiple modes of learning through direct instruction, inquiry-based, and collaboration formats. In as such, growth opportunities need to be designed not to utilize a one-size-fits-all approach as well technology versed teachers can receive a high level of training that will enable that to support peers through their technology growth process.

A significant finding from the study was the need for most teachers to have continued support past the initial professional development. Subsequent professional development, as well as individual points of contact on and off the school site, provides a valuable tool for teachers to address technological needs and frustration. Moreover, teachers require collaboration time with peers to bear witness to struggles and success will remove the feeling of isolation and enable them to maintain a high level of motivation towards the implementation of technology.

Recommendations for Further Study

This case study generated data correlated to middle school teachers' perceptions, observations, and motivations of the integration of technology into pedagogy. The surveys and

interviews presented important information about the focus of the study and provided potential

directions for prospective future studies on the integration of technology at the middle school

level. The researcher recommends additional study examining the integration of technology into

middle schools to fill the following gaps:

1. This case study found multiple perspectives on the need, as well as usage of professional development through interview data. Further studies could examine the impact of different professional developments on technology integration to support student learning for middle school teachers to help leaders develop a quality professional development.

2. The case study examined the impact of collaboration on motivation through survey and interview data. However, additional studies can explore the impact of middle school teachers' collaboration on technology integration to examine teacher motivation.

3. The survey revealed data from teachers indicating technology to be an effective learning tool for students. Supplementary case studies might investigate the impact of middle school students' perceptions of the integration of technology into pedagogy to reveal strategies to engage students through the use of technology.

4. Survey and interview data revealed teachers observing variations of student motivation during technological integration. Furthermore, future studies may examine the impact of middle school students' motivation on the integration of technology into pedagogy to determine strategies to maintain student motivation during the technological integration.

5. Data from surveys and interviews revealed an unclear communicated technology vision, objectives, and or goals. Future case studies could consider the impact of how middle school administrators' perceptions of the integration of technology can impact

technological integration to determine how leaders can influence technological integration.

Conclusion

The purpose of this qualitative exploratory case study was to examine middle school teachers' perceptions of the integration of technology into pedagogy. Data was collected and analyzed middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy. The pedagogical focus on teacher integration of technology was supported by the self-determination theory as the research study's theoretical framework examining human motivation. Instrument tools for the research study included the analysis of surveys and in-depth interviews of teachers.

As educational leaders face significant challenges in understanding the impact of teachers' perceptions of the integration of technology into pedagogy, this study provides insight into how to confront those difficulties. Though the case study, three emergent themes emerged that included professional development, engagement, and motivation. The results of this case study showed a need for focused professional development to help teachers with growth and mastery of the use of technology to avoid isolationism, frustration, or loss of motivation.

The data from the study showed that most teachers experienced high levels of student engagement when using technology in their teaching practices. Data also indicated teachers using the technology to analyze student growth. The enhancement in teaching practices led to technology-enabled engagement from students, identification of learning gaps, and the individualization of student learning. As such, to avoid a shortage of technological change in teaching practices, educational change agents need to acknowledge the perception of teachers and provide opportunities for teachers to engage in focused professional developments.

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APPENDIX A - Invitation to Participate

Invitation to Participate in Research Study

May 9th, 2019

Study Title: Middle school teachers' perceptions of the integration of technology into pedagogy.

Principal Investigator: Joe G. Gerez, Doctoral Candidate, University New England

Dear Potential Study Participant,

As a doctoral student at the completing my dissertation research through the University of New England, I am inviting you to participate in a qualitative case study exploring middle school teachers' perceptions on the integration of technology into pedagogy. To participate in this case study, you must have been teaching middle school English or math and have participated in the implementation of technology into pedagogy within the time-period of August 2017 to December 2018? Your participation is voluntary. Furthermore, your participation is confidential, which means they will not be shared with anyone and no personal identifying information will be included in the study's report.

If you agree to participate in this study, you will be asked to complete a survey that should take approximately 20 minutes? and, if you choose, to also participate in a follow-up interview that may take 30 minutes.

Informed consent information is included as part of the survey and describes the integration of technology into pedagogy. If you agree to be interviewed, you will be asked to provide contact information at the end of the survey; however, you may take the survey without agreeing to be interviewed. All data from the survey will be useful to the study.
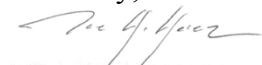
Questions: If you have any questions or concerns regarding this study and your participation, please do not hesitate to contact me, the researcher, via email at jgerez@une.edu, or via phone at (951) 660-4064.

Thank you for your valuable time and willingness to participate in this research study. Your contribution not only supports my dissertation study but also informs the current research on the exploration of teachers' perceptions of the integration of technology into pedagogy.
To continue on to the survey, please use the following REDCap Survey Link=
http://j.mp/2VmuHAJ.
Sincerely,

Joe G. Gerez
Doctoral Candidate, Educational Leadership
University New England

APPENDIX B - Teacher Consent to Participate in Research Survey

UNIVERSITY OF NEW ENGLAND
CONSENT FOR PARTICIPATION IN RESEARCH SURVEY

Project Title: Middle school teachers' perceptions of the integration of technology into pedagogy.

Principal Investigator:
Joe G. Gerez
Doctoral Candidate
University New England
jgerez@une.edu
(951) 660-4064

Introduction:

- The purpose of this form is to provide you with information about his research study, and to document your decision if you want to participate. You are encouraged to ask questions that you may have about his study at any time. Your participation is voluntary.

Why is there a study being done?

- The purpose of this qualitative case study is to examine middle school teachers' perceptions of the integration of technology into pedagogy. Through the use of a survey, analysis will examine middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy.

Who will be in the study?

- Participants in this case study must be teaching middle school English or math and be engaged in a district led technological initiative impacting technology into pedagogy.

What will I be asked to do?

- You will be asked to participate in an online survey that will focus on examining middle school teachers' beliefs and behaviors with respect to classroom technology implementation.

What are the possible risks of being in the study?

- There are no foreseeable risks associated with participation in this study. In the event you feel uncomfortable, please inform the researcher and every attempt will be made to ease the discomfort.

What are the possible benefits of being in the study?

- There are no direct benefits to you for participating in this study. However, you may enjoy the opportunity to engage in the reflection process during the survey process.

What will it cost me?

- There are no costs to the participants of this study.

How will my privacy be protected?

- Survey participants identification will be removed from the research study. Follow-up reports will identify you as a number (i.e. Participant 1, Participant 2, etc.).

How will my data be kept confidential?

- Confidentiality of all participants will be protected through the removal of all identifying names. All data will be locked in a secure file cabinet and properly destroyed after 5 years.

What are my rights as a research participant?

- Your participation is voluntary. You may choose to withdraw from the study at any time. The decision to participate will not have any impact on your current or future relations with the school district. Your decision to participate will not impact your relationship with the researcher.

What other options do I have?

- You may choose to not participate.

Whom may I contact with questions?

- The researcher conducting the study is Joe Gerez. For questions or more information concerning this research, you may contact him at (951) 660-4064.

- If you choose to participate in this research and believe you may have suffered a research-related injury, please contact the researcher's advisor at the University of New England, Dr. Michelle Collay via email at mcollay@une.edu.

- If you have any questions or concerns about your rights as a research subject, you may call Mary DeSilva, Chair of the UNE Institutional Review Board at (207) 221-4567 or irb@une.edu.

Will I receive a copy of the consent form?

- A copy of the consent form will be provided upon request.

By continuing and submitting this survey, you are acknowledging your informed consent to participate in this study. At the end of the study, you will be provided with an opportunity to volunteer or possible

participation in an individual interview by providing your contact information for scheduling. You may

submit the survey without entering that information if you choose not to participate in an interview.

APPENDIX C - Teacher Consent to Participate in Research Interview

UNIVERSITY OF NEW ENGLAND
CONSENT FOR PARTICIPATION IN RESEARCH INTERVIEW

Project Title: Middle school teachers' perceptions of the integration of technology into pedagogy.

Principal Investigator:
Joe G. Gerez
Doctoral Candidate
University New England
jgerez@une.edu
(951) 660-4064

Introduction:

- The purpose of this form is to provide you with information about his research study, and to document your decision if you want to participate. You are encouraged to ask questions that you may have about his study at any time. Your participation is voluntary.

Why is there a study being done?

- The purpose of this qualitative case study is to examine middle school teachers' perceptions of the integration of technology into pedagogy. Through the use of interviews, analysis will examine middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy.

Who will be in the study?

- Participants in this case study must be teaching middle school English or math and be engaged in a district led technological initiative impacting technology into pedagogy.

What will I be asked to do?

- You will be asked to participate in an interview that will focus on examining middle school teachers' beliefs and behaviors with respect to classroom technology implementation. The interviews will be on an individual basis. They will also have semi-structured questions that will consist of some open-ended questions to explore your perceptions of the integration of technology into pedagogy. Interviews will be recorded and transcribed, and you will have an opportunity to review your transcript to clarify any misunderstanding.

What are the possible risks of being in the study?

- There are no foreseeable risks associated with participation in this study. In the event you feel uncomfortable, please inform the researcher and every attempt will be made to ease the discomfort.

What are the possible benefits of being in the study?

- There are no direct benefits to you for participating in this study. However, you may enjoy the opportunity to engage in the reflection process during the survey process.

What will it cost me?

- There are no costs to the participants of this study; however, interviews will be held after instructional hours.

How will my privacy be protected?

- Survey participants identification will be removed from the research study. Follow-up reports will identify you as a number (i.e. Participant 1, Participant 2, etc.).

How will my data be kept confidential?

- Confidentiality of all participants will be protected through the removal of all identifying names. All data will be locked in a secure file cabinet and properly destroyed after 5 years.

What are my rights as a research participant?

- Your participation is voluntary. You may choose to withdraw from the study at any time. The decision to participate will not have any impact on your current or future relations with the school district. Your decision to participate will not impact your relationship with the researcher.

What other options do I have?

- You may choose to not participate.

Whom may I contact with questions?

- The researcher conducting the study is Joe Gerez. For questions or more information concerning this research, you may contact him at (951) 660-4064.

- If you choose to participate in this research and believe you may have suffered a research-related injury, please contact the researcher's advisor at the University of New England, Dr. Michelle Collay via email at mcollay@une.edu.

- If you have any questions or concerns about your rights as a research subject, you may call Mary DeSilva, Chair of the UNE Institutional Review Board at (207) 221-4567 or irb@une.edu.

Will I receive a copy of the consent form?

- A copy of the consent form will be provided upon request.

APPENDIX D - Teacher Technology Survey

Teacher Technology Integration Survey (TTIS)
Reinhart & Banister (2009)

REDCap Survey Link=http://j.mp/2VmuHAJ

Teacher Survey

UNIVERSITY OF NEW ENGLAND

TEACHER TECHNOLOGY SURVEY

APPENDIX B - TEACHER CONSENT TO PARTICIPATE IN RESEARCH SURVEY

UNIVERSITY OF NEW ENGLAND
CONSENT FOR PARTICIPATION IN RESEARCH SURVEY

Project Title: Middle school teachers' perceptions of the integration of technology into pedagogy.

Principal Investigator:
Joe G. Gerez
Doctoral Candidate
University New England
jgerez@une.edu
(951) 660-4064

Introduction:
•The purpose of this form is to provide you with information about his research study, and to document your decision if you want to participate. You are encouraged to ask questions that you may have about his study at any time. Your participation is voluntary.

Why is there a study being done?
•The purpose of this qualitative case study is to examine middle school teachers' perceptions of the integration of technology into pedagogy. Through the use of a survey, analysis will examine middle school teacher's experiences, observations, and motivation following a technological implementation initiative into pedagogy.

Who will be in the study?
•Participants in this case study must be teaching middle school English or math and be engaged in a district led technological initiative impacting technology into pedagogy.

What will I be asked to do?
•You will be asked to participate in an online survey that will focus on examining middle school teachers' beliefs and behaviors with respect to classroom technology implementation.

What are the possible risks of being in the study?
•There are no foreseeable risks associated with participation in this study. In the event you feel uncomfortable, please inform the researcher and every attempt will be made to ease the discomfort.

What are the possible benefits of being in the study?
•There are no direct benefits to you for participating in this study. However, you may REDCap

the opportunity to engage in the reflection process during the survey process.

What will it cost me?
•There are no costs to the participants of this study.

How will my privacy be protected?
•Survey participants identification will be removed from the research study. Follow-up reports will identify you as a number (i.e. Participant 1, Participant 2, etc.).

How will my data be kept confidential?
•Confidentiality of all participants will be protected through the removal of all identifying names. All data will be locked in a secure file cabinet and properly destroyed after 5 years.

What are my rights as a research participant?
•Your participation is voluntary. You may choose to withdraw from the study at any time. The decision to participate will not have any impact on your current or future relations with the school district. Your decision to participate will not impact your relationship with the researcher.

What other options do I have?
•You may choose to not participate.

Whom may I contact with questions?
•The researcher conducting the study is Joe Gerez. For questions or more information concerning this research, you may contact him at (951) 660-4064.

•If you choose to participate in this research and believe you may have suffered a research-related injury, please contact the researcher's advisor at the University of New England, Dr. Michelle Collay via email at mcollay@une.edu.

•If you have any questions or concerns about your rights as a research subject, you may call Mary DeSilva, Chair of the UNE Institutional Review Board at (207) 221-4567 or irb@une.edu.

Will I receive a copy of the consent form?
•A copy of the consent form will be provided upon request.

By continuing and submitting this survey, you are acknowledging your informed consent to participate in this study. At the end of the study, you will be provided with an opportunity to volunteer or possible participation in an individual interview by providing your contact information for scheduling. You may submit the survey without entering that information if you choose not to participate in an interview.

Confidential

Do you, the participant, give your consent to participate in this survey?	◯ Yes, I give consent to proceed. ◯ No, I do not wish to participate, and I wish to exit the survey.

Teacher Technology Integration Survey (TTIS)
Reinhart & Banister (2009)

Vannatta, R. A. & Banister, S. (2009). Validating a measure of teacher technology integration. In C. Maddux (Ed.), Research Highlights in Technology and Teacher Education 2009 (pp. 329-338). Chesapeake, Virginia: SITE.

Technology: While answering the questions in this online survey, the term "technology" can apply to any of the following...

Tier 1
Computer and Internet Use
Document Cameras
Digital Cameras

Tier 2
Interactive Whiteboards
Applications allowing for Audio or Video Recording/Streaming
Using Software Programs (Microsoft Office's Word, Excel, PowerPoint, etc.)

Tier 3
Interactive Learning Environments, Activities, Simulations (iReady, etc.)
Cloud-Based Programs (One Drive, Microsoft, Google's Docs, Slide, Forms, etc.)

Part I: For the items 1-25, please select your level of agreement with each statement.

Strongly Disagree
Disagree
Agree
Strongly Agree

Risk Taking and Comfort with Technology

1	I feel comfortable about my ability to work with computer technologies.	○ Strongly Disagree ○ Disagree ○ Agree ○ Strongly Agree

2   Learning new technologies is confusing for me.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

3   I get anxious when using new technologies because I don't know what to do if something goes wrong.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

4   I am confident with my ability to troubleshoot when problems arise while using technology.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

5   I get anxious when using technology with my students.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

6   I get excited when I am able to show my students a new technology application or tool.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

7   I am confident in trying to learn new technologies on my own.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

8   I enjoy finding new ways that my students and I can use technology in the classroom.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

9   Learning new technologies that I can use in the classroom is important to me.

◯ Strongly Disagree
◯ Disagree
◯ Agree
◯ Strongly Agree

Perceived Benefits of Technology Use

10 Using technology to communicate with others allows me to be more effective in my job.
- ○ Strongly Disagree
- ○ Disagree
- ○ Agree
- ○ Strongly Agree

11 Computer technology allows me to create materials that enhance my teaching.
- ○ Strongly Disagree
- ○ Disagree
- ○ Agree
- ○ Strongly Agree

12 Computer technologies help me be better organized in my classroom.
- ○ Strongly Disagree
- ○ Disagree
- ○ Agree
- ○ Strongly Agree

13 Technology can be an effective learning tool for students.
- ○ Strongly Disagree
- ○ Disagree
- ○ Agree
- ○ Strongly Agree

14 My students get excited when they use technology in the learning process.
- ○ Strongly Disagree
- ○ Disagree
- ○ Agree
- ○ Strongly Agree

REDCap

Beliefs and Behaviors about Classroom Technology Use

15 Teaching students how to use technology is a part of my job.
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Agree
- ◯ Strongly Agree

16 Using technology in the classroom is a priority for me.
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Agree
- ◯ Strongly Agree

17 When planning instruction, I think about how technology could be used to enhance student learning.
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Agree
- ◯ Strongly Agree

18 When planning instruction, I consider state and national technology standards.
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Agree
- ◯ Strongly Agree

19 I regularly plan learning activities/lessons in which students use technology.
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Agree
- ◯ Strongly Agree

20 I try to model effective technology use for my students.
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Agree
- ◯ Strongly Agree

Technology Support

21 I'm encouraged to integrate technology into the classroom.
⚪ Strongly Disagree
⚪ Disagree
⚪ Agree
⚪ Strongly Agree

22 Technology support is available in my school to assist with troubleshooting.
⚪ Strongly Disagree
⚪ Disagree
⚪ Agree
⚪ Strongly Agree

23 A vision for technology use in our school is clearly communicated to faculty.
⚪ Strongly Disagree
⚪ Disagree
⚪ Agree
⚪ Strongly Agree

24 My colleagues are committed to integrating technology in the classroom.
⚪ Strongly Disagree
⚪ Disagree
⚪ Agree
⚪ Strongly Agree

25 Curriculum support is available in my school to assist with technology integration ideas.
⚪ Strongly Disagree
⚪ Disagree
⚪ Agree
⚪ Strongly Agree

Part II: For the items 26-29, please select the response that best reflects your level of access to the following types of technology:

Not available/present in my school
Available, but not accessible (can't use or sign up for)
Available but have limited access
Available and have easy access

Technology Access

26 Instructor computer
- ○ Not available/present in my school
- ○ Available, but not accessible (can't use or sign up for)
- ○ Available but have limited access
- ○ Available and have easy access

27 Set of computers (2-5) in classroom
- ○ Not available/present in my school
- ○ Available, but not accessible (can't use or sign up for)
- ○ Available but have limited access
- ○ Available and have easy access

28 Mobile computer lab (cart of computers)
- ○ Not available/present in my school
- ○ Available, but not accessible (can't use or sign up for)
- ○ Available but have limited access
- ○ Available and have easy access

29 Computer lab (10-30 computers)
- ○ Not available/present in my school
- ○ Available, but not accessible (can't use or sign up for)
- ○ Available but have limited access
- ○ Available and have easy access

Part III: For the items 30-42, please select YOUR level of frequency for completing the following tasks:

Never
1-2 times a semester
Several times a semester
Several times a month
Several times a week

Teacher Administrative and Instructional Use

30	Use the computer to create instructional handouts or assessments for students	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
31	Use the Internet to gather information for lesson planning	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
32	Create electronic templates to guide student computer use	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
33	Prepare or maintain classroom records computer	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
34	Use a handheld device (Surface Tablet) to organize information	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
35	Use spreadsheet (or grading program) to maintain grade book and/or attendance	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week

Teacher Communication Use

36	Use Email to communicate with colleagues and administrators in your school/district	◯ Never
		◯ 1-2 times a semester
		◯ Several times a semester
		◯ Several times a month
		◯ Several times a week

37	Use Email to communicate with students or parents	◯ Never
		◯ 1-2 times a semester
		◯ Several times a semester
		◯ Several times a month
		◯ Several times a week

38	Post class information (homework, products) on an electronic bulletin board, website, or Learning Management Systems (LMS) such as Canvas, Google Classroom, etc.	◯ Never
		◯ 1-2 times a semester
		◯ Several times a semester
		◯ Several times a month
		◯ Several times a week

Teacher Instructional Use

39 Use technology to present information to students
- ◯ Never
- ◯ 1-2 times a semester
- ◯ Several times a semester
- ◯ Several times a month
- ◯ Several times a week

40 Demonstrate computer applications
- ◯ Never
- ◯ 1-2 times a semester
- ◯ Several times a semester
- ◯ Several times a month
- ◯ Several times a week

41 Provide/create electronic learning centers
- ◯ Never
- ◯ 1-2 times a semester
- ◯ Several times a semester
- ◯ Several times a month
- ◯ Several times a week

42 Use technology to adapt an activity to students' individual needs
- ◯ Never
- ◯ 1-2 times a semester
- ◯ Several times a semester
- ◯ Several times a month
- ◯ Several times a week

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Part IV: For the remaining items, please select the level of frequency in which YOU ASK YOUR STUDENTS to complete the following activities:

1=Never
2=1-2 times a semester
3= Several times a semester
4=Several times a month
5=Several times a week

Configuration of Student Use (not a subscale)

43   Work individually on the computer in the classroom
- ◯ Never
- ◯ 1-2 times a semester
- ◯ Several times a semester
- ◯ Several times a month
- ◯ Several times a week

44   Work individually on the computer in a computer lab
- ◯ Never
- ◯ 1-2 times a semester
- ◯ Several times a semester
- ◯ Several times a month
- ◯ Several times a week

45   Work in pairs or small groups on the computer
- ◯ Never
- ◯ 1-2 times a semester
- ◯ Several times a semester
- ◯ Several times a month
- ◯ Several times a week

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Student General Use

46	Use Internet to research topics and gather information	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
47	Use spreadsheets or tables to organize and analyze data	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
48	Use spreadsheets to create graphs or charts	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
49	Use email to communicate and collaborate with peers	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
50	Use word processor for writing assignments	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
51	Use writing tools in word processor (such thesaurus, spell-check) to improve writing quality	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
52	Use presentation software to present information	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
53	Use technology to produce pictures/artwork	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
54	Use technology to produce paper-based products (newsletters, brochures)	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week
55	Use technology to produce multimedia projects that use digital images, video, audio	◯ Never ◯ 1-2 times a semester ◯ Several times a semester ◯ Several times a month ◯ Several times a week

56   Use technology to produce web pages or websites   ○ Never
                                                               ○ 1-2 times a semester
                                                               ○ Several times a semester
                                                               ○ Several times a month
                                                               ○ Several times a week

57   Use technology to solve problems   ○ Never
                                                               ○ 1-2 times a semester
                                                               ○ Several times a semester
                                                               ○ Several times a month
                                                               ○ Several times a week

Student Specific Use

58 Use a handheld device to gather and/or organize data, create concepts maps, write

○ Never
○ 1-2 times a semester
○ Several times a semester
○ Several times a month
○ Several times a week

59 Use content-specific software for concept reinforcement

○ Never
○ 1-2 times a semester
○ Several times a semester
○ Several times a month
○ Several times a week

60 Use Inspiration (or other) to create concept maps or graphic organizer

○ Never
○ 1-2 times a semester
○ Several times a semester
○ Several times a month
○ Several times a week

61 Use an interactive learning environment (iReady) to learn and apply information

○ Never
○ 1-2 times a semester
○ Several times a semester
○ Several times a month
○ Several times a week

Would you be willing to participate in an optional voluntary follow-up interview?

○ Yes, I would like to participate in a voluntary follow-up interview. Click here to provide the researcher with your contact information.
○ No, I do not wish to participate in a voluntary follow-up interview. Click here to submit the survey.

Part V: Consent to Participate in Follow-Up Interview.

I wish to be contacted to participate in a follow-up interview.

What is your first and last name?   _____

What is your personal email address?   _____

What is your personal phone number?   _____

APPENDIX E - Teacher Technology Interview

Interview Details and Notes Form

Interview Details				
Agency:	University of New England	Date:		Time:
Interviewer Name & Title:	Joe Gerez, University of New England Ed.D. Candidate			
Interviewee Name & Title:		Interviewer Phone Number:		
Interviewee Personal Email				
Reason for Interview:	To obtain insight and understanding about on teachers' perceptions on the integration of technology into pedagogy.			
Opening Statement:	I appreciate you taking the time to meet with me today. As a candidate in the University of New England Ed.D. program, I have an opportunity to conduct a case study. My qualitative case study explores teachers' perceptions on the integration of technology into pedagogy and centers on three key research questions: 1. What responses or actions did you personally experience at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? 2. What responses or actions did you observe in other faculty/staff/students, at the middle school during the technological implementation time-period of August 2017 to December 2018, as a result of the implementation? 3. How did autonomy, competence, and collaboration (relatedness) impact middle school teachers' intrinsic and or extrinsic motivation during the technological implementation time-period of August 2017 to December 2018?			
Transition A:	**Demographics Information:** My initial questions are designed to provide me a chance to obtain some insight into your technological experiences not covered in the survey.			
Transition B:	**Technology Skills:** Next, I will ask several questions regarding your technological practices.			
Transition C:	**Technology Implementation:** Subsequently, I will provide you with questions targeting the changes that occurred during the technology implementation.			
Transition D:	**Technology Perceptions:** The following questions will provide you with an opportunity to share your perceptions on technology on teaching and learning practices.			
Transition E:	**Professional Development:** We will conclude with some questions reflecting on your thoughts of professional development.			
Closing Statements:	Thank you for allowing me to interview you for my case study. The opportunity you have provided me by allowing me to have this dialogue is greatly appreciated. Upon completion of my project, you are welcomed to			

receive a copy for your review. If you happen to recall any additional thoughts or ideas, please do not hesitate to contact me. It would be greatly appreciated. Thank you again for your help.

Questions to Ask Interviewee: Part A

Question 1A:	How would you describe your current experiences as to student engagement with technology into your teaching practices?

Notes: _____

Question 2A:	How has your role as a teacher changed as a result of technological implementations?

Notes: _____

Additional Notes

Questions to Ask Interviewee: Part B

Question 1B:	Competence: What steps do you take to gain growth and mastery of new technological initiatives impacting teaching and learning practices?

Notes: _____

Question 2B:	Autonomy: How do you seek opportunities to grow as an educator to implement technological initiatives for students?

Notes: _____

Additional Notes

Questions to Ask Interviewee: Part C

Question 1C: What changes occurred to your teaching strategies during the technological implementation?

Notes: _____

Question 2C: Describe the measures you took to address changes in learning structures for students.

Notes: _____

Additional Notes

Questions to Ask Interviewee: Part D

Question 1D: What intrinsic or extrinsic motivation do you have to implement technology into pedagogy?

Notes: _____

Question 2D: Have your experiences with student learning through technology changed as a result of the technological implementation?

Notes: _____

Additional Notes

Questions to Ask Interviewee: Part E

Question 1E: Collaboration (relatedness) How has technology implementations changed your professional development?

Notes: _____

Question 2E: How has technology implementations change your pedagogical planning in your content area?

Notes: _____

Additional Notes

APPENDIX F – IRB Approval

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Institutional Review Board
Mary DeSilva, Chair

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
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(207)602-5905 F

Portland Campus
716 Stevens Avenue
Portland, ME 04103

To: Joe Gerez

Cc: Michelle Collay, Ph.D.

From: Lliam Harrison, M.A., J.D. CIM

Date: March 30, 2019

Project # & Title: 19.03.25-020 Middle School Teachers' Perceptions on the Integration of Technology into Pedagogy

The Institutional Review Board (IRB) for the Protection of Human Subjects has reviewed the materials submitted in connection with the above captioned project and has determined that the proposed work is exempt from IRB review and oversight as defined by 45 CFR 46.104(d)(2) & (d)(4). The previous condition set on March 30, 2019, has been satisfied. You may begin your research.

Additional IRB review and approval is not required for this protocol as submitted. If you wish to change your protocol at any time, including after any subsequent review by any other IRB, you must first submit the changes for review.

Please contact Lliam Harrison at (207) 602-2244 or wharrison@une.edu with any questions.

Sincerely,

William R. Harrison, M.A., J.D. CIM
Director of Research Integrity

IRB#: 19.03.25-020
Submission Date: 03/25/19
Status: Exempt, 45 CFR 46.104(d)(2) & (d)(4) Condition satisfied.
Status Date: 05/10/19