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Integrating Technology to Engage Students with EBD: A Case Study of School Leader Support

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INTEGRATING TECHNOLOGY TO ENGAGE STUDENTS WITH EBD: A CASE

STUDY OF SCHOOL LEADER SUPPORT

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DISSERTATION
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A dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in the College of Education at the University of Kentucky

By

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ABSTRACT OF DISSERTATION

INTEGRATING TECHNOLOGY TO ENGAGE STUDENTS WITH EBD: A CASE

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The purpose of the study was to examine the role of leadership and school culture on the integration of technology to support instruction for students with emotional and behavioral disorders (EBD). A multiple embedded case study design was used to describe how a school leadership team supports a school culture for technology integration within classrooms where special education teachers integrate technology to engage students with EBD. The primary case of school culture includes a comprehensive description of how the school leadership team supports a culture for technology integration within classrooms. Embedded cases within the primary case describe how special education teachers integrate technology to engage students with EBD in classroom instruction. Technological Pedagogical Content Knowledge (TPACK) (Koehler & Mishra, 2005) is part of the conceptual framework to theoretically undergird the study.

The findings of this study describe a school that serves students with EBD where there is a strong school culture and leaders support teachers who integrate technology to engage students. Patterns from the analysis indicate school leaders plan for staff development, participate in staff development sessions with teachers, observe teachers, provide feedback about teacher performance, and praise and encourage teachers to integrate technology. Teachers and leaders engage in formal and informal staff development opportunities to learn how to integrate technology into classroom lessons. As a result of these trainings and school leader support, teachers provide clear expectations for students while integrating technology to engage students, provide direct instruction, choices, and visual representation of content.

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STUDY OF SCHOOL LEADER SUPPORT

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To my grandparents.

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CHAPTER I

INTRODUCTION

Schools across the country are increasingly using technology as a means to deliver and engage students in instruction (Schrum & Levin, 2009). However, there is limited research to support the integration of technology with students with emotional and behavioral disorders (EBD) (Cumming, 2013; Fitzgerald, 2005). One potential reason for the lack of empirical evidence is this population of students engages in aggressive behaviors (see Cortex & Malian, 2013) and school leaders may not support providing expensive devices to these students. Given students with EBD respond to being actively engaged (Sticher et al., 2009; Sutherland & Wehby, 2001), investigating how teachers integrate technology to engage students with EBD is the next step in moving the field of special education forward.

To fill the gap in the research and to more fully describe how teachers can engage students with EBD through technology and how school leaders support teachers in this endeavor, a comprehensive, in-depth description of a school that claimed to support teachers who integrate technology was needed. School leaders are a critical component of the successful adoption of innovative practices (Afshari, Bakar, Luan, Samah, & Fooi, 2008; Anderson & Dexter, 2005; Schrum & Levin, 2009). Therefore, the results of this study contributed to the knowledge base in regards to how school leaders can support special education teachers in the integration of technology into classroom lessons.

This multiple embedded case study was conducted with the primary case of school culture and the embedded cases of an elementary, middle, and high school math classes at Centennial School of Lehigh University. Data for this study were collected

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through a survey, semi-structured interviews with school leaders, focus groups with teachers, classroom observations, teacher interviews, and document analysis. The intent of this chapter is to outline the research problem, describe the purpose and significance of the study, and present the research questions and study design. The chapter concludes with study limitations.

Statement of the Problem

Students with EBD often engage in aggressive and often harmful behaviors (Cortex & Malian, 2013; Lopata, Nida, & Marable, 2006). These students have academic and behavioral needs that often challenge teachers who attempt to meet both of these needs simultaneously. Students with EBD respond to direct instruction (Ellis, Deschler, Lenz, Schumaker, & Clark, 1991; Lees, Sugai, & Horner, 1999; Nelson, Johnson, & Marchand-Martella, 1996), choices (Kern, Bambara, & Fogt, 2002; Kern, Childs, Dunlap, Clarke, & Falk, 1994; Niesyn, 2009; Romaniuk et al., 2002), and being actively engaged (Sticher et al., 2009; Sutherland & Wehby, 2001). The strategies presented above can be addressed with instructional technology. However, there is limited empirical evidence to support the integration of technology for students with EBD (Cumming, 2013; Fitzgerald, 2005). Although there are no studies to date highlighting school leader support of special education teachers who integrate technology, there is evidence to support the need for leaders to provide a positive school culture to encourage teachers to successfully integrate technology (Fullan & St. Germain, 2006).

Purpose and Significance of the Study

This study focused on how school leaders support special education teachers in integrating technology into classroom lessons. The purpose of this study was to examine

the influence of leadership and school culture on the integration of technology to support instruction for students with EBD and to reveal how special education teachers integrate technology to engage students in classroom lessons. To the researcher's knowledge, no published studies have described how school leaders support the integration of technology for students with EBD. Therefore, this study was significant because the findings described how school leaders support special education teachers who integrate technology, presented the school culture of a school where special education teachers support instruction for students with EBD using technology and provided an in-depth description of math classes at the elementary, middle, and high school levels where special education teachers integrate technology.

This study is important in that it provides an exemplar for both researchers and practitioners to support the field of special education in moving forward in establishing the use of instructional technology with students with EBD as an evidence-based practice. While the goal of this study is not to establish an evidence-based practice, this study demonstrated that with the support of school leaders and teachers who are trained to integrate technology, students with EBD can safely use technology in a setting where teaching academic and behavioral skills are the foundation of the school's mission. Furthermore, with Technological Pedagogical Content Knowledge (TPACK) (Koehler, Mishra, & Cain, 2013) at the core of the conceptual framework guiding this study, the instructional choices special education teachers make about how to structure lessons will highlight their pedagogical knowledge (PK), content knowledge (CK) and technological knowledge (TK).

This study contributes to the knowledge and practice in educational leadership by addressing the school culture of a school where school leaders support teachers who integrate technology. The findings of the study present evidence of the characteristics of leaders who support teachers who implement innovative practices and specific school leader behaviors to support teachers in integrating technology. The discussion from interviews with leaders and focus groups with teachers suggest strategies school leaders can use to support teachers through an expanded conceptual framework.

Research Question and Design

This study explores school leaders, school culture, and how teachers support instruction for students with EBD using technology through the research questions:

1. How does the school leadership team support a culture for technology integration within classrooms?

2. How are lead special education teachers integrating technology to engage students with EBD in classroom instruction?

To answer these research questions, a multiple embedded case study design was employed. The research site was Centennial School of Lehigh University, an approved private school for students with severe EBD in Bethlehem, PA. For the primary case of school culture, teachers and leaders participated in the School Culture Triage Survey (Wagner, 2006) to learn about their perceptions of school culture. School leaders participated in semi-structured interviews followed by focus groups with teachers to gain further insights into the school culture and leader support of technology integration. For the embedded cases, one elementary, middle, and high math school teacher submitted lesson plans for document analysis, lessons were observed, following which semi-

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structured interviews were conducted with teachers. A cross-case analysis was conducted. Qualitative data were analyzed using typological analysis and NVivo software. Quantitative data were analyzed using SPSS to compute descriptive statistics.

Study Limitations

This study was conducted at Centennial School of Lehigh University, the researchers' place of employment. Precautions were taken to address issues of participant observation. The purpose of the study was presented to the staff members at Centennial School and staff were made aware of the researchers' presence as a staff member and participant observer in the study. Graduate students assessed lesson plans and completed classroom observations alongside the primary researcher, after which inter-observer agreement was calculated. Despite these precautions, the potential biases of the researcher present a study limitation.

The researcher's role as an insider in the organization where school culture and school leaders were studied are recognized as a potential bias and limitation. Her involvement as a lead teacher at the school has situated her as a teacher leader in the school culture she studied. In addition, she has provided staff development sessions throughout the school year as part of her teacher leader role. The researcher is aware the study is potentially influenced by the professional relationships built with study participants over the last eight years of her employment at the research site. She recognizes this influence and implemented member checks of data, had additional data collectors to establish inter-observer agreement, and triangulated data to help mediate the role personal relationships and experiences on interpretation of the data.

The study was also conducted in a specialized environment where the student to teacher ratio is high (3:1), teachers have access to graduate level professional development, and there are over 200 technological devices (e.g., iPads, Macbook Pros, SMART Boards) available for 90 students and 35 teachers to use during classroom lessons. Given the small sample size, specialized environment, and case study design, the results of this study are not generalizable to other environments. This case study was designed to serve as an example of how school leaders support teachers who integrate technology to engage students with EBD and how special education teachers integrate technology. Although these findings are not generalizable across other K-12 environments that serve students with EBD, this study adds to the literature about school leader support of teachers who integrate technology and special education teacher use of instructional technology to engage students with EBD.

Definition of Key Terms

Table 1.1 contains an overview of key terms used throughout the subsequent chapters.

Table 1.1

Definition of Terms

Term	Definition	Source
Emotional and Behavioral Disorders (EBD)	"…a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance: (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors. (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers. (C) Inappropriate types of behavior or feelings under normal circumstances. (D) A general pervasive mood of unhappiness or depression. (E) A tendency to develop physical symptoms or fears associated with personal or school problems."	IDEA (2004)
Instructional technology	"the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning" (p. 9)	Seels & Richey (1994)
School culture	"The way we do things around here" (p. 4).	Deal & Kennedy (1982)

Summary

This chapter provided an overview of this study regarding how school leaders support special education teachers who integrate technology and how special education teachers integrate technology into classroom lessons to engage students with EBD. This study seeks to contribute to the gap in the research on how school leader support and school culture impacts special education teachers who integrate technology. Furthermore,

this multiple embedded case study describes how special education teachers integrate technology to engage students with EBD as viewed through the theoretical framework, TPACK.

The following chapter presents a review of the literature. Included in the chapter is an overview of school culture, the academic and behavioral needs of students with EBD, how instructional technology can meet these needs, and Technological Pedagogical Content Knowledge (TPACK). Additionally, the conceptual framework that guides this study is discussed.

CHAPTER II

LITERATURE REVIEW

Introduction

This chapter includes a review of the literature on school culture and technology

integration to support instruction for students with emotional and behavioral disorders

(EBD). The literature review addresses definitions of school culture, school climate, an

overview of the academic and behavioral needs of students with EBD and how

instructional technology can meet these needs, and describes the Technological

Pedagogical Content Knowledge (TPACK) framework. For the literature review,

Academic Search Complete, ERIC and PsychINFO were used. Search terms included

"school culture," "emotional and behavioral disorders" and "TPACK." Additionally,

references from articles and other sources were reviewed to identify literature of

importance to the study.

Organizational Culture

Within the field of educational leadership, some researchers differentiate between

climate and culture while others use the terms synonymously (Schein, 2010; Watts,

2009). School climate can be viewed as a specific element of school culture. Owens

(2004) described organizational climate as "the study of perceptions that individuals have

of various aspects of the environment in the organization" (p. 188). According to Deal

and Peterson (2009), "For decades, terms such as *climate* and *ethos* have been used to try

to capture this powerful, pervasive, and notoriously elusive force" (p. 6); while proposing

"the term *culture* provides a more accurate and intuitively appealing way to help school

leaders better understand their school's unwritten rules and traditions, norms, and

expectations" (p. 6). In this section of the literature review, elements of school culture are

defined and a definition of culture most closely aligned with the purpose of this study is presented.

Defining Culture

While some researchers suggest organizations *have* cultures, others argue organizations *are* cultures (Bolman & Deal, 2013). Multiple definitions of culture are present in the literature as presented in *Table 2.1*.

Table 2.1 (continued)

Definitions of Culture

Author(s)	Definition of Culture
Barth (2002)	A complex pattern of norms, attitudes, beliefs, behaviors, values, ceremonies, traditions, and myths that are deeply ingrained in the very core of the organization. It is the historically transmitted pattern of meaning that wields astonishing power in shaping what people think and how they act (p. 7).
Bolman and Deal (2013)	A product and a process (p. 263). Culture as a product explains the work done and accumulated from the experiences within an organization. Culture as a process is when newcomers to an organization learn from the current members how to carry out the values and beliefs of the organization; eventually, these newcomers will teach future members of the organization.
Deal and Kennedy (1982)	The way we do things around here (p. 4).
Fullan (2005)	The shared values and beliefs in the organization (p. 57).
Hoy and Miskel (2001)	Shared orientations that hold the unit together and give it a distinctive identity (p. 176).
Owens (2004)	The body of solutions to external and internal problems that has worked consistently for a group and that is therefore taught to new members as the correct way to perceive, think about, and feel in relation to those problems (p. 183).

Schein (2010)	A pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (p. 18).
Weller and Weller (2002)	Culture of a school represents the shared beliefs, norms, values, assumptions, and attitudes of what the organization stands for (p. 139).

Among these definitions, two defining characteristics of organizational culture emerge: norms (Barth, 2001; Bolman & Deal, 2013; Fullan, 2005; Hoy & Miskel, 2001; Weller & Weller, 2002) and assumptions (Bolman & Deal, 2013; Deal & Kennedy, 1982; Schein, 2010; Weller & Weller, 2002). Norms represent the ways in which groups specify what members should do to participate appropriately in the organization. These often unsaid rules of behavior within an organization represent the shared beliefs of group members about what is culturally acceptable (Owens, 2004). Assumptions provide a foundation for the norms and other aspects of the culture while teaching members of the organization what to accept as true and false. These assumptions are rarely discussed, are taken for granted, and are non-negotiable by members of the organization (Owens, 2004).

Organizational culture is developed overtime, shaped and defined by values and beliefs, traditions and rituals, history, stories and myths, heroes and heroines, and behavior norms (Owens, 2004). Because each school history is different, the development of school culture is different for every school. As time goes on, the culture is passed on from one generation of administrators, teachers, and students to the next through stories and other traditions (Bolman & Deal, 2013; Hoy & Miskel, 2001; Owens, 2004). Across the definitions of culture reviewed, nine elements of culture can be identified (see Table 2.2).

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Table 2.2

Elements of Culture

Element	Definition	Citations
Collegiality	Interactions between staff members and how they work together to accomplish common goals.	(Saphier & King, 1985)
Specialized language	Words and phrases members of a culture use that are unique to the environment.	(Bolman & Deal, 2013; Schein, 2010)
Stories	Events that are seminal to an organization and how they are passed on to new members of the organization.	(Bolman & Deal, 2013; Hoy & Miskel, 2001; Owens, 2004)
Humor and play	Members of the organization engaged in joking and playful conversations in the work environment.	(Bolman & Deal, 2013; Saphier & King, 1985)
Ritual and ceremony	Expressive occasions that define symbolic behavior in the organization.	(Barth, 2002; Bolman & Deal, 2013; Owens, 2004; Saphier & King, 1985)
Espoused beliefs and values	Morals held by members that contribute to the standards of the organization.	(Barth, 2002; Fullan, 2005; Hoy & Miskel, 2001; Owens, 2004; Schein, 2010; Weller & Weller, 2002)
Underlying assumptions	Set of rules held by members that contribute to the overall functioning of the organization.	(Hoy & Miskel, 2001; Schein, 2010; Weller & Weller, 2002)
Observed behavior	Actions regularly witnessed in the organization environment.	(Barth, 2002; Schein, 2010)
Technology	An artifact used by the members of the organization.	(Schein, 2010)

The School Culture Triage Survey (Wagner, 2006) has been used in numerous

studies of school culture (e.g., Cunningham 2003; Shutt, 2004). For example, The School

Culture Triage Survey (Wagner, 2006) was used at the elementary level (i.e.,

Cunningham 2003; Shutt, 2004). Shutt (2004) found statistically different culture scores

between the schools with different academic achievement levels. In another study, Cunningham (2003) found schools with a higher score on the culture survey had fewer new teachers than schools that scored in the bottom third of the culture survey.

Given the definition and the elements of culture described earlier in this chapter, the three categories within the School Culture Triage Survey (Wagner, 2006), professional collaboration, affiliative collegiality, and self-determination/efficacy, this measure most accurately reflects the definition of school culture aligned with the research question in this study. Specifically, this survey was used to identify the current status of culture at Centennial School of Lehigh University. To further make the connection between the definition of culture, elements of culture, and the School Culture Triage Survey (Wagner, 2006), Appendix A shows the alignment of each item from the School Culture Triage Survey (Wagner, 2006) to the elements of school culture.

School Leadership

Culture is a result of a school's leadership and can determine the school's effectiveness or ineffectiveness (Barth, 2002). It is important to define leadership to fully demonstrate the role of school leaders in impacting school culture. The standards of an organization, along with the daily routines of administrative leaders, teachers, and students are driven by the culture (Barth, 2002). Given the mutual relationship between school leaders and school culture, these elements of the study are defined in the following section.

Leadership

For purposes of this study, leadership is defined as "an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes"

(Rost, 1993, p. 102). Rost (1993) described four essential elements of leadership to include: (1) influence as the basis of the relationship, (2) leaders and followers are the people, (3) leaders and followers seek real changes, and (4) leaders and followers develop mutual purposes. In relation to school culture, leaders and followers develop mutual purposes which support the school culture through shared norms, values (Hoy & Mishkel, 2001; Weller & Weller, 2002), and a shared vision (Bolman & Deal, 2013). In the 21st century, a specific artifact of culture leaders address regularly is technology (Fullan, 2001; Levin & Schrum, 2012; Schein, 2001; Schrum & Levin, 2009).

In Michael Fullan's (2001) book, *Leading in a Culture of Change*, he presents five theoretical reasons why change happens. These reasons include moral purpose, understanding change, developing relationships, knowledge building, and coherence making. One of the elements of the framework, understanding change, drives the leader and impacts the culture of the organization. Fullan (2001) states:

> Leading in a culture of change means creating a culture (not just a structure) of change. It does not mean adopting innovations, one after another; it does mean producing the capacity to seek, critically assess, and selectively incorporate new ideas and practices-all the time, inside the organization as well as outside it. (p. 44)

The concept of transforming a culture is termed *reculturing* by Fullan (2001). He cautions reculturing is not a matter of only understanding change, rather there is a deeper sense of moral purpose through members of the organization collaborating to build and test knowledge (Fullan, 2001). This framework for leadership in the midst of cultural change contributes to the definition of culture by adding the dimension of mission and

vision of the school leader. Leaders are an important component of school culture as a facilitator of culture (Shutt, 2004) along with other dimensions of the organization such as planning, supporting, mentoring, and problem solving (Weller & Weller, 2002).

Characteristics of Leaders who Support Technology Integration

There are four characteristics of school leaders who effectively support a culture where teachers integrate technology. These include:

(1) inspire others and create shared visions; (2) demonstrate effective

uses of technology in the areas of learning and teaching; (3) incorporate

as they support, manage, and operate the school, and (4) actively involve

themselves in the assessment and evaluation of technology in the school

(Afshari et al., 2008; pp. 88-89).

To support this culture, school leaders may enable organizational structures such as professional development, employing a technology coordinator, developing a technology-planning committee, and encouraging teacher leaders (Schrum & Levin, 2009). Leaders construct, support, and maintain a culture with a vision and plan related to the use of technology (Williamson, & Redish, 2009).

Needs of Students with EBD

Students with emotional and behavioral disorders (EBD) have been reported to engage in a wide variety of aggressive behaviors (Cortez & Malian, 2013) such as throwing materials, forcefully moving furniture, hitting, kicking, and biting, etc. (Lopata et al., 2006). Several hundred-thousand children with EBD attend schools across the country (U.S. Department of Education, National Center for Education Statistics, 2016) as teachers and administrators scramble to meet their needs while simultaneously keeping

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other students and teachers in close proximity safe. Key components of the literature as it relates to this study include the academic and social needs of students with EBD, and studies to support the use of instructional technology with students with EBD, each of which will be described in more detail below.

Long held findings claim students with EBD score below the norm math and reading (Anderson, Kutash, & Duchnowski, 2001; Cullinan & Sabornie, 2004; Lane, Carter, Pierson, & Glaeser, 2006; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). Students with EBD often have academic needs that can lead to falling one and two years below grade level (Lane, 2004; Trout, Nordness, Pierce, & Epstein, 2003). The academic needs of students with EBD have received attention among researchers (Anderson et al., 2001; Cullinan, Evans, Epstein, & Ryser, 2003; Cullinan & Sabornie, 2004; Lane et al., 2006; Nicholson, 2013; Wagner et al., 2005). In addition to a disability classification of EBD some students also have a learning disability (Wagner et al., 2005). However, these academic needs are not necessarily a function of a student's EBD, rather it is likely a number of factors associated with a student's EBD and their educational program (Nelson, Benner, Lane, & Smith, 2004).

Although there are numerous studies that highlight the general areas of academic needs of students with EBD (Anderson et al., 2001; Cullinan & Sabornie, 2004; Lane et al., 2006; Nelson et al., 2004; Reid, Gonzalez, Nordness, Trout & Epstein, 2004; Wagner et al., 2005), these studies do not necessarily target the skills within these academic subjects where students with EBD have specific needs. The academic needs of students with EBD should be addressed through academic interventions in order to make academic and behavioral progress. There is debate within the field on whether behavioral

difficulties cause academic needs or academic needs cause behavioral difficulties (Hagaman, 2012; Kauffman & Landrum, 2013; Levy & Chard, 2001; Nicholson, 2013; Payne & Marks, 2007; Wehby, Lane & Falk, 2003). Through these debates, it is evident that students need the support of academic interventions to increase academic and behavioral confidence (Farley, Torres, Wailehua, & Cook, 2012). Effective academic instruction may decrease academic needs and problem behaviors (Kauffman & Landrum, 2013; Sutherland, Wehby, & Yoder, 2002).

Students with EBD also have needs in social skills (Wagner et al., 2005), interactions with teachers and peers (Landrum, Tankersley, & Kauffman, 2003), and using language effectively (Hyter, Rogers-Adkinson, Self, Simmons, & Jantz, 2001). The concept of social skills spans a variety of skills including classroom behaviors, friendship-making, dealing with feelings, responding safely, and dealing with stress (McGinnis, 2012). Students with EBD may not have the skills to use language to engage in positive conversations for constructive, social purposes (Kauffman & Landrum, 2013).

For students with EBD, designing special education programs that not only meet their behavior needs and increase social skills, but also focus on academic needs can be challenging (Nicholson, 2013). Although using instructional technology is an approach to teaching social skills (Cumming, 2010), this instructional tool is not currently prevalent in emotional support classrooms (Fitzgerald, 2005). Fitzgerald (2005) suggested "there has been little consideration, exploration, or research conducted on the uses of technologies to assist students with behavioral and emotional disorders (EBD)" (p. 335). There is a limited number of studies on this topic and the field of special education considers this topic to be a developing area of research (Cumming 2013; Edyburn, 2013).

Meeting Academic Needs with Instructional Technology

Academic interventions based on empirical evidence of effectiveness are prevalent for students with EBD (Hagaman, 2012; Lane, 2004). Using technology to deliver evidence-based interventions can help move the field of special education forward (Cumming, 2013). Instructional technology provides a tool that can support teachers in providing choices to facilitate active engagement of students in direct instruction (Flower, 2014; Haydon et al., 2012). Given effective academic instruction may decrease problem behaviors (Kauffman & Landrum, 2013; Sutherland et al., 2002); theoretically, the use of these instructional strategies with technology might also lead to increased active engagement, work completion, and decreased problem behaviors.

For example, Haydon et al. (2012) conducted a study to compare the performance of students on iPads versus worksheets with three high school students with EBD. Using an alternating treatment design, the researchers compared the effects of worksheet and iPad instruction on academic performance and student behavior. The results of the study indicated all students at all iPad data points (100%) exceeded the highest worksheet data point across the study and over time, results suggested students with EBD could improve their math skills using the iPad (Haydon et al., 2012). During the worksheet conditions, all students demonstrated their lowest rates of correct responses per minute. The highest level of engagement ($M = 98.9\%$) was when the iPad condition was in effect, with two of the students' achievement close to 100% levels of engagement ($M = 98\%$; $M = 98.6\%$). When compared to each other, all students demonstrated lower mean percentages of engagement in the worksheet condition than in the iPad condition (Haydon et al., 2012).

Another study that addressed the use of technology serving students with EBD in an academic setting was conducted by Flower (2014). Five elementary aged students from a residential treatment center for youth participated in the alternate treatments design study to evaluate the effect of students' use of an iPad on the time that they spent on task. The study, conducted by Flower (2014), replicated the study conducted by Haydon et al. (2012). As indicated in the initial study (Haydon et al., 2012), Flower (2014) found the use of the iPad was associated with increases in time on-task for all participants. Students in this study struggled with completion of independent tasks during a typical condition; however, the same students did not experience difficulty during the iPad condition. Given students engaged in more on-task time with the iPad condition, academic learning may increase under these conditions (Flower, 2014).

As shown in Table 2.3, the findings from the research is mixed about the use of technology to meet the academic needs of students with EBD. Two studies highlight the use of iPads with students with EBD to practice math facts, (Haydon et al., 2012; Flower, 2014) and one study suggested Inspiration software (Blankenship, Ayres, & Langone, 2005) improved student reading comprehension. However, another study found the use of PowerSecretary and Dragon NaturallySpeaking did not improve students' writing capabilities (Faris-Cole & Lewis, 2001). Given the limited empirical support, there is a gap in the research that needs to be filled on how to meet the specific academic needs of students with EBD with instructional technology.

Table 2.3

Instructional Technology to Meet Academic Needs of Students with EBD

Academic Need	Technology	Support	Opposition
Math fact fluency	iPad apps to practice facts	Blankenship, Ayres, & Langone, 2005	
Reading comprehension	Inspiration software to make mindmaps	Flower, 2014	
Writing fluency	PowerSecretary, Dragon NaturallySpeaking for speech to text dictation	Haydon et al., 2012	Faris-Cole & Lewis, 2001

Meeting Social Needs with Instructional Technology

The use of instructional technology to support students with social needs is more common, specifically using video modeling to improve behaviors of concern. Authors Baker, Lang, and O'Reilly (2009) conducted a review of the literature and identified sixteen studies published between 1974 and 2005 with a focus on video modeling. The majority of these studies were focused primarily on students with EBD, however some of the studies addressed the behaviors of students with other disabilities. Although there were 16 studies that were part of the review, only five of these studies were conducted in the last 16 years and only three of those studies focused solely on using video modeling with students with EBD.

As indicated in Table 2.4, many of the studies that addressed the social needs of students with EBD use video modeling to improve student behavior (Blood, Johnson, Ridenour, Simmons, & Crouch, 2011; Chu & Baker, 2015; Clare, Jenson, Kehle, & Bray, 2000; Gulchak, 2008). Although these studies yielded positive results, there are social

needs identified by researchers in the field such as social skills (Wagner et al., 2005), interactions with teachers and peers (Landrum et al., 2003), language and nonverbal communication in social situations (Landrum et al., 2003), and pragmatic language (Rogers-Adkinson & Griffith, 1999) that were not clearly linked to research studies using technology to address these needs. There is no evidence to suggest technology does not improve the social needs of students with EBD. Future studies using instructional technology as the independent variable could use these social needs as targeted behaviors.

Table 2.4

Instructional Technology to Meet Social Needs of Students with EBD

Social Need	Technology	Support
Participation in class	Clickers	Blankenship, Ayres, & Langone, 2005
On-task behavior	Video modeling with iPad Touch	Blood et al., 2011; Chu & Baker, 2015; Clare, Jenson, Kehle, & Bray, 2000; Gulchak, 2008

Technological Pedagogical Content Knowledge (TPACK)

One framework to assess a teachers' decision about how to meet the academic and social needs of students with EBD through the integration of technology is Technological Pedagogical Content Knowledge (TPACK). The concept and practice of teaching with technology is no longer a new methodology, rather it has become the way many teachers provide instruction in the 21st century (Shrum & Levin, 2009). However, even with an increasing number of technological devices in schools, pre-service and in-service teachers have varying levels of experience with integrating technology into

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curriculum (Shrum & Levin, 2009). The TPACK Framework details the interactions

between content, pedagogy, and technology and how these components can lead to the

successful integration of technology into teaching (Koehler et al., 2013).

TPACK, at a fundamental level, provides a context for teachers and leaders to view

effective teaching with technology through the lens of content, pedagogy, and

technology. Koehler, Mishra, and Cain (2013) describe TPACK as:

> requiring an understanding of the representation of concepts using technologies,
>
> pedagogical techniques that use technologies in constructive ways to teach
>
> content, knowledge of what makes concepts difficult or easy to learn and how
>
> technology can help redress some of the problems that students face, knowledge
>
> of students' prior knowledge and theories of epistemology, and knowledge of how
>
> technologies can be used to build on existing knowledge to develop new
>
> epistemologies or strengthen old ones. (p. 16)

TPACK provided a theoretical framework for teacher integration of technology into

classroom lessons to undergird this study. The focus on the interactions among content,

pedagogy, and technology knowledge in TPACK combined the important elements of

direct instruction, modifications for diverse learners, actively engaging students, and the

teachers' ability to use technology to study how special education teachers use

instructional technology with students with EBD.

Defining TPACK

The TPACK framework has roots in Schulman's (1986, 1987) descriptions of

Pedagogical Content Knowledge (PCK) which describes how a teacher's knowledge of

pedagogy is directly applicable to teaching specific content (Koehler et al., 2013). This

model is comprised of three main components of teachers' knowledge: content, pedagogy, technology (see Figure 2.1). The interactions among these bodies of knowledge are represented as PCK (pedagogical content knowledge), TCK (technological content knowledge), TPK (technological pedagogical knowledge) and TPACK (technology, pedagogy and content knowledge) (Koehler et al., 2013).

Figure 2.1. TPACK

Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Knowledge (TPK)

Technological Knowledge (TK)

Technological Content Knowledge (TCK)

Pedagogical Knowledge (PK)

Content Knowledge (CK)

Pedagogical Content Knowledge (PCK)

Contexts
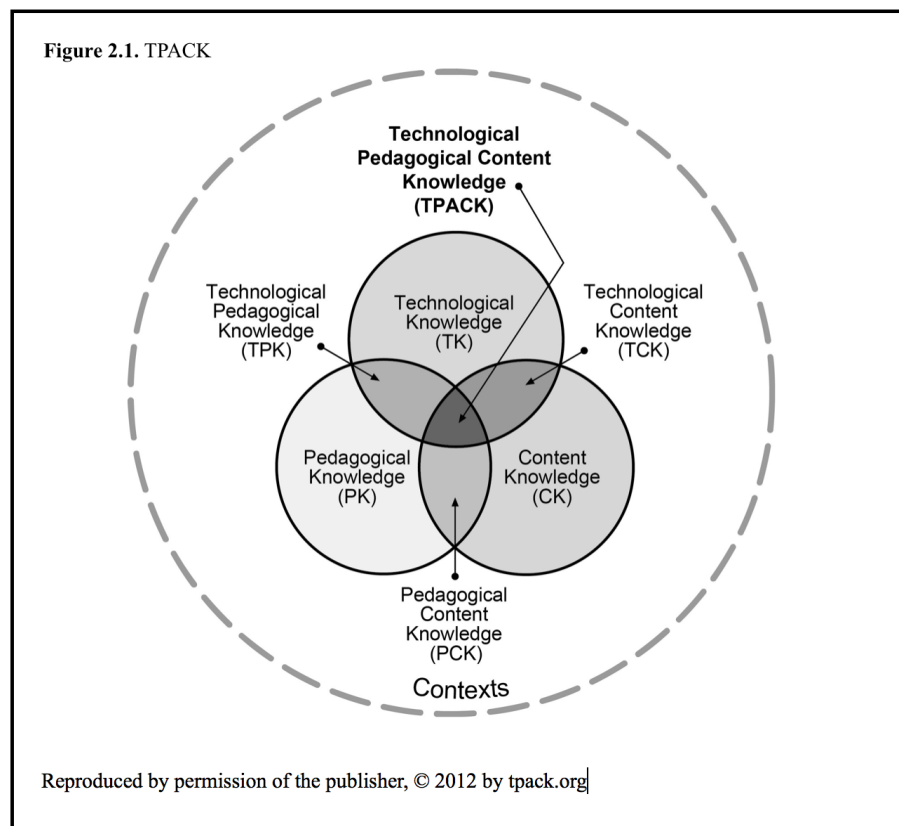
Figure 2.1. TPACK

Content Knowledge

Content knowledge (CK) is a teachers' knowledge about the subject matter they are teaching (Koehler et al., 2013). Teachers' knowledge of the content they are teaching is critical to the direct instruction they provide to students. Shulman (1986) suggested the emphasis on classroom management, activities, time management, levels of questions,

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and lesson planning are clouding the real work teachers do: the content of the lessons they teach. He argued that it is assumed teachers begin their teaching careers with expertise in the content area they teach (Shulman, 1986). Content knowledge involves teachers defining content within a domain, explaining why the presented content is worthy of explanation, and how it relates to other disciplines in theory and practice (Shulman, 1986).

Pedagogical Knowledge

Pedagogical Knowledge (PK) is teachers' knowledge about the methodology of teaching and learning (Koehler et al., 2013). This methodology includes a teachers' educational purposes, values, and aims. Although generic, this form of knowledge encompasses a deep understanding of how students learn, managing student behavior, planning lessons, assessing students, and checking for understanding (Koehler et al., 2013). Teachers with pedagogical knowledge understand student learning in relation to constructing knowledge, acquiring new skills, and developing a positive attitude towards learning. This type of knowledge requires an understanding of learning theories and how they apply to students (Koehler et al., 2013). In regards to students with disabilities, pedagogical knowledge surrounding the needs of students with disabilities should be evident in planning and implementation of lessons.

Pedagogical Content Knowledge

Pedagogical Content Knowledge (PCK) aligns with Shuman's (1986, 1987) notion of PCK. Teachers use their PCK to inform students with relevant examples of content in a way that students easily understand (Shulman, 1986). Understanding how to teach content is equally as important as knowing what makes learning content easy or

difficult. A child's learning at a specific age should be considered by teachers as they select appropriate strategies to teach content. The learner as a whole is considered and addressed by a teachers' PCK. Teachers use their PCK to develop alternate ways of analyzing and presenting content to meet the needs of the learner (Shulman, 1986).

Technological Knowledge

Contrary to the other interactions among bodies of knowledge, Technological Knowledge (TK) is constantly shifting (Koehler et al., 2013). Defining TK is challenging because technology is constantly changing. A current explanation of TK suggests a teacher with TK understands information technology enough to apply the use of technology to their lives, knows when it should be used to achieve a goal, and adapts to constant changes that take place in regards to technology (Koehler et al., 2013). Teachers that acquire TK use technology skills to accomplish tasks in different ways depending on the given task (Koehler et al., 2013).

Technological Content Knowledge

Technological Content Knowledge (TCK) is an understanding of how technology and content impact and inhibit one another (Koehler et al., 2013). Teachers must master more than the content they teach; they must also have a heightened understanding of how different representations of the subject matter can be created and changed through the application of technology. In order to be effective, teachers must comprehend and construct lessons with technology that are most appropriate depending on the subject matter. Not all lessons will require technology and not all lessons will be most effective with technology. Teachers should use their TCK to determine how their students will learn most effectively given the subject and available technology (Koehler et al., 2013).

Technological Pedagogical Knowledge

Technological Pedagogical Knowledge (TPK) is "an understanding of how teaching and learning can change when particular technologies are used in particular ways" (Koehler et al., 2013, p. 16). The pedagogical approach a teacher chooses impacts the selection and implementation of the technological tool to develop an appropriate lesson structure and strategies for learning. To support TPK, teachers should explore how technologies can enhance or interfere with learning and through this exploration consider how the subject matter can be presented where both coherently function. Teachers who embody TPK are forward-thinking, creative, and use technology to redefine student learning experiences (Koehler et al., 2013).

Technological Pedagogical Content Knowledge

Technological Pedagogical Content Knowledge (TPACK) is an evolving form of knowledge that is deeper than the three components: content, pedagogy, and technology (Koehler et al., 2013). The foundation of TPACK is undergirded with effective teaching with technology; this teaching philosophy has a core of representing content with technology, pedagogical techniques which use technology to enhance teaching, knowledge of how technology can improve teaching and learning, understanding student learning, and knowledge of how technology can build skills for students. The contexts surrounding TPACK stress that technology, pedagogy, and content are not individual, rather they occur in specific teaching and learning contexts (Koehler et al., 2013). Teachers who seamlessly integrate technology, pedagogy, content, and the contexts surrounding these elements, bring TPACK into how they teach (Koehler et al., 2013).

Often teachers view technology, pedagogy, and content as three separate components. Separating these factors is difficult in practice. When a new educational technology challenges teachers to address structural pieces of their lessons, they reconstruct their understanding of the three elements (Koehler et al., 2013). Newer technologies disrupt the norm within classrooms and cause teachers to think differently about how they should structure lessons. Although highly desirable by students of all ages, effectively teaching with technology is a difficult skill. Teachers who successfully teach with technology are constantly refining their teaching to maintain equilibrium among the three components and their contexts (Koehler et al., 2013).

Given the current focus on classrooms with STEM initiatives (Hefty, 2015), it is important to evaluate teachers' use of TPACK. Researchers across the field have adopted TPACK as the theoretical framework for their studies. In addition, they have acknowledged the need to incorporate TPACK into preservice teacher training (Mouza & Karchmer-Klein, 2013; So & Kim, 2009; Thomas, Herring, Redmond & Smaldino, 2013), developed textbooks (e.g., AACTE Committee on Innovation and Technology, 2008; Herring, Koehler, Mishra, 2016; Hunter, 2015), identified the need for highly specialized professional development (Baran, Canbazoglu-Bilici, & Uygun, 2016; Polly & Orrill, 2016), and expanded the framework (Hsu, Liang, Chai, & Tsai, 2013). Since the creation of the framework, researchers have worked to create appropriate methods for measuring the framework (Archambault, 2016).

Summary

There are various definitions of school culture and school climate. For the purposes of this study, school culture will be defined according to Deal and Kennedy's

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(1982) description of culture as "the way we do things around here." (p. 4) and Bolman and Deal's (2013) definition of culture as a product and a process. School leaders engage in conscious decisions about how to support teachers who are engaging students by integrating technology. Teachers rely on school leaders to support their experiences with pedagogy, content, and technological knowledge all combined to demonstrate their TPACK. The following chapter describes the research methods to support the proposed study.

CHAPTER III

METHODOLOGY

Introduction

Students with emotional and behavioral disorders (EBD) typically respond well to increased active engagement (Sticher et al., 2009; Sutherland & Wehby, 2001), relevant, high-interest material and examples, and visual illustrations (Reimer & Moyer, 2005; Satsangi, & Bouck, 2015; Steen, Brooks, & Lyon, 2006; Silverman, 2002). One way this can occur is through integrating technology into classroom lessons. Centennial School of Lehigh University, a private school that serves students with severe emotional and behavioral disorders, touts that technology (e.g., iPods, iPads, laptops, SMARTBoards) is used to "enhance the lesson quality and engage students" (George, George, Kern, & Fogt, 2013, p. 55). This school has been recognized by CNN and ABC News, provided information on school-wide systems to visitors from the Office for Civil Rights (OCR), and had visitors acknowledge its exemplary use of technology with students with EBD.

A systematic investigation of how school leaders support the integration of technology to assist teachers at Centennial School of Lehigh University who integrate technology with students with EBD has not been conducted. This innovative method of instructing students with EBD was supported by school administrators; the role of leadership is known to be important in developing effective and innovative schools (Anderson & Dexter, 2005; Dinham, 2005; Flanagan & Jacobsen, 2003; Levin & Schrum, 2012; Schiller, 2003). A clearer picture of how school leaders supported teachers who integrate technology to engage these particular students informed and contributed to the knowledge base.

There is a dearth of research available to suggest teachers should integrate technology into classroom lessons to engage students with EBD (Cumming, 2013; Fitzgerald, 2005). One potential reason for the lack of research is there may be few school leaders who trust students with EBD who engage in aggressive behaviors, as outlined by Cortez and Malian (2013), to use expensive devices. Because culture influences values and beliefs (Gruenert & Whitaker, 2015) about how students learn, including with or without the use of instructional technology, examining school culture is an integral part of filling the void in the research. An essential component of successful adoption of technology integration is the alignment of the innovation with the existing beliefs, values, and practices of the teachers at the school (Zhao & Frank, 2003). For schools to successfully adopt innovative practices, school leaders must support a school culture where teachers have the resources to use instructional technology (Schrum & Levin, 2009).

Given the gap in the research on how teachers can integrate technology to engage students with EBD (Cumming, 2013; Fitzgerald, 2005), responsiveness of students with EBD to active engagement (Sticher et al., 2009; Sutherland & Wehby, 2001), success of students in general education using instructional technology (Taylor, Castro, & Walls, 2004), and the need for school leaders to support innovative practices (Schrum & Levin, 2009), the purpose of this study was to examine the role of leadership and school culture on the integration of technology to support instruction for students with EBD. The following research questions guided the study:

1) How does the school leadership team support a culture for technology integration within classrooms?

2) How are lead special education teachers integrating technology to

engage students with EBD in classroom instruction?

The following section describes the study design and the rationale for the selection of a

case study design to answer the research questions outlined above. A description of the

conceptual framework undergirding this study is provided.

Research Design

This study used a multiple embedded case study design to describe how a school

leadership team supports a school culture for technology integration within classrooms

where special education teachers integrate technology to engage students with EBD. The

primary case of school culture, includes a description of how the school leadership team

supports a culture for technology integration within classrooms. Embedded cases within

the primary case describe how special education teachers integrate technology to engage

students with EBD in classroom instruction. The three embedded cases include

elementary, middle and high school classrooms within the school which for this study is

considered to be a unique educational setting for students with EBD (Miller, George, &

Fogt, 2005).

Yin (2014) defined a case study as "an empirical inquiry that investigates a

contemporary phenomenon (the "case") in-depth and within its real-world context,

especially when the boundaries between phenomenon and context may not be clearly

evident" (p. 16). For this study, the in-depth description focused on how school leaders

support special education teachers who are integrating technology and how special

education teachers use instructional technology with students with EBD. Various data

sources such as interviews, classroom observations, focus groups, document analysis, and a survey contributed to the construction of the cases.

Multiple cases were selected to strengthen the findings of the overall study (Herriott & Firestone, 1983). The three embedded cases operate under the same structure, school expectations, and serve the same population of students (EBD). Separating the cases by level of schooling contributed to the primary case by providing an in-depth description of each classroom. This study followed recommendations by Yin (2014) for a replication design, one in which the study was designed to examine the same overarching concepts within different examples of an environment. To keep the study focused and provide the appropriate breadth and depth needed, the embedded cases were bound (Baxter & Jack, 2008) by the content area of mathematics. Mathematics was selected as the content area for observations based on empirical studies that support the use of instructional technology with students with EBD in mathematics instruction (Flower, 2014; Haydon et al., 2012).

Conceptual and Theoretical Framework

Following steps recommended by Yin (2014), Technological Pedagogical Content Knowledge (TPACK), as described in Chapter 2, was used to undergird the study theoretically. Specifically, teacher use of TPACK to support the integration of technology into classroom lessons at Centennial School of Lehigh University. TPACK is embedded into a conceptual framework (Figure 3.1) that helps explain the connection of school leadership to a culture supportive of teachers' integration of technology in the context of engaging students with EBD. This framework recognizes the link between leadership and culture as purported by Deal and Peterson (1990): "Leadership shapes culture and culture

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shapes leaders" (p. 24). Although this connection does not rely on empirical evidence, the proposed study explores the degree to which culture and leadership collectively support classroom teachers' technology integration within the context of a K-12 school serving students with emotional and behavioral disorders.

Figure 3.1. Conceptual Framework

- Technological Knowledge (TK)
- **Classroom Teacher**
- Technology Integration
- Pedagogical Knowledge (PK)
- Content Knowledge (CK)
- Leadership ↔ Culture
- **K-12 School Serving Students with Emotional and Behavioral Disorders**
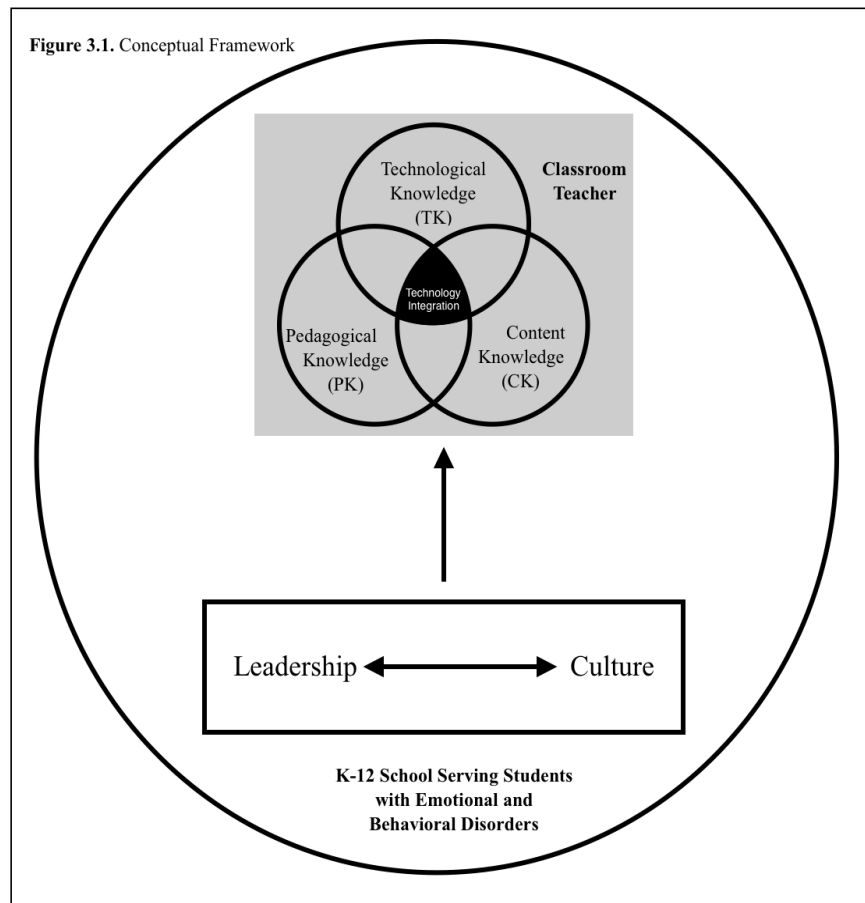
Figure 3.1. Conceptual Framework

To effectively lead schools with technology integration, school leaders are called to develop school cultures that support teachers in using and interacting with digital tools for instruction (Richardson, Flora, & Bathon, 2013). As described more fully in the literature review, Afshari et al. (2008) put forth characteristics of school leaders who effectively support a culture where teachers integrate technology as leaders. School

leaders create a shared vision, construct, support, and maintain a culture with a vision and plan related to the technology (Williamson, & Redish, 2009), understand how to use technology, use technology in their leadership roles, and participate in the evaluation of technology (Afshari et al., 2008). To support this culture, school leaders may enable organizational structures such as professional development, employing a technology coordinator, developing a technology planning committee, and encouraging teacher leaders (Schrum & Levin, 2009).

Research setting

This research site, Centennial School of Lehigh University was purposely and deliberately selected (Maxwell, 2005) based on the population of students with EBD, the abundance of instructional technology available for students and teachers, administrative focus on school culture, and proximity to the researcher. The selection of the research site is purposely representative of a population of students and teachers that are not evident in other schools around the country. The selection of the research sample for the embedded cases was imperative to establishing the cases for the multiple embedded case study.

Centennial School of Lehigh University is an approved private school serving students with severe emotional and behavioral disorders. As a laboratory school, Centennial School of Lehigh University employs graduate students as teacher associates and teacher interns who are pursuing a Master's degree in Special Education while simultaneously teaching under a certified lead special education teacher. The mission of the school is to produce highly qualified special education teachers and re-integrate students to their home schools in a less restrictive educational placement (Centennial School, n.d.).

Centennial School of Lehigh University is located in an industrial park in the Northeast region of Pennsylvania and Northampton County. Students from 40 surrounding school districts are bused to the school daily, some from as far away as an hour and a half in Bucks County. Approximately 90 students in grades K-12 attend Centennial School based on a referral from their local school district as part of an Individualized Education Program (IEP) team decision. The director, associate director, and three program coordinators work with support staff, lead teachers, teacher interns and associates to implement academic curriculum and behavioral programing. Nine lead special education teachers and nineteen teacher associates and interns work with students to teach, model and prompt students on how to respond appropriately using anger management strategies when frustrated or upset with academic or social situations.

Centennial School's history is relevant to the research study because of the progress and growth the school, particularly the school culture, has made since it opened in 1964 (George, 2016). Starting with eight students in the basement of a Lehigh University building, the original goal of Centennial School was to improve the academic and social skills of students to support their return to the public school setting equipped with the social skills needed to be successful (George, 2016). Through several administrative changes, building moves, and budget cuts from the state of Pennsylvania, the school's founding mission has remained the same. However, the ways in which teachers and administrators achieve the mission has changed drastically over the last 17 years. When the director, Dr. Michael George, began his tenure at Centennial School he told staff they would know they "were making progress when students' social behaviors

improved to the point where the use of seclusionary time-out and restraints were no longer necessary for controlling student behavior" (George, 2016, p. 137).

After recognizing the needs of the students and lack of vision to address these needs, George established three goals for the school: (1) To "create a safe and civil learning environment," (2) To "create a rich and engaging curriculum," and (3) To "establish partnerships with parents on behalf of their children's success" (George, 2016, p. 137-138). George wanted to create a "learning community within the school" (George, 2016, p. 138) and to establish a "school culture where everyone who worked there could create knowledge and learn from one another" (George, 2016, p. 138). The focus on school culture is a critical component of this study.

The organizational structure of Centennial is presented in Figure 3.2. The program coordinators of each program supervise the lead teachers, teacher interns and teacher associates. All lead teachers have completed the teacher intern or teacher associate program and received their Master's degrees in Special Education or a closely related discipline. Lead teachers mentor teacher interns and associates by providing feedback on instructional plans, Individualized Education Plans (IEPs), behavioral feedback given to students, and instructional feedback. Lead teachers also provide staff development during weekly Wednesday staff development sessions. Teacher interns are certified special education teachers who are working towards their Master's degrees in Special Education. Teacher associates are certified in an education-related (e.g., elementary education, psychology) or non-education related field and are working towards their Master's degrees in Special Education. Lead teachers, teacher interns, and teacher associates receive 18 credits of tuition reimbursement through Lehigh University.

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                        ┌─────────────────────────┐
                        │  Centennial School Board │
                        └─────────────────────────┘
                                    │
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                        │   Dean of the College of │
                        │ Education, Lehigh University │
                        └─────────────────────────┘
                                    │
                        ┌─────────────────────────┐
                        │         Director         │
                        └─────────────────────────┘
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                        ┌─────────────────────────┐
                        │    Associate Director    │
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 ┌───────────────┐         ┌───────────────┐          ┌───────────────┐
 │ Elementary School │     │  Middle School │          │  High School   │
 │ Program Coordinator │   │ Program Coordinator │     │ Program Coordinator │
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        │                         │                          │
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 │ Elementary Room 7 │     │ Middle Room 11 │          │  High Room 26  │
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 │ Elementary Room 17 │    │ Middle Room 16 │          │  High Room 28  │
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 │ Elementary Room 18 │    │ Middle Room 31 │          │  High Room 29  │
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                                                     │   School Jobs  │
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Figure 3.2. Centennial School Organizational Flow Chart

Although lead teachers provide feedback to teacher interns and associates, this position is not considered a supervisory role. Lead teachers fulfill a teacher leader role and are expected to model best practices to incoming staff. All formal evaluations are conducted by program coordinators. School leaders rely on lead teachers to mentor teacher interns and associates. One school leader went as far as to say "our building wouldn't work without that mentoring being the primary way for teachers to learn at a pretty rapid rate."

The following chart displays a breakdown of the number of teachers in each program and the number of students served in each program as of January 2016. This information is important to the foundation of the primary case because of the high teacher

to student ratio, high turnover rate of staff each year, and to present a context for the school environment.

Table 3.1

Primary Case School Demographics

	Lead Teachers	Teacher Interns	Teacher Associates	Students
Elementary School (K-5)	2	2	4	22
Middle School (6-8)	3	0	5	19
High School (9-age 21)	5	2	6	40

Before beginning the study, the director of the school read the research proposal. He provided a written letter of approval for the study to take place at Centennial School (Appendix B). This letter of consent was submitted to the Institutional Review Board (IRB) at Lehigh University.

Research Sample and Data Sources

For research question one (i.e., How does the school leadership team support a culture for technology integration within classrooms?), school leaders included the associate director and elementary, middle, and high school program coordinators. To avoid a conflict of interest, the director of the school is intentionally not part of the study as he is a member of the researcher's dissertation committee. Program coordinators supervise lead teachers, teacher interns, and teacher associates of their respective programs. These school leaders also assist with providing weekly staff development sessions on topics such as writing IEPs, communicating with parents, writing instructional plans, developing engaging lessons, and problem-solving. The associate

director guides school psychology interns and facilitates reevaluation reports. In addition, she assists, guides, facilities, and leads the staff in improving and maintaining positive school culture. First, all staff were invited to participate in School Culture Triage Survey. Staff completed a consent form (see Appendix C) before participating in the survey.

School leaders were emailed an overview of the study and invited to participate in a one-hour interview. The email explained that a formal consent form (see Appendix D) detailing their role in the interview would be placed in their mailbox if they agreed to participate in the study. The initial email described that the interview would be audio recorded and transcribed. A copy of the signed consent form was emailed back to each school leader. All school leaders participated in individual one-hour interviews to determine how they support a culture where teachers integrate technology into classroom lessons.

Teachers who had been teaching at the school for two years or more were invited to participate in focus groups. The purpose of the focus groups was to ascertain how teachers felt school leaders support a culture for technology integration at the classroom level. Following Krueger and Casey's (2015) recommendations for selecting focus group participants, the criteria for the participants in this study included: (a) the teacher was a lead teacher, teacher intern, teacher associate or support staff member; and (b) the teacher had been teaching or supporting the teaching for at least one year in the content area of reading, writing, math, science, social studies, or physical education.

To follow the second step outlined by Krueger and Casey (2015), program coordinators verbally described the criteria for participants, their roles in the study and passed around a paper signup sheet at a weekly team meeting in November 2016. A paper

signup sheet was used because in the past this method garnered the most willing

participants at this school. After gathering a list of potential participants from the three

programs, a list of six to ten participants per program was generated (Merriam, 2009). All

participants who signed up to participate in the focus groups were selected to participate

in the focus groups. The participants received an email reiterating their role in the focus

groups, outlining their expectations for participation, confirming their participation, and

informing them of study consent processes. Each participant received a hard copy of the

consent form (see Appendix E), signed the consent form, and returned it to the

researcher. A PDF of the signed consent form was emailed to every focus group

participant.

For research question two (i.e., How are lead special education teachers

integrating technology to engage students with EBD in classroom instruction?), the

sample included one elementary, one middle, and one high school classroom from

Centennial School of Lehigh University. Participants included three special education

teachers and 15 students. The three teachers, referred to as lead teachers, each have a

Master's degree in Special Education. Other teachers were present in the room and

assisted the lead teacher. However, these teachers were not direct participants in the

study.

There are three elementary, three middle school, and five high school classrooms

at Centennial School. One of the three elementary classrooms was excluded from

consideration for participation as the lead teacher in this classroom is the researcher

conducting this study. To determine which elementary, middle, and high school

classroom was included in the study, purposeful sampling recommendation by Merriam

(2009) was followed. Criteria for sample selection included a lead special education teacher with at least five years of teaching experience, has a Pennsylvania Level II teaching certificate, integrates technology regularly into their lessons, and at the time of the study was leading a math instructional group. Each program coordinator was emailed at the end of November 2016 to recommend a teacher from their program who meets these criteria. As a result, three lead teachers were contacted via email and invited to participate in the study. The email included the criteria by which each teacher was selected, an outline of the time commitment to taking part in the study, a statement describing the voluntary nature of participating, and indication that expressing interest would result in a copy of the consent form (See Appendix F) delivered to their school mailbox. Each teacher selected by their program coordinator agreed to participate and completed a consent form. This consent form was returned to each teacher as a PDF. Data collected to answer research question two included three lesson plans, observations of lessons, and teacher interviews for each of the classrooms.

Before initiating the study, IRB approval through Lehigh University was obtained (Appendix G). The University of Kentucky ceded IRB approval (Appendix H) to Lehigh University. To protect the rights of participants, they received a description of the study that included their role in the study. Participants signed a consent form indicating their willingness to participant in the study (Merriam, 2009). Confidentiality of participants was protected by using pseudonyms for the names of teachers, and no identifiable teacher or child data were used. Participants had the opportunity to read through initial findings to fact check the constructed cases.

Instruments and Procedures

There were five primary instruments for this study, each of which is described below. Table 3.2 provides the number of participants involved in each dataset and information on how data from each research question was triangulated to strengthen the study.

Table 3.2 (continued)

Research Question Data Collection Alignment

Research Question	Document Analysis	Focus Groups	Interviews	Observations	Survey
How does the school leadership team support a culture for technology integration within classrooms?	Staff development calendars from the last seven years (7 documents) One Things Surveys from the past 17 years (17 documents) School handbook (1 document) Team meeting notes from three teams (49 documents)	Three focus groups, each with 5-8 participants	4 administrators		School Culture Triage Survey administered to 36 teachers
How are lead special education	Three lesson plans from each of the		Three interviews with each of	Three observations with each of	

teachers integrating technology to engage students with EBD in classroom instruction?	three lead teachers	the three lead teachers	the three lead teachers

For the primary case of school culture, the data collection protocol included a school leader interview protocol, focus group protocol, a school culture survey, and document analysis of the staff development calendar, One Things surveys, the school handbook, and team meeting notes from each of the three teams. A data collection protocol for the embedded case studies included an observation protocol, teacher interview protocol, and lesson plan document analysis through a technology integration rubric. Each case was conducted independently of one another (Yin, 2014). One elementary, middle, and high school math class was observed over the course of three individual mathematics lessons per case. The teachers in each classroom submitted their lesson plans before the observations, and they were interviewed the same day after the observation.

To determine how school leaders support a culture for technology integration, school leaders participated in semi-structured interviews, all staff members participated in the School Culture Triage Survey (Appendix I), teachers were invited to participate in focus groups, and an analysis of the staff development calendars from the seven years was conducted. Additional documents referred to by school leaders in their interviews were also located and analyzed. The foundation of the semi-structured interviews for school leaders was derived from the categories of the School Culture Triage Survey: professional collaboration, affiliative collegiality, and self-determination/efficacy. Within these categories, the question stems came from the work of Afshari et al., (2008) who

described characteristics of school leaders who effectively support a culture where teachers integrate technology.

A document analysis of the staff development calendars from the last seven years provided specific data about the professional development sessions school leaders schedule to support the use of instructional technology. In addition, other documents school leaders referenced in their semi-structured interviews were included as part of the document analysis. These documents included team meeting notes, the One Things Surveys from the past 17 years, and the school handbook. The One Things Survey is an annual survey conducted by school leaders where teachers anonymously describe one thing they like about their job, one thing they do not like about their job, and one thing they wish they could change about their job.

All staff members were invited to participate in the School Culture Triage Survey developed by Wagner (2006). The School Culture Triage Survey (Wagner, 2006) was developed to determine the current status of a school's culture. Teachers and school leaders ranked statements based on their experiences and perceptions on a Likert scale with a 1= never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always or almost always. The instrument was tested with the proposed population via cognitive interview testing in April 2016 as recommended and described by Dillman, Smyth, and Christian (2014). Cognitive interviews were conducted with five teachers who were leaving their positions at the school to not satiate the sample. The cognitive interview protocol (see Appendix J) was designed to: (1) introduce the study, the purpose of the study, and the reason for testing the instrument; and (2) reassure the participants of their responses to the questions and the thoughts they shared with me were confidential.

Throughout the cognitive interviews, participants questioned if the survey items were referring to the whole school or their individual programs. Wagner, the creator of the survey, was adamant the survey only be used to measure school culture of the school as a whole. It was made explicit to participants that all survey items refer to the entire school. Another common trend was participants not reading the directions listed on each page. As a result, the directions were stated one time at the beginning of the survey.

Teachers were invited to participate in focus groups after the school leader interviews and School Culture Triage Survey (2006) were completed. The protocol for the teacher focus groups (Appendix K) was developed as a result of the school leader interviews and survey results. School leader interviews informed the structure of the teacher focus groups. The components of school culture school leaders identified as supportive of teachers were validated by teachers through questions posed to the teachers during focus groups.

To determine how lead special education teachers integrate technology to engage students with EBD in classroom instruction, multiple sources of data were collected (Creswell, 2013; Merriam, 2009). Initially, each of the three lead teachers submitted their lesson plans for the math classes that were observed. The lessons were evaluated for TPACK using the Technology Integration Assessment Rubric developed by Harris, Grandgenett, and Hofer (2010). This rubric, found in Appendix L, has the criteria of curriculum goals and technologies, instructional strategies and technologies, technology selections, and "fit" to measure a teacher's TPACK of the lesson plan. Authors Harris et al. (2010) established construct validity of the instrument by conducting two separate expert reviews; reliability of the instrument was established through two trials also

conducted at different universities. Scorers offered feedback during reliability checks and the researchers used this to establish face validity (Harris, Grandgenett, & Hofer, 2010). The interrater reliability coefficient was reported as .857, internal consistency (Cronbach's Alpha) at .911, and test-retest reliability was 87% (Harris et al., 2010), all within acceptable limits.

Following the assessment of teacher lesson plans, observations were conducted to witness and document the practices identified by teachers in the lesson plans. The observations took place across a three week period with one observation per week. Using the Technology Integration Observation Instrument (see Appendix M), developed and tested by Hofer, Grandgenett, Harris, and Swan (2011), a structured observation was focused on the teachers' technology integration. Hofer et al. (2011) piloted the Technology Integration Observation Instrument in several secondary classrooms and discussed feedback from raters to establish construct validity. To establish the reliability of the instrument, the authors conducted two trials with different sets of scorers (Hofer, Grandgenett, Harris, & Swan, 2011). The interrater reliability coefficient was reported as .802, internal consistency (Cronbach's Alpha) was .914, and test-retest reliability was 93.9% (Hofer et al., 2011).

Next, the teachers participated in semi-structured interviews using the TPACK Interview Protocol developed by Harris, Grandgenett, and Hofer (2012). The authors of the instrument tested the reliability of the instrument with teachers and teacher educators. Construct validity was examined using expert reviews, and face validity was tested using teacher responses to the survey. The rubric's internal consistency was determined using Cronbach's Alpha, resulting in .895 (Harris, Grandgenett, & Hofer, 2012). The questions,

detailed in Appendix N, required teachers to describe their lesson and answer questions about how and why they selected the technology they used for the given lesson.

The purpose of assessing special education teachers' TPACK through lesson plans, observations, and teacher interviews was to determine how they use instructional technology to meet the needs of their students with EBD. The data collected from the lesson plans, observations and teacher interviews provided a detailed understanding of the technological, pedagogical, and content knowledge choices these special education teachers made to provide thick, rich description to contribute to the case study. Triangulation of the data strengthened the cases (Merriam, 2009; Yin, 2014).

Data Collection Procedures

To collect the data described in the section above, Yin (2014) recommends four principles of data collection: using multiple sources of evidence, creating a case study database, maintaining a chain of evidence, and exercising care when using data from electronic sources. The triangulation of data in this study validated multiple sources of data addressing the case study's findings and strengthening the construct validity of the study. Multiple sources of evidence strengthened the case study data collection.

In addition to the actual case study report, a case study database was created (Yin, 2014). The database is an orderly compilation of the data from the case study to go beyond the narrative and include the documents and other materials from the field. Field notes from interviews, observations, and document analysis were organized by major topics within the case study database. These major topics included the three components of the School Culture Triage Survey (2006): professional collaboration, affiliative collegiality, and self-determination/efficacy, along with characteristics of school leaders

who support teachers with the integration of technology to serve students with EBD. Case study documents retrieved throughout the study were logged in a spreadsheet and placed in the database.

Using the third principle, maintaining a chain of evidence to increase the reliability of the case study, documents, interviews, and observations were referenced to support the findings (Yin, 2014). The data were supported with evidence connected to the circumstances (e.g., time, place) detailed in the data collection procedures. The researcher exercised care when using data from electronic sources that were shared electronically by the participants (Yin, 2014). All electronic documents were shared through Google Drive with necessary participants and graduate students assisting with data collection.

Using the four principles of data collection, document analysis, observation, focus group, interview, and survey data were compiled into an organized case study database. All data within the database was organized in folders and subfolders depending on the type of data collected. The database was housed on the researcher's hard drive, and a backup of the data are housed on an external hard drive. The following subsections describe the types of data collection methods and procedures for collecting data.

Document Analysis

A document to support the case study is similar to the data collected from interviews or observations (Yin, 2014). Lesson plans from the three teachers who are part of the embedded cases were analyzed. Teachers submitted their lesson plan at least one day prior to the observation of the same lesson, and the plan was assessed using the Technology Integration Assessment Rubric (Harris et al., 2010). To increase reliability and validity of the study, the researcher and a graduate assistant reviewed the lesson plan

and scored the plan using the Technology Integration Assessment Rubric (Harris et al., 2010). Once inter-rater reliability was established, the teacher's lesson plan was observed as part of a formal observation.

In addition, the staff development calendars from the last seven years were analyzed to collect evidence of school leaders supporting a culture where special education teachers using instructional technology with students with EBD. The staff development coordinator provided the staff development calendars to me through email. Each of the program coordinators also provided a PDF of their team meeting notes from this school year, yielding 16 to 17 document per program. These documents were reviewed, and a summary of any evidence related to teachers discussing technology use in the classroom was noted on the summary spreadsheet. The director of the school provided hard copies of the One Things Surveys from the last 17 years. These hard copies were converted to PDFs for electronic storage in the case study database. As a participant observer and member of the staff, I had access to the school handbook which was referenced in the school leader interviews. All of these documents were analyzed and logged in the case study database.

Observations

One of the advantages of conducting observations is being able to record information as it happens (Creswell, 2009), such as behaviors within a classroom. Although the selection of an observation protocol was intentionally selected to keep observations organized and focused, as recommended by Creswell (2009), there is also room for descriptive notes and other environmental factors. As a participant observer, it

is also important to make notes of the physical environment and how participants of the study interact with the environment (DeWalt & DeWalt, 2011).

Each lead classroom teacher participating in the study was observed instructing a math class three times. Given the observations occurred in an environment familiar to the researcher, the answers to the research questions were unveiled in a short period of time (Bernard, 2011). There were clear patterns within the observations on the Technology Integration Observation Instrument (Hofer et al., 2011) and additional observations were not needed to establish a consistent measure on the observation instrument.

Math classes were observed using the Technology Integration Observation Instrument (Hofer et al., 2011). This observation protocol provided open-ended fields for general observations within the categories of curriculum topics, key instructional strategies/learning activities, and digital and non-digital technologies and a specific rubric to assess teacher implementation of the lesson. Although the observation protocol provided fields for general observations, there was not enough space for general questions about the observation. I created an observation protocol addendum (see Appendix O) to provide a structured place for questions about the observations..

Before conducting the study, three graduate assistants completed inter-observer agreement training to practice using the instrument during observations. One graduate assistant was assigned to each of the cases and conducted all three observations throughout the study. For the inter-observer agreement training, the graduate assistants collaborated to operationally define each of the sections of the Technology Integration Observation Instrument (Hofer et al., 2011) and the Technology Integration Assessment Rubric (Harris et al., 2010). These operational definitions can be found in Appendix P

and Appendix Q. After analyzing six lesson plans and then observing in three classrooms that were not part of the primary cases, consistency (100%) among the researcher and the graduate assistants was reached and formal observations before the study began.

Interviews

In accordance with ethical research practices, a consent form was provided to participants before they agreed to participate in the study. Prior to each interview, participants were emailed a copy of their completed consent form. The consent form was orally reviewed at the beginning of each interview. Participants were made aware that their input would be used as part of a dissertation with the potential for their comments to be published in education journals. Pseudonyms were used to protect participant identities.

Aligned with qualitative study methodology, multiple sources of data were needed to conduct a comprehensive case study (Creswell, 2009; Creswell, 2013; Merriam, 2009). A semi-structured interview was conducted with each lead special education teacher from the three selected cases. The interview included a mixture of some structured questions and others that are more flexible (Merriam, 2009) using the questions from the TPACK Interview Protocol (Harris et al., 2012) as a guide. Additional questions that were generated based on the classroom observation were added to each protocol following the classroom observation to clarify classroom practices. These interviews were conducted in a conference room on the same day as the classroom observation. Each follow-up interview took between 17 and 30 minutes.

Interviews were conducted to gain insights into how teachers use instructional technology in their classrooms and their technological, pedagogical, content knowledge.

The design of the interview questions included open-ended questions where teachers could tell stories about their experiences within the classroom. The purpose of these questions was to give teachers the flexibility to provide information about their classroom and to divulge details of technology integration and support of school leaders in their form of a narrative.

School leaders also participated in semi-structured interviews. Each school leader participated individually in an interview to answer questions surrounding the items on the School Culture Triage Survey (Wagner, 2006) and the intentional decisions they make about how to support teachers who integrate technology. Each school leader interview, guided by the school leader interview protocol (see Appendix R), lasted between 53 and 75 minutes. Interviews took place in a conference room and were recorded using a Macbook Pro with the software Garage Band and an external microphone. A separate handheld audio recorder also recorded the interviews as a backup recording. These recordings were saved as MP3 files and uploaded to Rev, a transcription service, for transcription.

Survey

All teachers, administrators, and support staff from Centennial School were invited to complete the School Culture Triage Survey developed by Wagner (2006) at the beginning of December 2016. At the request of the author of the survey, Wagner, participants completed the survey using a paper and pencil. Wagner did not approve of his survey being transformed into an electronic survey because he feels it will cause participants to not provide honest responses (C. Wagner, personal communication, May

3, 2016). In addition, he did not consent to the results being aggregated by program.

Therefore, the results of the survey are only reported as a whole school.

Participants were asked to complete the survey immediately following a weekly

staff meeting. Before administering the survey, I orally described the purpose of the

survey and invited teachers to complete the short survey. Consent forms for teachers,

school leaders and support staff not already participating in the embedded cases or

primary case with focus groups or interviews were passed out to teachers. The consent

forms were handed to me in direct exchange for a copy of the survey to complete.

Participation in the survey was voluntary and adhered to ethical research practices. When

participants completed the survey, they handed it to a graduate assistant who placed it

into a manila envelope. This envelope was kept with the researcher or in a locked filing

cabinet at all times. The results of the survey were calculated as a whole school to

establish the primary case of school culture.

Focus Groups

The focus groups for teachers were conducted as the final stage of the study. In

groups of five to eight teachers (Krueger & Casey, 2015), participants engaged in an open

discussion about school culture and how the school leadership team supports a culture for

technology integration. School leaders were not present during the focus groups. To

protect the rights of participants, all participants were given a consent form,

confidentiality agreement, and outline of expectations as a focus group participant.

Teachers participated in focus groups to confirm or deny the evidence school

leaders bring forth in their interviews about supporting teachers who integrate

technology. The focus groups lasted approximately one hour. The teacher focus groups

took place in a conference room where teachers sat around a large table with a microphone in the center of the table. The interviews were recorded using a Macbook Pro with the software Garage Band and an external omnidirectional microphone that recorded the voices of all participants. Each participant was given a pseudonym that was placed as a name tag tent in front of them throughout the focus group. Participants were directed to refer to each other using the pseudonym to ensure the protection of their identities throughout the transcription process. A separate handheld audio recorder also recorded the interviews as a backup recording. These recordings were saved as MP3 files and uploaded to Rev for transcription.

Data Organization

Organizing and documenting case study documents through a case study database is critical to the organization of the cases (Yin, 2014). This orderly compilation of data serves as an electronic or physical space where all evidence from the case can reside. These electronic and physical documents were organized in a way that someone else could logically follow the organization of the data. With an organized case study database in place, the reliability of the entire case study increases (Yin, 2014). The interview transcripts, observation data, document analysis, survey data, field notes and researcher memos were organized into a case study database for others to retrieve if necessary. Following the data collection, the case study database was used during data analysis for triangulation of the data sources.

While conducting this case study, I maintained a case study database of hard copies of materials and digital materials. The hard copies of materials were stored in a three ring binder with five dividers. The dividers were labeled forms, focus groups,

elementary, middle and high. The forms divider contained master copies of all of the consent forms for each group. The focus groups divider contained the paper copies of the focus group sign-ups. The elementary, middle, and high school dividers contained all of the lesson plans, rubrics, and observation protocols from the graduate students collecting data to establish inter-observer agreement and myself. Each school program was assigned a color, and all of the materials (e.g., lesson plans, observation protocols, consent forms) for that program were copied on that color paper for easy retrieval of the materials. At the front of the three ring binder was a sticker listing all of the color paper codes.

All digital materials including interview transcripts, copies of observation protocols, master copies of all consent forms, and master copies of the survey were all housed in an electronic data collection folder. The subfolders within the main data collection folder included a folder for document analysis, elementary school case, middle school case, high school case, school leader interview transcriptions, and the School Culture Triage Survey. Inside of the document analysis folder was subfolders for each of the programs team meeting notes from this year, the school-wide One Things surveys from the last 17 years, and the staff development calendars for the last seven years. Within each of the subfolders for the school cases was a subfolder for each lesson; in this folder was a copy of the lesson plan, observation protocol, corresponding interview transcription, and a PDF of all of the hard copies of the observation protocols.

Interview data. All of the interview recordings were housed on an external hard drive dedicated to the case study. The audio files were created in Garage Band and named by the program name, the lesson number, and the date (e.g., Elementary_1_12/10/16). After the original files had been created, they were exported to a sub-folder labeled "To

Rev" in a mp3 format. These files were uploaded to a transcription service, Rev. Once the transcription files were completed and retrieved, they were moved to the subfolders for the school cases on the main hard drive of my computer. A copy of the interview audio was also saved to the Google Drive folder with the same organization outlined above.

Observation data. The observation data from the lessons observed was located in the three ring binder for each school case. The cases each had a dedicated color, and all materials for the cases were printed in the designated color. In the upper right-hand corner of each paper was the number observation and in the lower right-hand corner was the initials of myself or the graduate student data collector. The three ring binder was kept with me at all times throughout the data collection period. When I was in my classroom teaching, it was stored in a locked filing cabinet.

Document data. The documents for the document analysis were stored in the digital document analysis folder and subfolders based on the type of document. These digital subfolders included Elementary School Team Meeting Notes, Middle School Team Meeting Notes, High School Team Meeting Notes, One Things Surveys, Staff Development Calendars, and the School Handbook. Also in this digital folder was a spreadsheet with a sheet for each of the subfolders. On each sheet is a brief description of the document, who provided the document, date files were retrieved, date it was analyzed, how it was analyzed, and a summary of the findings.

Participant information. A digital subfolder for participant information was created to keep track of all participant demographics and consent forms. There were two digital subfolders for participant information. In one digital subfolder there was a spreadsheet where each sheet is a different category of participants: school leaders, lead

teachers and focus group teachers. In the other digital subfolder there was a folder of consent forms and subfolders for each of the categories of participants: school leaders, lead teachers, focus groups, and all staff. Within each of these folders is a signed copy of the consent form.

Data Collection Summary

Preparation for the study began in October 2016 with obtaining approval for the study to be conducted at Centennial School. Data collection began in November 2016 and continued through January 2017. Throughout the data collection process, I wrote field notes immediately following an observation or interview (Merriam, 2009; Yin, 2014). Following each day of data collection, I wrote a detailed researcher memo describing my perceptions of what I observed and insights gained through interviews to reveal any potential biases during the data collection process. The content described in Figure 3.3 summarizes the data collection process.

Figure 3.3. Data Collection Process

Obtain School Letter of Approval

Train Graduate Student Data Collectors

Classroom Observations

Lead Teacher Interviews

School Leader Interviews

Teacher Focus Groups

Document Review

October 2016   November 2016   December 2016   January 2017
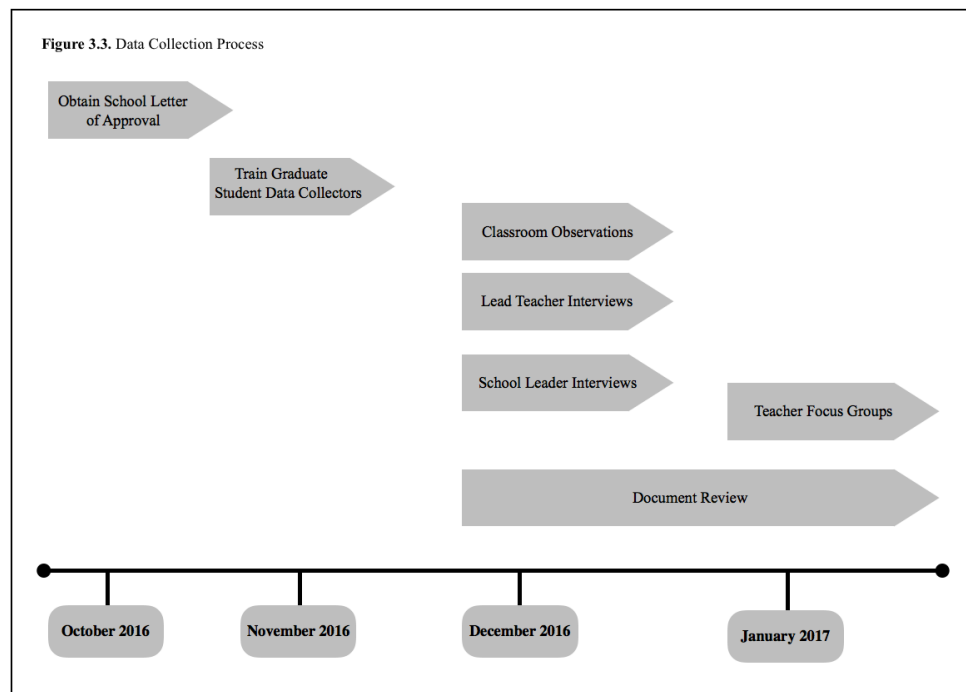
Figure 3.3. Data collection process

Data Analysis

After the data collection for the primary and embedded cases had been completed,

an individual case report was written. The summary report included information from the

embedded cases and the primary case results (Yin, 2014). The primary case on school

culture included how the conceptual framework was represented or not represented by the

data collected in the study. For the embedded cases, the report detailed how and why the

proposed theory of TPACK was demonstrated or not demonstrated. The summary across

cases included the replication logic and why the cases were predicted to have similar

results (Yin, 2014).

The study design of embedded cases allowed for a cross-case synthesis. To

conduct the cross-case synthesis and the construction of the primary cases, the data were

analyzed using typological analysis. This approach was identified as the most appropriate

because the data from the document analysis, interviews, focus groups, and observations

easily fit into several categories. These initial categories included TPACK, Technology

Integration, School Culture, and School Leaders. Following this approach, the first step

was to "identify typologies to be analyzed" (Hatch, 2002, p. 152). Quotes related to each

category were selected from the interview transcripts, focus group transcripts, lesson

plans, and document analysis. The quotes were coded using NVivo. If a quote fell into

more than one category, it was indicated coded across all appropriate categories.

The second step of typological analysis was to "read the data, marking entries

related to your typologies" (Hatch, 2002, p. 153). All interview, focus group, observation

and document analysis summaries were re-read by typology. Following the third step of

the typological analysis, the main ideas from the entries according to each typology were recorded onto a summary sheet (Hatch, 2002). The summary sheets were created in a spreadsheet with each of the four primary categories on a separate sheet. Each sheet included a table with the informant's name in the left column and the summary according to that typology in the subsequent column. Within these summaries, patterns and relationships in the data were identified and coded using NVivo software. The data were read through repeatedly to look for patterns, confirming these patterns with the data. Relationships among the patterns were identified across the cases as sub-categories. These patterns were written as one sentence generalizations.

Using the patterns, the data were re-read by typology and coded by the associated pattern. Relationships among the patterns were identified within the data. The data from the patterns were written as one-sentence generalizations. Data excerpts and direct quotes were selected to support the generalizations and form the case narratives. Following the development of primary and embedded cases, themes were revealed to generate a cross-case synthesis.

In addition to the qualitative data, some quantitative data was collected from the School Culture Triage Survey, Technology Integration Assessment Rubric, and Technology Integration Observation Instrument. The data from these measures strengthens the overall study by adding a quantifiable component to the data. The data from the School Culture Triage Survey, Technology Integration Assessment Rubric, and Technology Integration Observation Instrument was incorporated into the primary and embedded case reports. The following section describes the role of the researcher and how the data collection and analysis procedures were implemented with fidelity.

Role of the Researcher

One way to investigate school culture is to engage in participant observation to gather data about a school community (Roach & Kratochwill, 2004). For this study, the researchers' role was a participant observer. The unique, yet challenging opportunity to study in her work environment posed threats to the validity of the case study. Some opportunities that arise as a participant observer include access to first-hand information, obtaining rich, thick descriptions of the environment, access to contrasting what people say they do versus what they do, and contextualizing what is observed (Garson, 2014). Challenges to participant observation are the threat of bias due to researcher subjectivity, access to information depending on trust, reactivity, and time (Garson, 2014).

The following sections address these opportunities and challenges through defining participant observation, identifying the role of the participant observer, objectivity, reliability, subjectivity, and ethical challenges. Spradley (1980) offers different types of participant observation: nonparticipation, passive participation, moderate participation, active participation, and complete participation. Complete observation occurs when the researcher is fully involved as an ordinary participant (Spradley, 1980).

Role of the Participant Observer

As a participant observer, the researcher entered the research setting with a clear understanding of the conceptual framework informing the study (DeWalt & DeWalt, 2011). In addition, details were attended to by viewing the larger picture within an observation while noting the physical arrangement of space, how people interact with space, the words people use, and the nonverbal interactions among participants (DeWalt

& DeWalt, 2011). These notes took the form of a physical map and detailed narratives in field notes. The number of people that were engaging in a specific activity and differences in the characteristics of people was counted. These details were translated into detailed narratives which added to the depth of the cases that were developed.

Following an observation, a field note was written (Merriam, 2009). The field note began with the time, place, and purpose of the observation. Information about participants such as the number of people, categories of people, and where they were placed within the physical setting were also part of the field notes. The field notes included a reflective component with a column designated for comments next to the field note narrative (Merriam, 2009). These non-factual comments about the setting, people, and activities included reactions and speculations (Merriam, 2009).

Objectivity and Reliability

As a complete participant observer in an environment where I have worked for the last seven years, it was not possible to disregard experiences at the research site. However, my experiences, opinions, and values are presented in the most objective research study possible (Bernard, 2011). I maintained objectivity by being able to switch back and forth between the insiders' perspective and the research perspective (Jorgensen, 1989). I also talked to another scholar about field experiences after observations (Jorgensen, 1989).

Multiple sources of evidence and a chain of evidence were generated to increase the reliability of the study (Yin, 2014). Documents associated with the study and references to these documents from focus groups and interviews are part of the case study

narrative to reveal the transparency of the researcher. Detailed field notes, a clear chain of evidence, and an organized case study database contributed to the reliability of the study.

Subjectivity

Triangulation of data is one way to anticipate and alleviate the issue of subjectivity (Garson, 2014). To reduce bias, more than one researcher conducted observations and evaluated lessons, multiple data sources were called on to cross-validate observer field notes, and multiple methods were used to conduct the study (Garson, 2014). In addition, graduate assistants also collected data. The graduate assistants were not participant observers and are new to the research site as of this school year.

Addressing Ethical Challenges

After informed consent was obtained from participants, the participant observation study was considered ethical (DeWalt & DeWalt, 2011; Garson, 2014). The subjects understood they were being observed a fellow teacher as I revealed my role as a researcher. All reports, field notes, and other observation notes preserved the anonymity of the participants by using generic references to participants instead of revealing specific information about their role in the community that might otherwise reveal the participant (DeWalt & DeWalt, 2011; Garson, 2014). To screen for reporting errors, participants were asked to read through the narrative and provide feedback and criticism of the draft (Garson, 2014) through member checks.

Teachers who participated in classroom observations and interviews were asked to complete a fact check and screen for reporting errors before the publication of the dissertation. They also had an opportunity to read, ask questions, and provide feedback if

they feel a situation was misinterpreted. School leaders also conducted fact checks on their school leader profiles.

Summary

The purpose of the study was to examine the role of leadership and school culture on the integration of technology to support instruction for students with EBD. There are limited studies to support the integration of technology with students with EBD (Cumming, 2013; Fitzgerald, 2005). Furthermore, there are no studies to explain how school leaders support a school culture where teachers use instructional technology to meet the needs of students with EBD. Given the new territory of the subject in this study including teachers using technology with students with EBD and school leaders supporting a school culture where teachers integrate technology with students with EBD, an in-depth case study is appropriate (Yin, 2014).

The embedded case studies as part of a primary case study were employed for the study design. The research questions were answered through document analysis, observations, interviews, a survey and focus groups. Participants for the study were purposely selected by the program coordinators based on a set of specific criteria. Following the collection of all of the data, typological analysis was conducted to identify themes among the data. From these data, individual case narratives were developed in addition to the primary school culture case. A cross-synthesis combined the results of the embedded cases.

As a participant observer, precautions were taken to address the threats to validity. I made my role as a participant observer clear to all members of the staff (DeWalt & DeWalt, 2011), wrote detailed field notes (DeWalt & DeWalt, 2011; Merriam, 2009),

engaged in active listening (DeWalt & DeWalt, 2011; Yin, 2014), and remained focused on the original goals of the study (Yin, 2014). In addition, I remained transparent as a researcher (Trainor & Graue, 2014) and kept an organized case study database (Yin, 2014) to conduct this study. The following chapter presents the findings from the data collection and analysis. The themes from the analysis are framed by the research questions.

CHAPTER IV

FINDINGS

Introduction

The purpose of this multiple embedded case study was to examine the role of

leadership and school culture on the integration of technology to support instruction for

students with EBD. The study involved leaders and instructional staff. Qualitative data

were analyzed using typological analysis. NVivo was used to code the interview and

focus group transcripts and lesson plans. Quantitative data were analyzed using

descriptive statistics. SPSS was used to compute the statistics. The following chapter

presents findings from the primary case of school leaders who support a culture where

teachers integrate technology and embedded cases of teachers who integrate technology

to engage students, guided by two research questions: (1) how does the school leadership

team support a culture for technology integration within classrooms? and (2) how are

lead special education teachers integrating technology to engage students with EBD in

classroom instruction?

Participants

School Leadership

The primary case for this study was Centennial School of Lehigh University. As

the first step in the analysis process, school leader profiles were developed to demonstrate

the ways in which school leaders support a culture for technology integration within

classrooms. School leaders in this study included the school's associate director and

program coordinators at the elementary, middle, and high school levels. The director of

the school was excluded from the study as he was a member of the researcher's dissertation committee.

All school leaders are part of an administrative group, known as the EAGLES (Educators Affecting the Growth and Learning of Every Student) team. This group meets on a weekly basis, and as needed throughout the week. Profiles for each of the five school leaders participating in this study are presented and include a description of each leader, their role in the school, and previous educational roles. Pseudonyms are used to protect participants and were randomly assigned a number (Leader 1 – Leader 4) which are used when presenting findings from individual interviews for attribution.

Gina. The associate director, Gina, has been in her current role for two years. Before this, Gina served on the administrative team as a school psychologist and elementary program coordinator. She was the director for the partial hospitalization program from 2000 to 2004. With 21 years of experience, Gina has the most leadership experience among study participants. Gina brings a history of the school and changes that have occurred over time to the study, including what she described as a significant leadership and culture change 17 years ago with the hiring of a new director.

Katryna. Katryna has served as the elementary program coordinator for the past 11 years. Before this leadership role, she served as the middle school program coordinator for one year. Katryna has six years of teaching experience, including one year of teaching in a public school, two years as a teacher associate in the elementary program, and three years as a lead teacher in the elementary program at Centennial School.

Clara. Clara, the middle school program coordinator, has served in the capacity of program coordinator for the last six years. Before becoming a program coordinator, she taught in the life skills program for two years as a teacher intern and served as a lead teacher in the middle school program for two years at Centennial School.

Alice. The high school program coordinator, Alice, has led the high school program for the last seven years. Before her leadership role, she was a teacher intern for two years and a lead teacher for two years in the high school program at Centennial School.

Teachers

The embedded cases for this study were elementary, middle and high school math classes at Centennial School. As the first step in the analysis process, teacher profiles were created to provide demographic information and an overview of the students in each teacher's class. Teachers for the embedded cases were selected by school leaders based on the criteria outlined in Chapter 3.

Evelyn. Evelyn is a lead special education teacher in the elementary program at Centennial School of Lehigh University. She has been teaching as a certified special education teacher at Centennial School for the last six years. Before this, she taught emotional support in a public school for one year and as a teacher associate at Centennial School for two years. Her classroom, serving students in grades three and four, is one of three elementary classrooms. Evelyn received her B.A. in Fine Arts, Music Performance and her M.Ed. in Special Education. For this embedded case, Evelyn's math class was observed. In her math class, she provides small group instruction to two third-grade male students who receive instruction on the third-grade level.

Richard. Richard is a lead special education teacher in the middle school program at Centennial School. He has been teaching as a certified special education teacher at Centennial School for the last six years. Before this, he was a teacher associate in the elementary program for two years. Richard received his B.S. in Psychology and his M.Ed. in Special Education. Richard's middle school math class is one of three classrooms in the middle school program. His classroom serves students in grades six through eight. However, his math group includes two male seventh grade students and one male sixth grade student. The seventh-grade students are instructed on their grade level and the sixth grade student is instructed a year above his grade level. Richard teaches using a Pre-Algebra curriculum.

Jean. Jean is a lead special education teacher in the high school program at Centennial School. She has been teaching as a certified special education teacher at Centennial School for the last ten years. Jean's classroom is one of five high school classrooms at Centennial School. Jean has her B.S. in Elementary and Special Education and her M.Ed. in Special Education. For this embedded case, Jean's math class was observed. She teaches students who are instructed with the Algebra 2 curriculum. The ten students in her math class are in grades nine through eleven. Jean provides whole group instruction to the group of 10 students.

As part of the primary case, teachers participated in focus groups. Table 4.1 presents teacher focus group demographics.

Table 4.1

Focus Group Demographics

Program	Lead Teachers	Teachers working towards a Master's Degree in Special Education	Support Staff	Total Per Program
Elementary	1	4		5
Middle	2	2		4
High	5	0		5
Across Programs			2	2
Total Participants				**16**

Similar to leaders, each teacher participating in the study was assigned a random number (Teacher 1 – Teacher 16) to support attribution of findings from the focus group interviews.

School Culture

The School Culture Triage Survey (Wagner, 2006) was used to explore the overall culture of Centennial School. A total of the 37 eligible (100%) of teachers, instructional support staff, and school leaders at the school completed the survey. Individual items on the survey are scored on a scale of one to five, with one representing never and five representing always or almost always. The total score on the survey can range from 17 to 85. According to Wagner (2006), total scores of 17-40 indicate "critical and immediate attention necessary," 41-59 show "modifications and improvements are necessary," 60-75 suggests administrators should "monitor and maintain making positive adjustments" and a 76-85 is "amazing" (p. 43). Wagner (2006) reports he has "never had a score higher than 75" (p. 43). For Centennial School, total scores ranged from 63 to 85 (Figure 4.1). Means, standard deviations, and ranges by item, category, and overall are presented in Table 4.2. Across the surveys, 86% of the total responses were at or above the highest score reported.
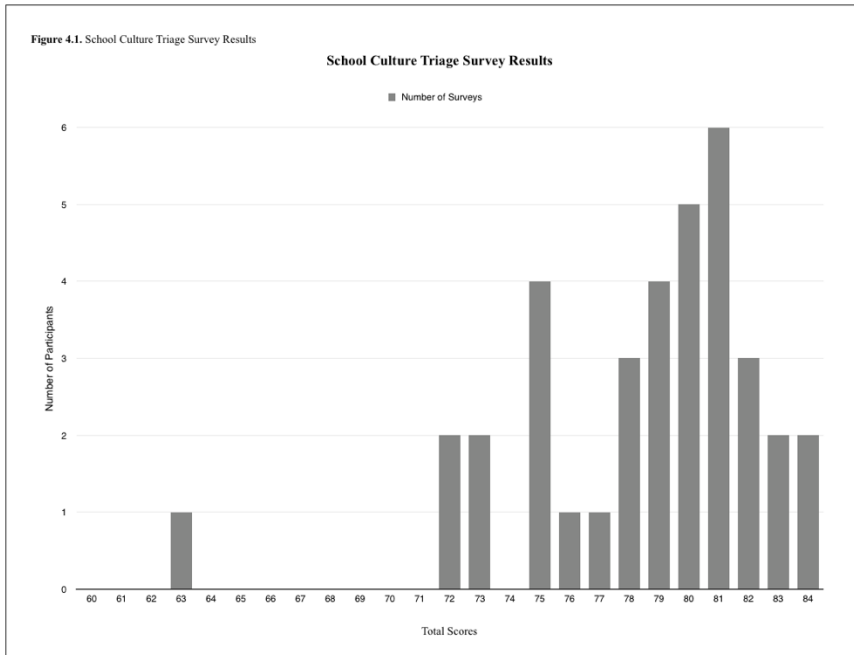
Figure 4.1. School Culture Triage Survey Results

Table 4.2 (continued)

School Culture Triage Survey Results

	n	M (SD)[1]	Range
Professional Collaboration		**4.46 (.64)**	
Teachers and staff discuss instructional strategies and curriculum issues.	37	4.67 (.47)	4-5
Teachers and staff work together to develop the school schedule.	37	4.21 (.75)	2-5
Teachers and staff are involved in the decision-making process with regard to materials and resources.	37	4.59 (.49)	4-5
The student behavior code is a result of collaboration and consensus among staff.	36	4.83 (.44)	3-5
The planning and organizational time allotted to teachers and staff is used to plan as collective units/teams rather than as separate individuals.	37	4.02 (.64)	3-5
Affiliative Collegiality		**4.71 (.51)**	
Teachers and staff tell stories of celebrations that support the school's values.	37	4.83 (.37)	4-5
Teachers and staff visit/talk/meet outside of the school to enjoy each others' company.	37	4.18 (.70)	2-5
Our school reflects a true "sense" of community.	37	4.86 (.41)	3-5
Our school schedule reflects frequent communication opportunities for teachers and staff.	37	4.67 (.47)	4-5
Our school supports and appreciates the sharing of new ideas by members of our school.	37	4.78 (.41)	4-5
There is a rich and robust tradition of rituals and celebrations including holidays, special events, and recognition of goal attainment.	37	4.91 (.27)	4-5
Self Determination/Efficacy		**4.63 (.56)**	
When something is not working in our school, the faculty and staff predict and prevent rather than react and repair.	37	4.45 (.64)	3-5
School members are interdependent and value each other.	37	4.75 (.43)	4-5
Members of our school community seek alternatives to problems/issues rather than repeating what we have always done.	37	4.64 (.58)	3-5
Members of our school community seek to define the problem/issue rather than blame others.	37	4.70 (.51)	3-5
The school staff is empowered to make instructional decisions rather than waiting for supervisors to tell them what to do.	37	4.32 (.66)	3-5
People work here because they enjoy and choose to be here.	37	4.91 (.27)	4-5
Total		4.61 (.58)	

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[1] Rating: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always or Almost Always (Wagner, 2006, p. 43)

The three primary categories of the survey are professional collaboration, affiliative collegiality, and self-determination/efficacy. The highest and lowest means as outlined in Table 4.2 from each category are presented. The professional collaboration category of the survey included five items focused on how teachers and school leaders collaborate to meet the mission of the school. Mean scores ranged from 4.02 (SD = .64) in *planning and organizational time* to 4.83 (SD = .44) for *student behavior code.* The affiliative collegiality category of the survey included six items related to how staff members collaborate and celebrate success. Mean scores from this category ranged from 4.18 (SD = .70) in *staff meeting outside of school* to 4.91 (SD = .27) in *rich and robust traditions of rituals and celebrations*. The self-determination/efficacy category of the survey included six items around how staff members respond to problems within the school and the overall school community. Mean scores ranged from 4.32 (SD = .66) in *school staff making instructional decisions* to 4.91 (SD = .27) for *people enjoying and choosing to work at the school.* The results of the School Culture Triage Survey (Wagner, 2006) were used to develop interview and focus group questions with school leaders and teachers.

Teacher Integration of Technology

Classrooms at the elementary, middle and high school levels at Centennial School of Lehigh University served as embedded cases for this study. These embedded cases were designed to address the research question, *how are lead special education teachers integrating technology to engage students with EBD in classroom instruction*? Each teacher who participated in the embedded cases provided three written lesson plans. These plans were reviewed, after which lessons were observed in the classroom setting.

To start the process, written lesson plans submitted by each teacher were assessed using the Technology Integration Assessment Rubric (TIAR: Harris et al., 2010) (See Appendix E). The lesson plan assessments were designed to provide information on how the teachers explicitly planned for the integration of technology to engage students with EBD. This was followed by classroom observations to assess the implementation of lessons in the classroom using the Technology Integration Observation Instrument (TIOI: Hofer et al., 2011) (See Appendix F). Criterion within both the TIAR and the TIOI were scored using a scale of one to four. Table 4.3 presents the results of these assessments across all the embedded cases.

Table 4.3

Special Education Teacher Technology Integration Assessment Results

| | Embedded Case Teacher Assessment Results | | | |
| | Written | | Observed | |
n = 9	M (SD)	Range	M (SD)	Range
Curriculum Goals & Technologies	4 (.0)	4	4 (.0)	4
Instructional Strategies & Technologies	4 (.0)	4	4 (.0)	4
Technology Selection (s)	4 (.0)	4	4 (.0)	4
"Fit"	4 (.0)	4	4 (.0)	4
Instructional Use	N/A		2.33 (1.32)	1-4
Technology Logistics	N/A		3.5 (.72)	2-4

As indicated in Table 4.3, Evelyn, Richard, and Jean's scores on the TIAR (Harris et al., 2010), were aligned and there was no variance. These teachers consistently scored the maximum number of points on their written lesson plans. Specifically, in the area of curriculum goals and technology, teachers planned lessons where the technologies selected were they were strongly aligned with the curriculum goals. The teachers planned

lessons to integrate technology and optimally support instructional strategies. The technology selections were exemplary according to the authors of the measure with consideration to the curriculum goals and instructional strategies. Furthermore, the teachers planned lessons where the content, instructional strategies, and technology fit together strongly within the instructional plan. Across the embedded cases, teacher lesson plans indicated planning for the integration of technology in their classroom lessons. Observations confirmed teachers planned to integrate technology.

Scores on the TIOI (Hofer et al., 2011) were inconsistent among the teachers. In the categories of *instructional use* and *technology logistics*, there was variance. In the category of *instructional use*, one teacher scored the maximum number of points (4) on all three lessons and the other two teachers scored between one to two points on the three observed lessons. These data indicate one teacher's use of instructional technology was effective in assisting students to meet the lesson objective; in two of the teachers' lessons, the technology was not effective in assisting students to meet their lesson objectives.

The category of *technology logistic*s also yielded variance among the teachers. One teacher scored the maximum number of points (4) and the other two teachers had a mean score of 3.33 in the category of technology logistics (M = 3.33). The standard deviations (SD = .57; SD = 1.15) were different across the observed lessons. Based on the TIOI (Hofer et al., 2011) rubric, these data indicate teachers and students operated technologies well or adequately in the observed lessons.

Linking School Culture with the Integration of Technology at Centennial School

In the next phase of the study, data were collected through school leader interviews, teacher interviews, teacher and support staff focus groups, and document

analysis. These data were used to further explore the connections between the culture at Centennial School and the integration of technology to support classroom instruction. Following the deployment of the School Culture Triage Survey (Wagner, 2006), school leaders participated in interviews to understand how they support a culture where teachers integrate technology. Teachers and support staff participated in focus groups to explore their perceptions of the school culture and leader behavior to support technology integration. Further, teachers participating in the embedded cases were interviewed using the TPACK Interview Protocol (Harris et al., 2012) (See Appendix G) following each classroom observation to further elucidate the ways in which the integration of technology was occurring at the classroom level within the school.

School Culture

Overall, teachers and leaders at Centennial School described the school culture as "positive," "welcoming," and "supportive." Using the nine elements of school culture presented in Chapter 2 (see Table 2.1) as a framework, Table 4.4 presents an overview of each element and evidence found to support the existence of these elements at Centennial School.

Table 4.4 (continued)

Centennial School Aligned Elements of School Culture

Element	Sample Evidence
Collegiality (Saphire & King, 1985)	Teachers meet with one another informally to share instructional ideas. When a teacher needs assistance, other teachers offer to help.
Specialized language (Bolman & Deal, 2013; Schein, 2010)	Staff members operationally define school-wide expectations in every area of the school. Teachers use "teacher talk" to engage in conversations with students.

Stories (Bolman & Deal, 2013; Hoy & Miskel, 2001; Owens, 2004)	Staff members celebrate student success at weekly staff meetings. Lead teachers share advice with incoming teachers at the annual kickoff breakfast.
Humor and play (Bolman & Deal, 2013; Saphire & King, 1985)	Staff members are invited to engage in Secret Santa during the holiday season.
Ritual and ceremony (Barth, 2002; Bolman & Deal, 2013; Owens, 2004; Saphire & King, 1985)	Students, parents, and staff engage in events designed to bring the school community together. See Table 4.5.
Espoused beliefs and values (Barth, 2002; Fullan, 2005; Hoy & Miskel, 2001; Owens, 2004; Schein, 2010; Weller & Weller, 2002)	School leaders and teachers believe students should learn in a positive environment. See Table 4.6 for the specific beliefs about students and staff.
Underlying assumptions (Hoy & Miskel, 2001; Schein, 2010; Weller & Weller, 2002)	Staff members are trained to follow the school handbook which clearly outlines expectations for staff and students.
Observed behavior (Barth, 2002; Schein, 2010)	School leaders spend time in classrooms providing feedback to teachers. School leaders and teachers engage in positive conversations. Staff members greet each other upon making eye contact in the hallways.
Technology (Schein, 2010)	School leaders and teachers use technology to communicate with each other and to document student progress. Teachers use technology as a way to actively engage their students.

The following subsections present each elements and the findings to support those elements.

Collegiality. Collegiality is the interactions between staff members and how they work together to accomplish common goals (Saphire & King, 1985). According to school leaders and teachers at Centennial School, teachers meet formally and informally

throughout the day to collaborate. All school leaders discussed mutual times throughout the day where teachers *could* plan their lessons. For example, they explained regular planning times were reported as 7:30 a.m. to 7:45 a.m. every day and 2:45 p.m. to 3:30 p.m. on Tuesdays, Thursdays, and Fridays.

Teachers use various times to plan their lessons, including before (Teacher 15) or after school (Teachers 2, 9), in the evenings (Teachers 5, 9, 11, 13, 12) or on the weekend (Teachers 1, 3, 12, 13,14). While they acknowledged built-in times of the day where they have prep periods (Teachers 1, 3, 6), few teachers report using this time for planning. For example, middle and high school teachers often have prep periods aligned with teachers who teach common subject areas. Teachers explained that school leaders "might design it [prep schedule] so that we have our preps at the same time, to allow that kind of collaboration" (Teacher 15). At the high school level, teachers reported they meet after school on a quarterly basis to co-plan for the content areas of biology and social studies. Teachers suggested "there's other opportunities, after student dismissal" (Teacher 14) where they can co-plan with other teachers. Although leaders indicated some teachers have common planning times during the day, teachers did not report these times as being regularly used for co-planning.

There are other formal weekly opportunities for teachers to gather to support planning and organization. These included team meetings, staff development, and committee meetings. At team meetings, leaders guide teachers in discussing instructional strategies and sharing updates on student progress (Leaders 1-4). Staff development sessions are designed to provide instructional strategies for teachers (Leaders 1-4).

Teachers and leaders from different programs collaborate to form committees which plan special events in the school (Leaders 1, 4; Teachers 3, 5, 10, 11, 14, 16, 25).

Teachers confirmed reports from leaders that collaboration occurred during other formally designated times such as team meetings, staff development, or committee meetings. Of these three designated times, teachers highlighted their work in committees (Teachers 3, 11). For example, committee work was seen by many teachers as a time that "enables me to work with people that are in elementary and high school that I don't get to work with every day, and just form a positive rapport with them as well" (Teacher 11). In addition, teachers reported that "a lot of our committees tie into the school culture" (Teacher 9), and went on to describe how the special events designed for parents, students, and teachers rely on teachers working together to plan these events.

Although teachers acknowledged formal opportunities to collaborate with other teachers, they also discussed informal opportunities where they share instructional ideas with their colleagues. These times reportedly included before and after school in the hallways, in coordinator's offices, and in other classrooms. Teachers are aware of the content areas each other teach. For example, Teacher 12 indicated that as she finds lesson resources online, she emails these resources to her colleagues or visits their classrooms to share. Leaders mentioned teachers share ideas informally. However, they did not offer information about the frequency or location of these opportunities.

Specialized language. Specialized language refers to words and phrases members of a culture use that are unique to the environment (Bolman & Deal, 2013; Schein, 2010). Teachers and leaders at Centennial use a similar language to operationally define the

school-wide expectations to students. These expectations were in evidence across lesson plans assessed, and in the observation of these lessons, and included:

1. Be There, Be Ready.

2. Be Responsible.

3. Be Respectful.

4. Keep Hands and Feet Safe/Use Materials Appropriately

5. Follow Directions

At the elementary level, Evelyn stated the expectations at the beginning of the class period. When the activity changed, she re-stated the activity-specific expectations. Whereas in the middle and high school classrooms, Richard and Jean called on students to state the expectations at the start of class. One school leader referred to this as "teacher talk" saying "you go from room to room and hear that same language" (Leader 4). She further described Centennial School as a "unique group of people with the same mission that use the same language in order to fulfill that mission."

This common, specialized language ties into the school-wide positive behavior support system:

> There is a common language that needs to be used. It is used. There's no other way to speak. We have operational definitions for all of these expectations in every single area of the building and that's the way we teach students. It's how we teach our teachers to teach students, and it is the way of life here (Leader 4).

Another school leader (Leader 2) pointed out the positive, supportive language teachers use when talking to students. Teachers are taught how to speak this specialized language with clear expectations through staff development training and mentoring sessions with

school leaders. This was confirmed by teachers who indicated the positive language and way of speaking even transferred into their personal lives becoming "a way of life" (Teachers 1, 2, 3, 11).

Stories. Stories are events that are seminal to an organization and are passed on to new members of the organization (Bolman & Deal, 2013; Hoy & Miskel, 2001; Owens, 2004). Leaders described how staff members share stories of student and personal success at Wednesday staff meetings and the beginning of weekly team meetings (Leaders 1-4). When these stories of student success are offered at staff meetings, "it's helpful [again] when people see that things work, they're more driven to it" (Leader 1). She continued, "it's a nice reminder to older teachers of 'this is why you do this,' 'this is why you come here each day' and 'this is the rewarding part of it [working hard].'" At the beginning of the year, veteran teachers model to new staff how to share positive statements. There is a transition from experienced staff to first-year teachers sharing positive comments:

> I think it's one of my proud moments when I see one of my first-year teachers in a faculty meeting raise their hand to give a nice, positive update about something, and it's really neat. It's 'wow, they caught onto that.' They caught onto what we're all about. It is us. It is Centennial. It's our beautiful climate. It's the culture that we've developed here. How does it happen? Quite naturally, like everything else. We get to train less and less each year because people look around and see the way that it [the school culture] is and acclimate themselves to that. There isn't room for anything else (Leader 4).

Leaders feel this weekly ritual helps show new teachers that the staff members have confidence that students will improve. Specifically, "our culture prohibits the use of stories that are meant to tear down students or demean students or scare teachers about what their past behaviors have looked like" (Leader 3). She further explained, teachers talk about past student behaviors, however, "it's not part of our culture to share what we call 'war stories.' We don't pass those on from teacher to teacher" (Leader 3).

Teachers echoed these sentiments. In addition to the positive statements at weekly staff meetings, teachers shared information about informal times where student success is recognized. In these stories, student success is shared through conversations with colleagues in the hallways, during weekly parent phone calls, and occasionally through a team email or text message. Teachers described these informal times as "fun" with Teachers 7 and 11 recalling a recent time where teachers danced in the hallway in response to student success.

Humor and play. Humor and play is when members of the organization are engaged in joking and playful conversations in the work environment (Bolman & Deal, 2013; Saphier & King, 1985). Events for teachers, students, and parents were evident throughout the school calendar. One event teachers and leaders alike referenced was a staff game of Secret Santa during the holiday season. During the game, "staff members are randomly assigned another staff member to give three small gifts and then a large gift at our faculty meeting before the holiday break" (Leader 2).

Teachers described the importance of these events in helping to keep the environment positive. Particularly, the Secret Santa game was seen as one-way staff members "just have fun, so it makes us throw out the stress of being a teacher and those

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duties that we have. It brings some enlightenment and fun into our job" (Teacher 1).

Other teachers described events that have become rituals involving parents and students.

For example, Teacher 1 discussed the annual talent show and carnival, explaining

"everybody in the school has a little part in completing the big picture." The purpose is

deeper than staff members collaborating to plan the event, "They [special events] bring

parents here. They build connections with parents and teachers. They're tied into students

being reinforced" (Teacher 16).

Teachers also referenced collegial relationships with their teaching partners and

described unplanned "fun" moments that happen by virtue of working closely with other

teachers. One teacher described the atmosphere as "professional, but it's also very laid

back" (Teacher 2). Teachers celebrate in the hallways after student leave by dancing,

singing, and laughing (Teachers 1, 7, 11, 15). The "fun" environment working with

students with EBD is "challenging at times, but it never feels impossible" (Teacher 8).

Ritual and ceremony. The rituals and ceremonies within an organization

represent expressive occasions that define symbolic behavior in the organization (Barth,

2002; Bolman & Deal, 2013; Owens, 2004; Saphier & King, 1985). Teachers and school

leaders described formal rituals and celebrations including holidays, special events, and

recognition of goal attainment. Some of these events were reported as designed for

teachers, staff, and parents, whereas others were designated for school staff only. Table

4.5 presents special the variety of events for teachers, students, and parents described by

teachers and leaders. Additional details were added to the content in Table 4.5 based on

the researchers' experience as a participant observer at the research site and are indicated

with a *. Teachers described the excitement around staff events and how they look

forward to seeing their colleagues outside of the school in a more relaxed, social environment. When outside of school, teachers explained, "we're not really thinking about school mindset" (Teacher 7) and can talk with colleagues about their personal lives (Teachers 7 and 15). "It helps strengthen the support system that we have with one another" (Teacher 15). Teachers also see the value in yearly events:

> I think they're very symbolic in facilitating our school culture. I think that those events like the Fall Fest and Christmas party are symbolic to Centennial because they allow us to build our relationships with each other. I think when you have great relationships between staff members in the building, I think that just even makes for a better staff as a whole unit, to kind of carry on that culture, that school-wide culture, year after year. I think that's why Centennial works so well year after year (Teacher 9).

Teachers who have gone on to teach elsewhere often return to these events (Leader 2).

Table 4.5 (continued)

Centennial School Special Events

Student, Parent, Teacher and School Leader Events	Description
Weekly Award Ceremony	● Students gather in the library every week to receive awards related to following the school-wide expectations.
Spirit Week	● Bi-annual event in October and March* designed around nation-wide data of the weeks that are most challenging for students. ● The Spirit Committee plans themed days where teachers and students dress up according to the theme. ● Examples of past themes include Wacky Hair Day, Pajama Day, Sports Day, Super Hero Day, Hat Day, and Mustache Day. *

Quarterly Honor Roll Breakfast	● At the end of every marking period, teachers nominate students based on the honor roll criteria outlined in the student/parent handbook. These criteria include GPA, consistently following school-wide expectations, and program coordinator approval. * ● Students and their families attend a breakfast made by the staff and a ceremony where students are given an honor roll certificate. *
Open House	● Students and their families are invited to visit with classroom teachers from 5:30 p.m. to 7:00 p.m. on a designated day in October and March. * ● Staff members serve dinner and students eat with their families in their classrooms. ● Students and their family members can visit a book fair and participate in a raffle drawing at the end of the night.
Talent Show	● Students perform on stage to showcase their various talents. * ● Parents, students, and past teachers attend the show. *
5K Race	● In early May, students, parents, and teachers are invited to participate in a 5K race fundraiser. * ● Students submit t-shirt designs and the winning design is printed on a t-shirt that comes with registering for the race. *
Carnival	● Students use their school store points to purchase tickets for carnival activities and food in the backyard of the school.* ● Parents, teachers, and graduate students volunteer to run carnival games. *
Teacher and School Leader Events	
Kickoff Breakfast	● Staff members meet for the first time in late August on the campus of Lehigh University. * ● Lead teachers share advice with incoming teachers in an opening speech. *
Fall Festival	● Staff members gather at the director's house to decorate pumpkins, converse, and share fall foods. *

Secret Santa	• Staff members elect to pick another staff member's name. • Staff members give each other clues to reveal their identity.
Holiday Party	• Staff members gather off campus to share dinner. *
Auction	• Staff members donate goods and services, and other staff members bid on these items. The proceeds from the event go to sponsoring the free breakfast program, purchasing items for the school store, and funding field trips.
5K Race BBQ	• Staff members gather at the director's house to converse and share a meal. *

* = content based on the researchers' experience as a participant observer

Teachers and school leaders explained the importance of the celebrations focused on students, especially for EBD students who often come from environments where they have not felt successful:

I think it's nice to create a community where a person comes in, and they feel like they're a part of something. That makes them want to follow expectations and please their teachers and do what they're supposed to do to start getting that recognition. I think it's highly motivating and I think we do a nice job of building kids up (Leader 1).

The special events designed for students are often "the first of that type of celebration they've experienced. I can't tell you how many parents have told me that about honor roll" (Teacher 13). Teachers and leaders reported special events for teachers, students, parents, and school leaders take place regularly and help students and staff to build rapport with one another (Teachers 8,11,16).

Espoused beliefs and values. The espoused beliefs and values are the morals held by members that contribute to the standards of the organization (Barth, 2002; Fullan,

2005; Hoy & Miskel, 2001; Owens, 2004; Schein, 2010; Weller & Weller, 2002). When leaders described Centennial School, they provided information on school-wide procedures for students, administrators, teachers, and parents. These procedures are reportedly outlined in the school handbook and focused on providing directions to teachers related to following student IEPs, which often incorporate speaking positively with and about students. Leaders indicated interactions between students and teachers as positive and promoting positive student behaviors: "We believe to treat students, their families, and teachers, any staff that come in the building, visitors, whoever it may be, to have the same kind of language, speaking in a calm, polite, professional way" (Leader 4). Leader 4 further explained the "belief statements" are part of what teachers are taught during pre-service training and throughout the year during staff development sessions.

The staff development calendar included a session dedicated to professionalism where these belief statements were presented to teachers. These beliefs extend to staff believing "that children can be accountable for their behavior, can change their behavior, can be responsible, and can be lifelong producing citizens, that they can contribute to our society" (Leader 4). Based on these beliefs, teachers and leaders make decisions throughout the day (Leader 3). "Some of those decisions that we make just in the moment are based on our school culture and what we believe in" (Leader 3). These formal belief statements taught to teachers are outlined in Table 4.6. Centennial School adopted these belief statements about students (George & George, 2003) and staff (Fogt & Arbolino, 2006) written by leaders from Centennial which were presented as papers at a conference.

Table 4.6

Centennial School Beliefs

Students can:	Staff can:
- meet the expectations we set for them. - learn to manage themselves. - think before they act. - make positive changes in their lives. - be held accountable for their actions.	- make positive and sometimes profound differences in the lives of our students. - talk positively about our students; their families, and our colleagues. - change student behavior by changing staff behavior. - examine the effectiveness of our efforts through progress monitoring. - expect conflicts to occur in our setting and staff can successfully resolve those conflicts by focusing on the issues and sharing responsibility professional interactions.

(Fogt & Arbolino, 2006; George & George, 2003)

Teachers described the positive language they use to interact with students, which they indicated is part of teaching students the school-wide expectations. They talked about the importance of embedding social skills instruction into the academic instruction to support positive student behavior (Teacher 11; Leader 1). These social skills are taught directly through modeling and in a dedicated class period (Teacher 11).

The focus on teaching students through an academic and behavioral approach was noted by both school leaders and teachers. Leader 1 hears from school districts who refer their students to Centennial School and are often looking for "something more academic" as opposed to therapeutic or behavioral programing: "I think the problem with some alternative schools is that they want to teach behavior and then they want to teach academics." She described how students are supported academically and behaviorally

because "we believe we need to teach them within a context, otherwise there's no point and no generalization of skills."

Leaders also described how their beliefs about the needs of students tie into how they instruct teachers:

In terms of pedagogical choices, we value active engagement. We also value direct instruction. Both of those strategies are extremely effective with this group of students. The third pedagogical practice would be allowing students to make choices in their instruction. Do you want to use paper, pencil, whiteboard, marker, iPad, laptop? When students are able to take that ownership over their instruction and what their day looks like, we see tremendous gains or increases of their compliance with our expectations (Leader 3).

These pedagogical beliefs were evident through the participant classrooms as well and will be presented later in this chapter.

Underlying assumptions. The underlying assumptions of the organization are the rules held by members that contribute to the overall functioning of the organization. At Centennial School, these rules are described in the school handbook. The handbook includes how teachers and staff follow the procedures. The handbook includes the "codified common practices" (Leader 3). Teachers are trained on the handbook and "teachers learn how to implement out procedures effectively, and with fidelity, so the first place to turn for solutions would be your handbook" (Leader 3).

Teachers described that they have input into changing the content of the handbook throughout the year and more formally at the end of the year (Teacher 10, 16). Teachers are "taught from the very beginning, 'read your handbook' and if something doesn't

make sense of if we're not doing it that way, let us know.'" Teachers explained this gives them a voice in how the school operates and they value that leaders seek their input on improving the handbook.

Observed behavior. The observed behavior within an organization represents the actions regularly witnessed in the environment (Barth, 2002; Schein, 2010). Throughout interviews, leaders referenced very specific behaviors they purposely engage in to support teachers. Leaders model instructional and behavioral strategies, provide feedback on how teachers implement these strategies, praise teachers, encourage teachers, and spend time in classrooms. Teachers described leaders' positive body language, saying "There's lots of smiling that goes on. I can't tell you how serious school administrators look in other, larger organizations. While being serious is important, it's a different feeling when you step in and you feel something different" (Teacher 13).

Technology. Technology is an artifact used by the members of the organization (Schein, 2010). According to school leaders at Centennial School, they believe teachers and students should have access to technological devices (e.g., iPads, computers, printers, interactive whiteboards). Accordingly, Leader 3 indicated that years ago technological devices were not commonplace at Centennial School. She described a school environment that was such that physical restraints were regularly used and students often exhibited violent behavior. At that time, "having all of those devices would probably be unwise because they'd most likely be damaged" (Leader 3). She went on to describe a shift to including more devices in the classroom about ten years ago when the administrative team "slowly started including [technology] into the classrooms. We say that even when students were having difficulties, they tended to respond the technology."

Leader 3 gave the example of "when they're [students] 'out of control' they'll pick up a chair instead of the computer that's probably as close or closer to them and throw that because they appreciate the technology and they respect it."

Part of the school's technology plan was to slowly introduce more devices into the classrooms. The initial plan began with one interactive whiteboard per program and adding an interactive whiteboard to each program every year. Leader 1 described, "It actually became a goal of the school of how we were going to increase each year and sustain." At this time, there is more than one device available per student, with the emphasis on Apple-based devices. At the elementary school level, students are 1:1 with 22 iPads. At the middle and high school levels, there are shared laptop carts and iPads available for teachers to sign out. Also, every classroom has a SMARTBoard and projector mounted to the wall, a Macbook Pro and an iPad assigned to the lead teacher. Table 4.7 provides information on the number of devices available to students and teachers as reported by the Centennial School computing consultant (E. Bruno, personal communication, December 8, 2016).

Table 4.7

Devices available to students and teachers

Program	Apple TVs	iMacs	iPads	Macbook Pros	SMART Boards	TV Displays	Windows Computers
Elementary							
Student		6	22				
Teacher	3		4	3	3		
Middle							
Student		8					
Teacher	1		3	4	3		
High							
Student		20	2				1
Teacher	1		5	7	6		
Shared							
Student			24	36			
Teacher	3	1		2	1	2	1
Total	**8**	**35**	**78**	**52**	**13**	**2**	**2**

Teachers described the importance of having devices so they can implement instructional strategies with their students in the classroom that they learn about during staff development sessions. When asked how school leaders support teachers in integrating technology, Teacher 12 shared:

> I think the number one thing is the availability. The actual ability to have it [technology] readily available for your classroom is that first barrier. If you learn about a new app or a new piece of technology that you want to use, but it's a scarce resource, it's so difficult to find the time then to learn it yourself and then implement it in your classroom.

Teachers reported that as the number of devices increased, the need for technical assistance when devices are not working also increased.

School Leader Behaviors

With an understanding of the culture of Centennial School, specific school leader behaviors were also identified as contributing to the successful integration of technology into classroom lessons. These behaviors included planning for staff development, participating in staff development sessions, observing teachers, providing feedback, and praising and encouraging teachers, each of which is described in detail below.

Plan for staff development. Leader 3 shared the importance and focus on teacher training as "we see that it can transform how students learn and how they engage with the content." The focus of the staff development session is on "how teacher use [technology] in their instruction and use it meaningfully" (Leader 4). She went on to explain the emphasis on engaging student learners is part of the training sequence for all teachers. Leader 4 purported part of engaging students is integrating technology, and therefore trainings on how to integrate technology are an integral part of the staff development calendar.

Leaders shared these staff development sessions are led by lead teachers and guest speakers who provide sessions designed to increase technological knowledge (Leader 4). At times, these technology sessions are presented in specific content areas (e.g., reading, writing, math). In addition to the one-hour sessions that occur periodically through the year, teachers explained as part of the weekly staff meeting they take turns sharing apps or web tools in the context of a Wednesday Website initiative. Teachers described during this brief period at the end of the staff meeting, teachers project their laptop or iPad and provide an overview of a tool, share a student example, and answer questions about the tool. Teachers cited the Wednesday Website time as a critical time where they can get a

quick glimpse of a tool that may help their students (Teachers 3, 7, 12, 14, and 15). They revealed they revisit these tools and explore them on their own at a later date.

Teachers stated they see that leaders value technology integration with the emphasis on technology trainings throughout the year (Teachers 3, 5, and 16). One teacher shared, "I think it's something [technology integration] that our school as a whole values" (Teacher 3). Most teachers discussed how staff development trainings help them expand their understanding of different tools they can use to engage students. Teachers and leaders described they meet weekly for two one-hour sessions on topics ranging from developing IEPs, actively engaging students in instruction, direct instruction, mandated child abuse trainings, and positive behavior supports to integrating technology. Table 4.8 outlines the number of staff development sessions dedicated to increasing teacher technological knowledge over the last seven years.

Table 4.8

Staff development trainings related to technology

School Year	Technology Trainings
2010-2011	5
2011-2012	6
2012-2013	13
2013-2014	10
2014-2015	9
2015-2016	5
2016-2017	8

Participate in staff development sessions. Teachers report leaders attend staff development sessions with teachers (Teacher 7). This is helpful because "they're able to work with the kids and able to troubleshoot things just like we're trying to troubleshoot them in the classroom, so it kind of puts us all in the same level" (Teacher 3). Teachers shared they appreciate school leaders spending time in staff development sessions. Another explained, "I think it also shows an investment on the behalf of the administration that they want to be a resource to us too, that they want to know and they want to be available and know what's going on in order to help us if we need it" (Teacher 6). Teachers shared they notice leaders using what they learn in staff development sessions to present staff development session on their content. For example, when school leaders present staff development sessions they use applications such as Keynote or Nearpod to create interactive presentations (Teacher 3).

Teachers feel that leaders attend the staff development so they can assist teachers to develop lessons using technology. One explained, "they are sitting in the professional developments and learning just as much as we are and taking what they've learned and putting it into practice, again serving as that model for us" (Teacher 3). Teachers saw the value of having leaders attend the staff development sessions with teachers:

> I think also often times we have professional development, say it's using technology in math, they don't teach math, but they're still there participating in the professional development, so they know the best things to use and are learning how to use them as well (Teacher 3).

Other teachers affirmed leaders and their attendance at trainings. Teachers shared that they appreciate when leaders attend the staff development sessions, so they can discuss the contents of the training with leaders after the training.

When teachers need assistance with creating content for their classrooms or analyzing student data, they felt leaders eagerly assist. At a recent meeting with their school leader, Teacher 7 was struggling to recall an app she could use with her students to achieve an instructional objective. Her leader remembered iPad apps from a training on math technology tools and guided her in the direction of the presentation resources. She expressed appreciation for the leader's help. She went on to explain that it is helpful to draw on her program coordinator's knowledge of how to integrate technology into classroom lessons even when they are not primarily in the classroom.

Observe teachers. Leaders expressed the importance of spending time in classrooms observing teachers to see how they are using the technology, so they can in turn model different uses of technology for other teachers. Leader 4 indicated that how she frames the integration of technology as an essential of instruction. She described "it is about how that technology is embedded in lessons." Leaders support teachers by "teaching the core components to my teachers through trainings, through 1:1, small group, whole group, or where technology 'fits.'" (Leader 4). However, leaders are not always the person who is modeling the integration of technology directly to teacher interns and associates. Leader 4 often relies on lead teachers "to show, to model, to teach, to give feedback, how to make it [integration of technology] not even need to be thought about" in classroom lessons.

Leaders shared they spend time in classrooms to see first-hand technology integration. They are involved in the assessment and evaluation of technology, listening to teachers via "classroom walkthroughs, informal observations and to see to what extent teachers are using technology in the building" (Leader 3). Leaders evaluate teacher use of technology by observing, asking questions, and giving feedback to teachers (Leader 1). When observing, Leader 1 looks to make sure teachers can answer student questions about how to use the technology, articulate the purpose of using technology, and that there is meaning behind why the technology is being used to meet the lesson objective.

Provide feedback. School leaders shared they provide performance feedback through formal and informal classroom observations. Leader 4 described how technology surrounds teachers and they are regularly taught how to integrate technology into classroom lessons. She shared, "it is being modeled by everyone through feedback, through us sitting down after a lesson."

Teachers explained they receive feedback formally through evaluation meetings and informally when leaders approach them about small portions of lessons they observe in the classrooms during walk-throughs. Teachers shared they are open to the feedback from leaders because of the relationships they built with leaders and trust that they are providing good advice. One teacher stated, "when they come in, they provide me feedback, and I want to take it" (Teacher 13).

Leaders encourage teachers to learn from each other throughout the day (Teacher 16). Leaders are also "constantly coming around and giving us input and data and feedback" (Teacher 16). Teacher 1 highlighted how school leaders provide feedback:

I think the way that they provide us with our feedback is also in a way that we

know what to change with what we're doing when they're talking to us about how

we can improve as teachers. It's in such a way where we're still comfortable, and

we don't feel any negative vibes.

Other teachers built on this comment sharing how they feel comfortable asking leaders

questions and receiving feedback (Teachers 2, 3, 5, 6, 13).

Praise and encourage teachers. Leaders claim to support a positive environment

for teachers through directly reinforcing teacher behavior with verbal praise, a note, email

or private conversation (Leaders 1-4). Leaders report they acknowledge teachers who

effectively integrate technology after observing a lesson or during a classroom

walkthrough. Leader 4 described how teachers respond to being reinforced as "the power

of reinforcement for students is wild, but the power of reinforcement for teacher is

probably just as likely to be that effective." She went further to explain that reinforcement

is not necessarily a verbal acknowledgment:

Reinforcement can come in so many different shapes and sizes. Being happy and

showing your team you appreciate them with a greeting, with a smile, with the

simplest signs of caring and kindness, I think, is a rudimentary level of

reinforcement. Private and public. It's both. It's private in our 1:1 meetings in the

hallways, a quick pull to the side. It's public in our team meetings and homeroom

meetings and the hallway, at the breakfast line, at a staff development training.

Leaders also encourage teachers to use technology and praises them for integrating

technology into classroom lessons (Leaders 1 and 3).

Teachers shared examples of how school leaders provide reinforcement in the form of emails, text messages, verbal praise, and public acknowledgment of special projects:

I think we get a lot of support through feedback, whether it's written feedback or formal feedback or just informal of somebody checking in on your classroom or you checking in with your administrators. But, they're always giving you feedback on how to better yourself, and things that they've seen you doing that are going well. So you feel like you constantly have somebody to talk to about your progress as a teacher (Teacher 5).

Other teachers agreed and shared stories of school leaders giving them positive and corrective feedback about how they used technology in classroom lessons (Teachers 2, 3, 5, 6, 13).

Leaders reportedly promote the use of technology at Centennial School. According to Leader 2, "encouragement is how we promote it." She continued by explaining how teachers see the benefits of integrating technology when they try it with students, and they experience success. One approach is to "show enthusiasm for them taking risks in trying out that technology" (Leader 3). She cautions teachers to try new technology before they use it with students to be well prepared to use the technology. Teacher 1 validated the encouragement from leaders saying, "Praise. They praise us and enjoy seeing it. We're encouraged."

Teachers described how they are encouraged to integrate technology into classroom lessons and the impact of school leader presence in their classrooms has on their willingness to try new technologies. Teacher 15 told a story of their program

coordinator participating in a staff development session and the next day asking, "How are you doing this [implementing the new tool]? Do you need help doing this? How can we support this?" The teacher shared he appreciated the immediate follow-through on the part of the leader.

Teacher Behaviors and Practices

In addition to leader behaviors, teacher behaviors and practices were also identified as critical to supporting the integration of technology at the classroom level. These behaviors included providing clear expectations, engaging students, providing choices, providing visual representations of content, and providing direct instruction, each of which is described in detail below.

Clear expectations. Teachers consistently mentioned they provide clear expectations for students when integrating technology into classroom lessons. Across the embedded case observations, teachers and/or students stated expectations at the beginning of every class period. In the middle and high school classrooms, Jean and Richard called on the students to have them explain how to follow the expectations at the beginning of the class. Evidence of these clear expectations was present throughout all the lesson plans where teachers listed the school-wide expectation slogans and how they related to integrating technology. Evelyn explained, "All of our expectations are very clear, worded positively for the students. Then, at the start of our classes, we go over these expectations and let students know what's expected of them."

In addition to the expectations reviewed at the beginning of each lesson, teachers were observed stating expectations at the change of every classroom activity. When teachers transitioned from one activity using technology to another or from a paper-based

to a technology driven activity, they explicitly defined how students could follow the

expectations using technology. Most notably, teachers referenced technology when

reviewing the school-wide expectation related to keeping hands feet safe and using

materials appropriately. Below are examples of these expectations from the lesson plans.

Elementary: Students will use materials appropriately and safely and keep hands and feet

to self.

Middle: Use materials appropriately; be on the specified iPad apps and use the stylus for

writing, not scribbling or drawing.

High: Use technology carefully, remain on the assigned task on the iPad.

School leaders pointed to the need for clear expectations as teachers integrate technology.

Leader 4 stated, "Technology wouldn't work if we didn't have clear expectations."

Engage students. Evelyn, Richard, and Jean indicated in their follow-up

interviews the choices they make about which tools to use with their students relate to

their knowledge of students with EBD and the need to plan lessons where students are

engaged. All teachers mentioned they could plan lessons with traditional paper and pencil

materials, however their perception is students enjoy using technology more than

traditional methods. Knowing technology is an interest for their students, the teachers

stated they intentionally build on this interest to actively engage their students. Richard

described he uses technology to engage his students who work at a quicker pace than the

rest of his group. He relies on the technology to provide additional problems to students

who work quickly and scaffolded supports for students who require additional assistance.

School leaders explained they provide or arrange for others to provide staff

development sessions on how teachers can integrate technology to engage students.

Leader 3 explained teachers are encouraged by integrating technology when they see the benefit of students increased attention. She went on to describe, "when they [teachers] see that kids are so much more engaged in math class when they are using Classkick versus a paper and pencil assignment, that's where the shift, I think, really happens."

Provide choices. Using technology to provide choices was evident across all lessons in all classrooms. Evelyn, Richard, and Jean all indicated at least once every lesson plan the technology and non-technology based choices for students during lesson activities. In addition, Evelyn indicated she uses choices of areas in the classroom to complete work. Evelyn and Jean shared they do not always verbalize the choices to students and sometimes will wait to see if a student expresses frustration with the technology-based activity or use the paper-based activity as a back-up incase technology does not work. The teachers shared they provide choices to empower students to complete work.

Evelyn provided students with a choice of area to work when completing the independent practice portion of the lesson. The choices included working at the instructional table, an individual student desk, or on a bean bag. She also provided students with the choice to use non-technology based materials to complete classrooms lessons. For example, in the first lesson observed in Evelyn's classroom, she provided the option of working on an iPad app, Classkick, or using a worksheet and pencil with the same content. One student chose to use Classkick and the other student chose the worksheet. During a separate lesson activity, Evelyn provided the option of using a whiteboard and markers or paper and pencil.

Although there can be options for students on how students they complete learning activities, Evelyn also felt technology itself can provide choices. In the second lesson assessed, students created an electronic book of the different ways to model division. Evelyn showed students a Keynote presentation to demonstrate different methods to modeling division. Using the app Book Creator and their iPads, students selected a division fact and modeled division with block manipulatives on the table, took a picture of the blocks, wrote a fact family, and took a screenshot of a virtual multiplication table to embed into their virtual books. Evelyn viewed the options within the app as choices:

> Even though the choice was just to use Book Creator, the Book Creator app in itself allows them to have choice. They get to choose what their background looks like, what color fonts they use, how they want their pictures to be on the page. That has so many choices built into it that I knew, even for my students who liked to have different choices of materials that, the app itself would lend enough choice for them to be able to be successful in the lesson.

The final products provide evidence of the choices students made within the app as they produced different virtual books.

Evelyn and Jean do not always explicitly provide information to students on the options they have during all transitions between activities in the classroom. Rather, they might present options only if a student becomes frustrated or has a difficult time understanding the content. In Evelyn words, "If they're working well with it [technology] and there's no frustration, they're enjoying it and they're engaged, then I won't even bring up the choice." This was evident during her second lesson. In her written lesson

plan, she included an alternative of using paper and pencil instead of Book Creator. However, during the lesson, she did not present this option to students, who appeared to be completing the presented tasks without frustration.

Provide visual representations of content. Evelyn and Richard suggested the need for integrating technology to provide visual representation of content. Evelyn described her planning process and shared one question she asks herself: "how can I give a good visual?" Evelyn provides visual representation of content to the whole group in the form of projecting visuals on the SMART Board and through individual apps on student iPads. Richard also reported his use of technology to show students visual examples of content. Richard uses technology in a whole group setting to present new content to students and individually for students to practice applying new concepts.

Richard presented content on the SMART Board in the form of video clips and graphic organizers. During one lesson, students watched a video clip about scientific notation on the SMART Board, an interactive whiteboard. Following the video, students participated in lesson segments where Richard modeled examples of writing numbers in scientific notation on the SMART Board using the Notebook software. Students wrote examples using the SMART pens. Students who were not working on the SMART Board worked on the iPad app, ModMath, where students put numbers in a grid to keep their work organized.

Students also worked individually on their iPads with apps that visually represented content. During one lesson, the students used the iPad app, Oh No Fractions, to compare two fractions. When students launched the app, they saw the two fractions in the form of fraction blocks. After reviewing the visuals, students selected the less than,

greater than, or equal to button. Richard described the Oh No Fractions app as "a visually pleasing app" where the content within the app "allows for comparisons of fractions and then gives visual examples to further support comparison of fractions." Based on his knowledge of students and their responses to comparing fractions, Richard stated he understands that "presenting the fractions can be a difficult concept for anybody. To have the visual backup as well as the just nice, clear, simple, visually pleasing presentation" is an instructional strategy he described would help his students.

Provide direct instruction. Jean's lesson plans and follow-up interviews explain her use of technology as a means for delivering direct instruction to students in her Algebra 2 classroom. At the start of each lesson, she projected an agenda of activities for the class period and provided direct instruction for the period. During all her observed lessons, Jean projected problems onto the SMART Board and modeled to the class how to solve problems with the SMART pens. She provided an overview of vocabulary and taught students how to use formulas to solve problems. Students followed along with her throughout the direct instruction. Some students raised their hands to ask questions and others took notes.

Jean revealed in her interviews that she relies on the SMART Board and the corresponding Notebook software to "project my lesson content to them as well as modeling and solving the problems both on my own and together with them." She shared her understanding of student needs leads her to the belief that, "in math, I follow the direct instruction model where I have to teach the concept to the students first." She uses technology to first model problems to students as they take notes in their notebooks or follow along with the iPad app, Classkick. Although Jean was the only teacher as part of

the embedded cases to describe that she uses technology to provide direct instruction, Evelyn and Richard also used technology to instruct students through a direct instruction approach.

Summary

Based on the School Culture Triage Survey (Wagner, 2006), elements of culture outlined in Table 4.2, and data collected through interviews, focus groups, observations, and document analysis, the school culture at Centennial School supports teachers and leaders with belief statements, special events to bring teachers, parents, and students together to celebrate success, and technology to support students. School leaders plan for staff development, participate in staff development sessions, observe teachers, provide feedback, and praise and encourage teachers. Teachers provide clear expectations while integrating technology to engage students, provide choices, providing visual representations of content, and provide direct instruction. As teachers and leaders engage in these behaviors, teachers provide clear expectations as they integrate technology to engage students, provide choices, visual representations of content, and direct instruction.

The following chapter describes findings presented in this chapter and the previous chapter in relation to the conceptual framework and related research. Implications for future studies are also presented.

CHAPTER V

DISCUSSION AND CONCLUSIONS

This multiple embedded case study was conducted to explore how school leaders at Centennial School of Lehigh University support special education teachers who integrate technology to engage students with emotional and behavioral disorders (EBD). In this chapter, the purpose of the study and research questions of focus are presented, followed by a discussion of the findings. A revised conceptual framework is offered based on findings presented. Finally, implications for research and practice and researcher reflections conclude the chapter.

Summary of the Study

The purpose of this study was to examine the role of leadership and school culture on the integration of technology to support instruction for students with EBD. The primary case of school culture was focused on school leaders whereas the embedded cases highlighted how special education teachers integrated technology into their classrooms to engage students. The research questions guiding this study were:

1) How does the school leadership team support a culture for technology integration within classrooms?

2) How are lead special education teachers integrating technology to engage students with EBD in classroom instruction?

Findings from this case exemplify how a school culture and leaders successfully supported special education teachers at the classroom level in integrating technology into classroom lessons. The values and beliefs at Centennial School were explicitly taught to teachers and embodied by all staff members. School leaders engaged in specific behaviors to support teachers in learning about new technology through formal and

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informal training opportunities. These behaviors included leaders planning for staff development, engaging in staff development sessions with teachers, observing teachers, providing feedback, and praising and encouraging teachers. Teachers provided students with clear expectations to integrate technology through direct instruction, choices, and visual representations of content. Ultimately, the positive culture, combined with leader behaviors, the staff's values and beliefs, and opportunities for teachers to learn yielded a professional community where teachers are able to successfully integrate technology to engage students with EBD. These major findings are described in detail below.

Culture, Leadership and the Integration of Technology at Centennial School

Centennial School, a K-12 school servicing students with EBD, is a school where school leaders and the school culture work in tandem to support special education teachers' technology integration. The conceptual framework that undergirded the design of this study drew on the TPACK framework (Koehler et al., 2013; Figure 5.1). The findings from the study support the components of the conceptual framework. However, the conceptual framework presented in Figure 5.1 has been revised slightly from the one presented in Chapter 3 (Figure 3.1) to better highlight the relationship among the components based on study findings.

Figure 5.1. Revised Conceptual Framework

Technological
Knowledge
(TK)

**Classroom
Teacher**

Technology
Integration

Pedagogical
Knowledge
(PK)

Content
Knowledge
(CK)

**K-12 School Serving Students
with Emotional and
Behavioral Disorders**
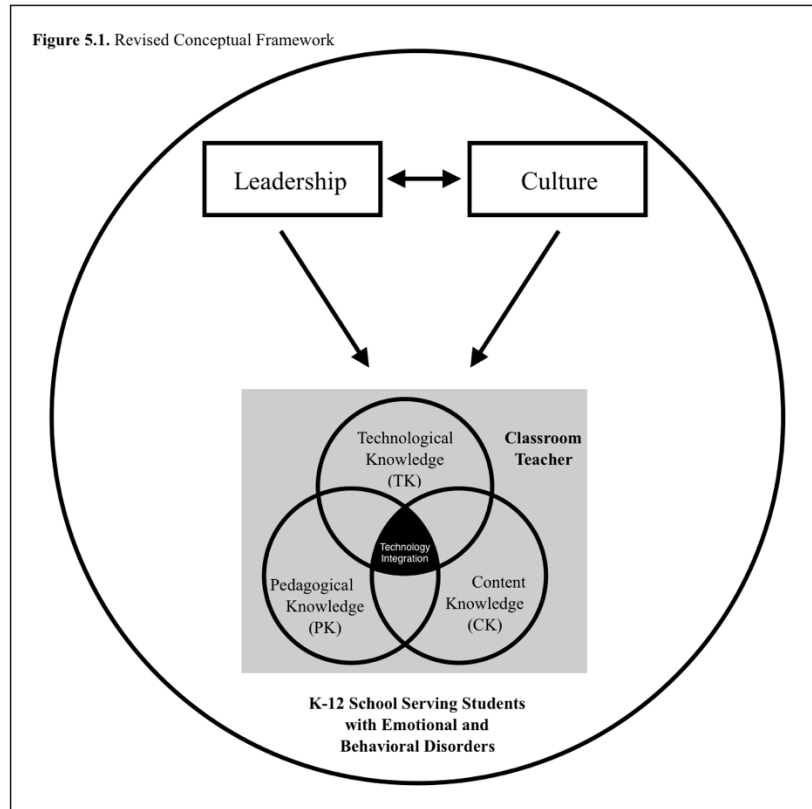
Figure 5.1. Revised Conceptual Framework

Linking Leadership and Culture

The study provides evidence of the role leaders and school culture play in

supporting teachers to use technology in classrooms to support learning. School leaders at

Centennial have created this culture by providing funding to purchase devices, which was

seen by teachers as a critical component of leader support and which is supported by

previous research (Anderson & Dexter, 2005; Levin & Shrum, 2012). Staff development

opportunities on how to integrate technology into classroom lessons (Guzey & Roehrig,

2009; Harris, 2016; Jaipal-Jamani & Figg, 2015; Polly & Orrill, 2016; Baran et al., 2016)

was also key at the school. Finally, leaders at Centennial display a number of behaviors

that were central in creating a school culture to support technology integration, each of which will be described more fully in the subsequent sections.

Centennial School provides numerous examples of how leadership within the school shaped a culture in which technology was valued as a critical component of the instructional process. And in turn, how the use of this technology by classroom teachers, shaped the behavior of the leaders. For example, a culture of collegiality, where teachers share ideas with one another and stories of teacher and student success when iPads were first introduced to the staff, demonstrated the value teachers placed on the use of this technology in the classroom. As a result, when leaders needed to make budgetary decisions, they chose to purchase more devices because they saw teachers responding favorably to the integration of technology. At the same time, leaders engaged in specific behaviors to support teachers and planned for staff development around how teachers could integrate iPads into the classroom with already existing evidence-based practices.

This reciprocal relationship between leadership actions and an evolving culture set the scene for teachers increasing the use of technology to support classroom instruction. Deal and Peterson (1990) stated "Leadership shapes culture and culture shapes leaders" (p. 24). This was evident at Centennial School as one leader shared: "I look to the culture and that's something that I highly value and so I, as a leader, make sure that those values are communicated to the individuals who work at the school" (Leader 3). Simultaneously, the culture, as described above, supports leaders in providing a positive environment where teachers can learn new ways to integrate technology to support student learning.

Through an examination of this reciprocal relationship, two patterns emerged from the data: (1) strong values and beliefs among staff and (2) participation by leaders and teachers in staff development on evidence-based practices.

Values and beliefs. Research has demonstrated the importance of establishing structures and shared beliefs to support an organization (Owens, 2004; Tichnor-Wagner, Harrison, & Cohen-Vogel, 2016), and this was evident at Centennial School through the explicit nature with which the school's beliefs were integrated into the functioning of the school. The belief statements (presented in Table 4.6) and school-wide procedures at Centennial School were clearly outlined in the staff handbook, reviewed at staff development sessions, and modeled by school leaders. Leaders taught the beliefs about students and staff to help staff understand the importance of building positive relationships with one another, another critical role of school culture (Greenfield, 2015; Lindle, 2013). Teachers acknowledged the focus on positivity and how this ties into the school culture:

> The main theme [at Centennial School] is how you treat people, whether it's the staff, the administration or the students. So although we are teachers and they [leaders] want us to be instructing and the students to make growth behaviorally and academically, really it's so much of treating each other with respect and you feel that between teachers and staff and students (Teacher 5).

Teachers are taught to instruct using an academic and behavioral approach (Kern, George, & Weist, 2016) where students learn content on their instructional level (Sanford & Horner, 2013; Loman & Sanford, 2015) while also learning the social skills they need to cope with their anger management (Lane et al., 2006).

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These values and beliefs tell teachers and leaders how to respond to situations throughout the day. As teachers take risks to try new technology in their classrooms to instruct students with an academic and behavioral approach, they know leaders are supporting the instructional choices they make based on evidence-based practices. Teachers understand the beliefs about students and support students through providing a positive classroom environment.

Staff development. Pedagogically, teachers are taught the importance of implementing evidence-based practices as they plan engaging lessons to support student learning through the use of choice (Kern et al., 2002; Kern et al., 1994; Niesyn, 2009; Romaniuk et al., 2002), active engagement (Sticher et al., 2009; Sutherland & Wehby, 2001) and direct instruction (Ellis et al., 1991; Lee et al., 1999; Nelson et al., 1996). These strategies are used to teach students through an academic and behavioral approach. Staff development sessions also focus on the need to provide clear expectations (Kern et al., 2016; Johnson, Stoner, & Green, 1996; Malone & Tietjens, 2000; Sugai & Horner, 2002; Sutherland & Wehby, 2001) and meeting the needs of learners through visual representation of content (Reimer & Moyer, 2005; Satsangi, & Bouck, 2015; Steen et al., 2006; Silverman, 2002) to integrate technology into classroom lessons (Flower, 2014; Haydon et al., 2012). These pedagogical beliefs were evident in the staff development sessions. Teachers regularly espouse and demonstrate these beliefs through the lessons they plan and implement in the classroom.

Teachers repeatedly commented on the importance of opportunities to learn how to integrate technology as key to their growth. These meaningful professional development activities were seen as critical to the success of classroom technology

integration (Anderson & Dexter, 2005; Baylor & Ritchie, 2002; Flanagan & Jacobsen, 2003; Schrum & Levin, 2009; Stevenson, Hedberg, O'Sullivan, & Howe, 2016; Wilmore & Betz, 2000; Yee, 2000). Collaboration was also seen as important at Centennial School (Coburn, 2001; Hargreaves, & Fullan, 2012; Tichnor-Wagner et al., 2016) and teachers collaborated both formally through staff development and team meetings and informally through conversations in the hallways and their classrooms.

One way teachers collaborated was through a recent staff development session in the style of an unconference. During the two-hour session, teachers selected technology topics they were interested in learning more about or wanted to facilitate a conversation around and built the schedule for the afternoon staff development. Within the sessions, teachers shared examples of student work, asked each other questions, and explored new tools together. Teachers identified this as one way they learned from one another. Informal conversations that occur in these planned, yet unstructured environments, allow teachers to recognize their colleagues who can serve as future resources when they implement new strategies in their classrooms.

Another element of the staff development is follow-through on the part of school leaders, which is in line with the findings of Hilton et al. (2015). After staff development sessions, teachers revisit the content through sharing ideas at weekly team meetings, examples presented at staff meetings through Wednesday Websites, and through informal conversations. Teachers attributed their willingness to try new technologies to school leaders asking about their progress with applying what they learned by attending the staff development sessions to classroom lessons. School leaders ask teachers about their

progress during informal classroom walk-throughs, hallway conversations, during team meetings, and while they participate in staff development sessions with teachers.

Leadership

A number of specific leader behaviors emerged in this study. These leader behaviors included: planning for staff development, participating in staff development sessions, observing teachers, providing feedback, and praising and encouraging teachers.

Planning for staff development. The first behavior that emerged was planning for staff development (Anderson & Dexter, 2005; Baylor & Ritchie, 2002; Flanagan & Jacobsen, 2003; Schrum & Levin, 2009; Stevenson et al., 2016; Wilmore & Betz, 2000; Yee, 2000). Every Wednesday afternoon, teachers and leaders participate in two hours of staff development (Hughes et al., 2006). Topics for these staff development sessions include: evidence-based practices, developing IEPs, parent communication, and integrating technology. Teachers suggest topics for staff development and these suggestions are considered when the EAGLES team creates the staff development calendar. School leaders plan staff development that is relevant to classroom practices and bridge the research to practice gap (Hughes et al., 2006).

Although the school leaders do not always present the staff development, they encourage those leading to include classroom examples. Teachers acknowledged that school leaders at Centennial School intentionally plan for staff development around topics of how to integrate technology which is also found in the literature surrounding building teacher TPACK (Guzey & Roehrig, 2009; Harris, 2016; Jaipal-Jamani & Figg, 2015; Polly & Orrill, 2016; Baran et al., 2016). Teachers value that leaders dedicate time

during staff development for teachers to try the technology in group settings with the support of a leader or teacher leader.

Attending staff development sessions. An additional school leader behavior that emerged from the study was leaders participating in the staff development sessions with teachers (Hilton et al, 2015). Teachers explained they often rely on leaders to mentor them through integrating technology into classroom lessons. For leaders to provide recommendations, their own technological knowledge must include an understanding of current classroom technologies to support learners. Teachers provided examples of leaders offering technology recommendations based on the staff development they attended along with teachers. The literature surrounding school technology leadership and the need for school leaders to understand how to integrate technology recommends leaders attend professional development to improve their technology skills (Afshari et al, 2008; Dawson & Rakes, 2003; Holland & Moore-Steward, 2000; Richardson et al., 2003). Furthermore, when leaders attend professional development sessions with teachers, teacher professional growth can occur (Hilton et al., 2015). When leaders attend staff development sessions with teachers, they are aware of the practices their teachers should be implementing in their classrooms. Having the background knowledge of content presented in staff development sessions can assist leaders in structuring meaningful classroom observations to monitor teacher application of these skills.

Observe teachers. Leaders at Centennial School observe teachers by spending time in classrooms informally and conducting formal observations; this is consistent with the literature to support leaders observing teachers (Combs, Harris, & Edmonson, 2015; Gibbons & Knapp, 2015; Kachur, Stout, & Edwards, 2013). Informal classroom

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observations take place at Centennial School when leaders are walking through the hallways and looking into classrooms. Although leaders may not be looking for something specific during these informal observations, they can quickly learn how teachers and students are integrating technology and what tools are being used most commonly. These observations help leaders make decisions about future technology purchases. Leaders also observe teachers formally as part of the state requirements. While these observations are not necessarily focused on integrating technology, the leaders at Centennial School ask teachers questions about the section of technology to help students meet the lesson objectives. Learning about how teachers make these decisions assists leaders in developing future staff development topics and guiding teachers to evidence-based practices that are proven to assist students with EBD. Leaders look for purposeful integration of technology and debrief the use of technology during post-observation conversations.

Teacher feedback. Teachers connected how leaders observed them during classroom lessons to the follow-up conversations with detailed feedback about their performance (Kim & Silver, 2016). The follow-up component of the lesson observation is critical to teachers having conversations around improving their classroom practices (Gibbons & Knapp, 2015; West & Cameron, 2013). Teachers look to leaders for feedback on the integration of technology into classroom lessons. The feedback helps to reinforce teachers to continue this integration, redirect teachers to using a different tool to meet the objective, or use the same tool in a different manner. This feedback can be given during a post-observation conference or through a conversation in the hallway.

For example, a teacher implements a lesson where students use iPads to draw visual examples of fractions with the app Notability. The leader observes the lesson and recalls a recent training on math tools where a virtual manipulative fraction app was presented. During the observation debrief, the leader reminds the teacher of the app and has a conversation about how the virtual manipulatives fraction app would allow students to focus their attention on the concept of representing fractions; whereas the original lesson pulled the attention from the mathematical concept because students where focused on drawing the fractions. These critical conversations can change teacher thinking about the construction of lesson through instructional design and remind teachers about how to best meet the needs of students with EBD.

Praise and encourage teachers. Teachers at Centennial School acknowledged that leaders continuously praise and encourage them for their attempts to integrate technology. They told stories of leaders praising them through post-it notes on their desks, emails, text messages, public acknowledgement of their work at staff meetings, and through individual conversations. Teachers valued leaders recognizing teacher success (Combs et al., 2015), supporting teachers who integrate technology through acknowledgements (Baylor & Ritchie, 2002), and recognizing their technological skills (Hadley & Sheingold, 1993). These times of teacher recognition send the message to teachers that the work they are doing is in line with the pedagogical views of the school. Teachers continue to take risks with technology when they know that leaders may recognize their efforts. The praise leaders provide at Centennial School is specific to the lesson or lesson segment leaders observe. For example, if a leader observes a group of students working in social skills to create a movie about peer relationships, the teacher

may hear from a leader: "I like the way the students were all working together to create the movie. I'd love to be part of the film screening." The later part of the praise further demonstrates leaders' interest and investment in teachers integrating technology to meet the needs of students with EBD.

Culture

There are nine elements of culture discussed in the literature, all of which contributed to the overall culture at Centennial School. These nine elements included collegiality (Saphire & King, 1985), specialized language (Bolman & Deal, 2013; Schein, 2010), stories (Bolman & Deal, 2013; Hoy & Miskel, 2001; Owens, 2004), humor and play (Bolman & Deal, 2013; Saphire & King, 1985), ritual and ceremony (Barth, 2002; Bolman & Deal, 2013; Owens, 2004; Saphire & King, 1985), espoused beliefs (Barth, 2002; Fullan, 2005; Hoy & Miskel, 2001; Owens, 2004; Schein, 2010; Weller & Weller, 2002), underlying assumptions (Hoy & Miskel, 2001; Schein, 2010; Weller & Weller, 2002), observed behavior (Barth, 2002; Schein, 2010), and technology (Schein, 2010). The elements described dictate how teachers and leaders respond to situations throughout the school day and how they collaborate with one another.

As indicated in the section on linking leadership and culture, the strong values and beliefs held by teachers and leaders contribute to the collegial way in which staff interact with a specialized language that is unique to their culture. Staff members tell stories of student success and interact positively with one another. Success is celebrated formally through ceremonies and informally in hallway conversations and gatherings. The underlying assumptions help staff to pass on the culture from year to year. Teachers and

leaders engage in specific behaviors that often involve integrating or supporting the integration of technology to engage students with EBD.

Teacher Technology Integration

With leaders supporting the culture and culture supporting the leaders, teachers at Centennial School integrate technology to engage students with EBD. Throughout interviews, teachers explained their decision to engage students with technology came from their pedagogical knowledge (PK) of students with EBD, technological pedagogical knowledge (TPK) of how to meet the needs of students with EBD with technology, and a combination of their content knowledge (CK), PK, and TPK to form their technological pedagogical content knowledge (TPCK) (Koehler et al., 2013). Teachers are supported by leaders through the specific behaviors leaders engage in and staff development opportunities where they can increase their technological knowledge.

Teachers combine the evidence-based instructional strategies they learn from leaders with their technological knowledge that evolves from formal and informal learning experiences to integrate technology and engage students with EBD (Flower, 2014; Haydon et al., 2012). Teachers state clear expectations (Malone & Tietjens, 2000; Sagai & Horner, 2002; Sutherland & Wehby, 2001) and use technology to support existing evidence-based practices to engage students (Sticher et al., 2009; Sutherland & Wehby, 2001), provide choices (Kern et al., 2002; Kern et al., 1994; Niesyn, 2009; Romaniuk et al., 2002), provide visual representations of content (Reimer & Moyer, 2005; Satsangi, & Bouck, 2015; Steen et al., 2006; Silverman, 2002) and provide direct instruction (Ellis et al., 1991; Lee et al., 1999; Nelson et al., 1996). The following section

describes how teachers can use these evidence-based practices to drive their instruction with technology to engage students.

Clear expectations. Before teachers at Centennial School begin instruction, they provide clear expectations for students (Malone & Tietjens, 2000; Sagai & Horner, 2002; Sutherland & Wehby, 2001). These expectations are stated positively by the teacher or students to tell students what they should do throughout the class period to earn points on their point sheet that is tied into the school-wide positive behavior support system. Across the embedded cases, teachers reviewed the class-wide expectations at the start of every period and as the activities within the class period changed. The conditions for one previous study (Haydon et al., 2012) also included teachers stating clear expectations for students before using technology. When teachers explicitly state how students should use technology at the start of the lesson, they can gently remind students of these expectations as needed throughout the lesson. Teachers and leaders described this as a critical element to the successful implementation of technology.

Direct instruction. When teachers use technology to engage students and provide direct instruction at Centennial School, they employ a combination of teacher and student-centered technologies. A teacher-centered approach with direct instruction and technology focuses on teaching students through a more traditional lecture style presentation (Doyle, 2012) where the teacher primarily uses the technology to instruct. A direct instruction approach begins with teachers providing instruction on the content, students practice the content, and then teachers assess student understanding (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008).

For example, teachers present content to the whole-group of students at the

SMART Board using a teacher-centered approach. Throughout the whole-group

instruction, students participate in the lesson by raising their hands to answer or ask

questions or take notes. Following the whole-group instruction, students may approach

the board to solve problems or use iPads to solve problems independently in a student-

centered approach to using technology. Finally, student learning is assessed either with or

without technology. Throughout the guided practice and independent practice portions of

the lesson, the technology usage moved to student-centered technology where the

students were primarily using technology. In all of these examples, students are engaged

in their learning by participating in instruction (Greenwood, Horton, & Utley, 2002).

Choices. Teachers provide choices (Kern et al., 2002; Kern et al., 1994; Niesyn,

2009; Romaniuk et al., 2002) to students with technology. These choices came in the

form of choices within the technology and using technology or traditional classroom

materials. When teachers provide choices within technology, they select applications that

allow students to select the way they represent their learning. For example, after

completing a lesson on the relationship between multiplication and division, the students

could use the iPad app Book Creator to make book pages about how multiplication and

division work together. Within the Book Creator app, students could show their learning

by using the drawing tool to draw, import a video of themselves talking about the

relationship, or take a picture of a drawing they made on a whiteboard. Teachers

explained choices within iPad apps can help empower students who might otherwise not

want to complete work.

Teachers also presented students with technology and non-digital classroom materials. One teacher explained that initially her students were uncomfortable using the iPad and asked to have a paper and pencil alternative. As the students became more comfortable using the iPad, the teacher felt as if she did not need to verbalize the technology and non-digital materials. Rather, instead she relied on students to express they wanted to have an alternative. Initially, this option was important for students who were learning how to use the iPads and contributed to their comfort in trying new tools. Examples of choices include using the iPad app Classkick or completing a paper worksheet with the same content, using virtual manipulatives or physical manipulatives, using a physical clock or an interactive clock on the SMARTBoard.

As students become more comfortable with technology, they may not always request traditional non-digital materials to complete their work. However, there is value in having a non-digital material choice as a backup plan for lessons. In the event technology does not work as planned, these backup plans can help teachers to continue their lesson with minimal disruption to the learning of teachers. The dual role of the non-digital material choice for students provides an option for students who do not want to use technology or are not comfortable using technology and provides a backup plan for students.

Teachers must know their learners to fully understand how they can plan for these choices within their lessons (Heintzelman, 2016). To provide students with these options, teachers should have an understanding of student preferences, student needs, and progress monitoring goals they need to monitor and if technology choices will impact data collection. With an understanding of student preferences, teachers can intentionally

provide options for students to share their learning with preferred content, technology, and other materials. When teachers understand student needs, embedded choices to meet the needs of students can help students work towards filling their academic or behavioral need. It is also important for teachers to understand how the choices they present to students will impact their data collection. For example, a teacher may know that his or her student does not like to write and enjoys using the iPad to type responses to writing prompts. However, if that student has a handwriting goal, providing a choice of typing or writing could leave the teacher with little to no handwriting data.

Visual representation of content. Teachers also provided visual representation of content (Reimer & Moyer, 2005; Satsangi, & Bouck, 2015; Steen et al., 2006; Silverman, 2002) with technology. Across the cases, teachers used technology to show visual examples in a whole group setting through the SMART Board or individually to students through the iPad. Students who respond to visual representations of complex math concepts can use technology to interact with virtual manipulatives.

One way teachers can provide visual representations of content with technology is through virtual manipulatives. Although there is limited research to support virtual manipulatives to meet the needs of students with EBD (Serianni, 2014), research exists to support students in general education using virtual manipulatives (Reimer & Moyer, 2005; Steen et al., 2006). At Centennial School, teachers used virtual manipulatives to provide students with visual representations of fractions, a multiplication table, and an interactive clock. Students accessed these virtual manipulatives independently with the iPad.

School leaders and the culture of the school work together to support teachers to integrate technology into classroom lessons. The relationship between leaders and cultures to support technology integration stems from the values and beliefs of staff, frequent opportunities for staff development and school leaders engaging in supportive behaviors. These relationships result in teachers integrating technology to engage students with EBD by providing choices, visual representation of content, and direct instruction.

Implications for Research and Practice

This study suggests that schools with a positive, supportive environment, can support teachers who integrate technology through a welcoming culture where school leaders provide resources, teacher training, and engage in specific leadership behaviors. Findings from this study are not generalizable to other approved private schools which serve students with EBD. However, patterns that emerged from the primary case of school culture and embedded cases on special education teacher integration of technology, may provide insights to guide leaders and future studies in the fields of educational leadership and special education.

Consistent with the literature as presented above, leaders who want to support a culture where teachers integrate technology to engage students with EBD may consider:

- Planning for staff development (Anderson & Dexter, 2005; Baylor & Ritchie, 2002; Flanagan & Jacobsen, 2003; Schrum & Levin, 2009; Stevenson et al., 2016; Wilmore & Betz, 2000; Yee, 2000).

- Participating in staff development sessions with teachers (Hilton, et al., 2015).

- Observing teachers (Combs et al., 2015; Gibbons & Knapp, 2015; Kachur et al., 2013).

- Providing feedback about teacher performance (Gibbons & Knapp, 2015; West & Cameron, 2013).

- Praising and encouraging teachers (Baylor & Ritchie, 2002; Combs et al., 2015, Hadley & Sheingold, 1993).

At Centennial School, when leaders engaged in these behaviors and provided opportunities for teachers to engage in staff development sessions to learn instructional strategies, teachers successfully integrated technology into classroom lessons to develop their TPACK.

Special education teachers who want to integrate technology into their classrooms may consider stating clear expectations for students before and during classroom lessons with technology. Teachers can integrate technology to engage students through providing choices, visual representation of content, and direct instruction as described in the previous sections. Although there is only a small evidence-base to suggest teachers integrate technology to engage students with EBD (Flower, 2014; Haydon et al., 2012), using technology to implement already existing evidence-based strategies (e.g., choices, visual representation of content, direct instruction) is one way to move the field forward while supporting and engaging students.

Additional research should be conducted with a larger sample size across multiple research settings. While the factors above were in place at Centennial School and yielded a positive school culture, it is unknown if these factors in other environments would also produce a positive school culture with results of teachers effectively integrating

technology to engage students with EBD. In addition, there were concepts brought up by teachers and leaders that did not have enough support to become a pattern; however, they may lead to additional findings on the topic of school culture and how leaders support the school culture and technology integration.

One of these topics was teacher leadership. Throughout interviews with school leaders, they described lead teachers who implement staff development sessions. According to leaders, these teachers present staff development session to teach leaders, teachers, and support staff how to integrate technology. Leader 4 described in her interview that she relies on lead teachers in her program to directly instruct teacher interns and associates how to integrate technology into classroom instruction. Given the research to support the impact of teacher leaders on school culture (Roby, 2011), this area should be addressed in future studies.

This study was conducted in a special education setting. Findings from the study revealed specific leader and teacher behaviors in this environment yielded a positive school culture. If implemented in a general education setting, these behaviors may also have an impact in a larger school setting. School leaders interested in making positive changes on their school culture may consider adopting the behaviors described in subsequent sections.

Limitations

Although precautions were taken to increase the reliability of the study, there were limitations within the design. The nature of qualitative research and the reliance on interviews and focus groups led to the need for several days of data collection to complete the study. Due to data being collected from teachers and school leaders who

work closely together across several days, it is possible teachers and school leaders discussed interview and focus group questions with one another. In an attempt to control this confounding variable, teachers focus groups were conducted with teachers in the same program. Teachers in the same program most commonly talk with others in their program and thus would have less of a chance of sharing the questions with others outside of their program. School leader interviews were conducted in two days where the interviews were held without hours of one another.

The research setting was another limitation. Although Centennial School is a unique environment and the characteristics of the school contributed to the case, this approved private school is not representative of the general population of approved private schools for students with behavioral difficulties. The structure of the school is one difference. As a laboratory school, part of the school's mission is to train special education teachers. There is intentionally a high rate of turnover among teachers. Only lead teachers and school leaders return to the school yearly as teachers.

The director of the school was a member of the researcher's dissertation committee. He did not participate in the study. This presents a limitation because his insights as a leader of the school were not part of this study. The director's role on the dissertation committee was not made known to the participants of the study as not to influence their responses to the survey or interview questions.

Researcher Reflection

This study represented the topic and place I am most passionate about: integrating technology to engage students with EBD and Centennial School. I have been a teacher at Centennial School for the last eight years. Beyond my role of a teacher, I am a teacher

leader who leads our technology committee and contributed to the overall vision of adopting technology into our school culture. My experiences as a teacher at Centennial School were only positive and have led me to the belief that the school culture there is positive and different from other similar environments I have visited.

These experiences shaped the way I approached the study, constructed the conceptual framework, topics I researched for the literature review, and my access to subjects. My background and relationship with the school leaders and teachers unintentionally impacted the way I asked questions and undoubtedly the responses of participants. While I firmly believe participants provided truthful answers to interview and focus group questions, they are aware of my interest in instructional technology and they may have provided answers in an effort to show what they learned from the trainings I conducted on these topics. Future studies on this topic conducted at Centennial School should allow an additional researcher not as familiar with the setting to conduct interviews with teachers and school leaders.

Summary

This multiple embedded case study examined the school culture at Centennial School and how school leaders support teachers who integrate technology to engage students with EBD. Findings from the study indicate Centennial School's culture is "positive," "welcoming," and "supportive." Teachers and leaders follow school-wide procedures that are driven by the school handbook and belief statements. Within these values and beliefs, staff and leaders meet the needs of students using an academic and behavioral approach. Staff learn how to actively engage students, provide clear expectations, direct instruction, and visual representation of content through staff

development sessions, team meetings, and informal conversations. Leaders model these strategies, provide feedback on how teachers implement these strategies, praise teachers, encourage teachers, and spend time classrooms. When teachers learn these instructional strategies and school leaders support teachers, teachers provide clear expectations as they integrate technology into their classroom to engage students, provide choices, visual representations of content and direct instruction.

Although the findings of this study are not generalizable, further studies are warranted in the area of school culture and leader support of special education teachers who integrate technology. Future findings may guide leaders to consider how they might support special education teachers who integrate technology by engaging in intentional behaviors. Another area of future research may be how teacher leaders contribute to technology integration initiatives in special education schools.

Appendix A

School Culture Triage Survey Culture Codes

Elements of a culture include:

- Collegiality (C) (Saphier & King, 1985)
- Specialized language (SL) (Bolman & Deal, 2013; Schein, 2010)
- Stories (S) (Bolman & Deal, 2013; Hoy & Miskel, 2001; Owens, 2004)
- Humor and play (HP) (Bolman & Deal, 2013; Saphier & King, 1985)
- Ritual and ceremony (RC) (Barth, 2002; Bolman & Deal, 2013; Owens, 2004; Saphier & King, 1985)
- Espoused beliefs and values (EBV) (Barth, 2002; Fullan, 2005; Hoy & Miskel, 2001; Owens, 2004; Schein, 2010; Weller & Weller, 2002)
- Underlying assumptions (UA) (Hoy & Miskel, 2001; Schein, 2010; Weller & Weller, 2002)
- Observed behavior (OB) (Barth, 2002; Schein, 2010)
- Technology (T) (Schein, 2010)

School Culture Triage Survey (Wagner, 2006)

Professional Collaboration	Culture code
1. Teachers and staff discuss instructional strategies and curriculum issues.	C, SL, T
2. Teachers and staff work together to develop the school schedule.	EBV, UA
3. Teachers and staff are involved in the decision-making process with regard to materials and resources.	EBV, UA, T
4. The student behavior code is a result of collaboration and consensus among staff.	SL
5. The planning and organizational time allotted to teachers and staff is used to plan as collective units/teams rather than as separate individuals.	OB

Affiliative Collegiality	Culture code
1. Teachers and staff tell stories of celebrations that support the school's value.	C, HP, RC, S
2. Teachers and staff visit/talk/meet outside of school to enjoy each others' company.	C, HP, RC
3. Our school reflects a true "sense" of community.	C, RC
4. Our school schedule reflects frequent communication opportunities for teachers and staff.	C, UA
5. Our school supports and appreciates the sharing of new ideas by members of our school.	C, EBV, UA
6. There is rich and robust tradition of rituals and celebrations including holidays, special events and recognition of goal attainment.	C, HP, RC, S

Self-Determination/Efficacy	Culture code
1. When something is not working in our school, the faculty and staff predict and prevent rather than react and repair.	OB, UA
2. School members are interdependent and value each other.	OB
3. Members of our school community seek alternatives to problems/issues rather than repeating what we have always done.	OB, UA
4. Members of our school community seek to define the problem/issue rather than	OB, UA

blame others.	
5. The school staff is empowered to make instructional decisions rather than waiting for their supervisors to tell them what to do.	EBV, OB, UA
6. People work here because they enjoy and choose to be here.	C, OB

Appendix B

School Letter of Approval

Centennial School

Michael P. George, Ed.D.
Director

College of Education
2196 Avenue C, LVIP 1
Bethlehem, Pennsylvania 18017-2193
(610) 266-6500   Fax (610) 266-7126
e-mail: mpg6@lehigh.edu
www.lehigh.edu/~insch.html

October 3, 2016

To Whom It May Concern:

As the Director of Centennial School of Lehigh University, I confirm the decision of the Administrative Team at Centennial School to grant permission for Sara Heintzelman to conduct her proposed research at Centennial School contingent on IRB approval.

I have reviewed Sara's research proposal. She plans to observe and interview teachers, interview school leaders, survey all faculty, and analyze documents (e.g., lesson plans and staff development calendars). All of these activities are examples of activities conducted routinely at our school for the purpose of improving the working environment for the children we serve. As Director of the school and as outlined in our *Policy and Procedures Handbook*, I have the authority to grant Sara Heintzelman the permission necessary to conduct research at the school, and hereby do grant her permission to conduct her proposed research at Centennial School of Lehigh University.

Please feel free to contact me with any questions are concerns you may have in this regard (610-266-6500) or mpg6@lehigh.edu.

Michael George, Ed.D.
Director
Centennial School of Lehigh University

LEHIGH
UNIVERSITY.

Centennial School is an Approved Private School through the PA Department of Education

CONSENT FORM

Integrating Technology to Engage Students with EBD: A Case Study of School Leader Support

You are invited to be in a research study of how teachers integrate technology to engage students with EBD and school leaders support teachers who integrate technology. You were selected as a possible participant because you are staff member at Centennial School of Lehigh University where school leaders support the integration of technology to engage students with EBD. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Sara Heintzelman, University of Kentucky, under the direction of Dr. George White of Lehigh University**.**

Purpose of the study
The purpose of this study is:
To examine the role of leadership and school culture on the integration of technology to support instruction for students with emotional and behavioral disorders (EBD).

Procedures
If you agree to be in this study, we would ask you to do the following things:
- Complete the School Culture Triage Survey in regards to your perception of school culture that will take approximately 20 minutes. The survey includes 17 statements about your experiences at Centennial School. You will rate each statement according to how often you experience the given situation. The completion of the survey will take place immediately following a weekly staff meeting in the Centennial School Library.

Risks and *Benefits* of being in the study
Possible risks:
There are minimal risks associated with participating in this study. Participants may experience a loss of time due to the time needed to participate in the study or boredom when answering the survey questions.

The benefits to participation are:
Informing the field of special education and educational leadership.

Compensation
You will receive payment:
There is no compensation.

Confidentiality
The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. These recordings will be destroyed after the dissertation is completed and published.

Voluntary Nature of the Study
Participation in this study is voluntary:
Your decision whether or not to participate will not affect your current or future relations with the Lehigh University or Centennial School of Lehigh University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions
The researchers conducting this study are:
 Sara Heintzelman and Dr. George White. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at Lehigh University, 610-758-3262, sch309@lehigh.edu; gpw1@lehigh.edu .

Questions or Concerns:
If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact Naomi Coll, Lehigh University's Manager of Research Integrity, at (610) 758-2985 (email: nac314@lehigh.edu). All reports or correspondence will be kept confidential.

You will be given a copy of this information to keep for your records.

Statement of Consent

I have read the above information. I have had the opportunity to ask questions and have my questions answered. I consent to participate in the study.

Signature: _____   Date: _____

Signature of Investigator: _____   Date: _____

Appendix D

School Leader Consent Form

LEHIGH
U N I V E R S I T Y.

CONSENT FORM
Integrating Technology to Engage Students with EBD: A Case Study of School Leader Support

You are invited to be in a research study of how teachers integrate technology to engage students with EBD and school leaders support teachers who integrate technology. You were selected as a possible participant because you are a school leader supporting teachers who integrate technology. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Sara Heintzelman, University of Kentucky, under the direction of Dr. George White of Centennial School of Lehigh University

Purpose of the study
The purpose of this study is:
To examine the role of leadership and school culture on the integration of technology to support instruction for students with emotional and behavioral disorders (EBD).

Procedures
If you agree to be in this study, we would ask you to do the following things:
- Complete the School Culture Triage Survey in regards to your perception of school culture that will take approximately 20 minutes. The survey includes 17 statements about your experiences at Centennial School. You will rate each statement according to how often you experience the given situation. The completion of the survey will take place immediately following a weekly staff meeting in the Centennial School Library.
- Participate in an interview that will be audio recorded and will take approximately 1 hour. The interview questions will focus on school culture and how you as support teachers who integrate technology. The interview will take place in a conference room between 7:30am and 3:30pm at Centennial School.

Risks and *Benefits* of being in the study
Possible risks:
There are minimal risks associated with participating in this study. Participants may experience a loss of time due to the time needed to participate in the study or boredom when answering the survey questions.

The benefits to participation are:
Informing the field of special education and educational leadership.

Compensation
You will receive payment:
There is no compensation.

Confidentiality

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Only the researcher, the PI, and the dissertation chair will have access to the audio recordings. These recordings will be destroyed after the dissertation is completed and published.

Voluntary Nature of the Study

Participation in this study is voluntary:

Your decision whether or not to participate will not affect your current or future relations with the Lehigh University or Centennial School of Lehigh University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions

The researchers conducting this study are:

Sara Heintzelman and Dr. George White. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at Centennial School of Lehigh University, 610-758-2870, sch309@lehigh.edu; gpw1@lehigh.edu .

Questions or Concerns:

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact Naomi Coll, Lehigh University's Manager of Research Integrity, at (610) 758-2985 (email: nac314@lehigh.edu). All reports or correspondence will be kept confidential.

You will be given a copy of this information to keep for your records.

Statements of Consent

I have read the above information. I have had the opportunity to ask questions and have my questions answered. I consent to participate in the study.

Signature: _____   Date: _____

Signature of Investigator: _____   Date: _____

I understand that the focus group will be audio recorded and by participating in this focus group my voice will be recorded. The recording will be used for analysis by the research team. Your name will not be used in the publication of the dissertation. A pseudonym will be used for any direct quotes that may be published from the audio recording. Your signature below grants the investigators on this form and the dissertation chair permission to record you as described above. The investigator will not use the recording for any other reason than those stated on this consent form.

Signature: _____   Date: _____

Signature of Investigator: _____   Date: _____

Appendix E

Focus Group Consent Form

CONSENT FORM

Integrating Technology to Engage Students with EBD: A Case Study of School Leader Support

You are invited to be in a research study of how teachers integrate technology to engage students with EBD and school leaders support teachers who integrate technology. You were selected as a possible participant because you are staff member at Centennial School of Lehigh University where school leaders support the integration of technology to engage students with EBD. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Sara Heintzelman, University of Kentucky, under the direction of Dr. George White of Lehigh University

Purpose of the study
The purpose of this study is:
To examine the role of leadership and school culture on the integration of technology to support instruction for students with emotional and behavioral disorders (EBD).

Procedures
If you agree to be in this study, we would ask you to do the following things:
- Complete the School Culture Triage Survey in regards to your perception of school culture that will take approximately 20 minutes. The survey includes 17 statements about your experiences at Centennial School. You will rate each statement according to how often you experience the given situation. The completion of the survey will take place immediately following a weekly staff meeting in the Centennial School Library.
- Participate in a focus group where you will be asked to have a conversation with your colleagues and answer questions around topics such as how school leaders support you in the integration of technology, your perception of the school culture, and how the school culture helps or hinders your integration of technology. School leaders will not be present at the focus group and the content you share will remain anonymous in any publications. The focus group will last approximately one hour and thirty minutes and will be held in a conference room at Centennial School between 7:30am and 3:30pm during a school day.

Risks and _Benefits_ of being in the study
Possible risks:
There are minimal risks associated with participating in this study. Participants may experience a loss of time due to the time needed to participate in the study or boredom when answering the survey and focus group questions.

The benefits to participation are:
Informing the field of special education and educational leadership.

Compensation
You will receive payment:
There is no compensation.

Confidentiality

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Only the researcher, the PI, and the dissertation chair will have access to the audio recordings. These recordings will be destroyed after the dissertation is completed and published.

Voluntary Nature of the Study

Participation in this study is voluntary:
Your decision whether or not to participate will not affect your current or future relations with the Lehigh University or Centennial School of Lehigh University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions

The researchers conducting this study are:
Sara Heintzelman and Dr. George White. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at Centennial School of Lehigh University, 610-758-3262, sch309@lehigh.edu; gpw1@lehigh.edu.

Questions or Concerns:
If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact Naomi Coll, Lehigh University's Manager of Research Integrity, at (610) 758-2985 (email: nac314@lehigh.edu). All reports or correspondence will be kept confidential.

You will be given a copy of this information to keep for your records.

Statements of Consent

I have read the above information. I have had the opportunity to ask questions and have my questions answered. I consent to participate in the study.

Signature: _____   Date: _____

Signature of Investigator: _____   Date: _____

I understand that the focus group will be audio recorded and by participating in this focus group my voice will be recorded. The recording will be used for analysis by the research team. Your name will not be used in the publication of the dissertation. A pseudonym will be used for any direct quotes that may be published from the audio recording. Your signature below grants the investigators on this form and the dissertation chair permission to record you as described above. The investigator will not use the recording for any other reason than those stated on this consent form.

Signature: _____   Date: _____

Signature of Investigator: _____   Date: _____

Appendix F

Embedded Case Teacher Consent Form

LEHIGH UNIVERSITY®

CONSENT FORM

Integrating Technology to Engage Students with EBD: A Case Study of School Leader Support

You are invited to be in a research study of how teachers integrate technology to engage students with EBD and school leaders support teachers who integrate technology. You were selected as a possible participant because you are a lead teacher who integrates technology to engage students with emotional and behavioral disorders (EBD). I ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Sara Heintzelman, University of Kentucky, under the direction of Dr. George White of Lehigh University

Purpose of the study
The purpose of this study is:
To examine the role of leadership and school culture on the integration of technology to support instruction for students with emotional and behavioral disorders (EBD).

Procedures
If you agree to be in this study, we would ask you to do the following things:
- Complete the School Culture Triage Survey in regards to your perception of school culture that will take approximately 20 minutes. The survey includes 17 statements about your experiences at Centennial School. You will rate each statement according to how often you experience the given situation. The completion of the survey will take place immediately following a weekly staff meeting in the Centennial School Library.
- Submit a lesson plan in the Lehigh University lesson plan format for each classroom observation (3-6 lesson plans) one week before the scheduled observation.
- Participate in 3 to 6 classroom observations where a full math lesson will be observed by the primary research and a data collector. The classroom observations will take place in your classroom at Centennial School.
- Participate in 3 to 6 interviews that will be audio recorded and will take approximately 1 hour each. The interview questions will focus on how you integrate technology to engage students with EBD. The interviews will take place in a conference room between 7:00am and 5:00pm at Centennial School.

Risks and Benefits of being in the study
Possible risks:
There are minimal risks associated with participating in this study. Participants may experience a loss of time due to the time needed to participate in the study or boredom when answering the survey and focus group questions.

The benefits to participation are:
Informing the field of special education and educational leadership.

Compensation
You will receive payment:
There is no compensation.

Confidentiality

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Only the researcher, the PI, and the dissertation chair will have access to the audio recordings. These recordings will be destroyed after the dissertation is completed and published.

Voluntary Nature of the Study

Participation in this study is voluntary:

Your decision whether or not to participate will not affect your current or future relations with the Lehigh University or Centennial School of Lehigh University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions

The researchers conducting this study are:

Sara Heintzelman and Dr. George White. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at Centennial School of Lehigh University, 610-758-3262, sch309@lehigh.edu; gpw1@lehigh.edu .

Questions or Concerns:

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact Naomi Coll, Lehigh University's Manager of Research Integrity, at (610) 758-2985 (email: nac314@lehigh.edu). All reports or correspondence will be kept confidential.

You will be given a copy of this information to keep for your records.

Statements of Consent

I have read the above information. I have had the opportunity to ask questions and have my questions answered. I consent to participate in the study.

Signature: _____   Date: _____

Signature of Investigator: _____   Date: _____

I understand that the focus group will be audio recorded and by participating in this focus group my voice will be recorded. The recording will be used for analysis by the research team. Your name will not be used in the publication of the dissertation. A pseudonym will be used for any direct quotes that may be published from the audio recording. Your signature below grants the investigators on this form and the dissertation chair permission to record you as described above. The investigator will not use the recording for any other reason than those stated on this consent form.

Signature: _____   Date: _____

Signature of Investigator: _____   Date: _____

Appendix G

Lehigh University IRB Approval

LEHIGH UNIVERSITY

DATE: November 22, 2016
TO: George White, Ed.D.
FROM: Lehigh University Institutional Review Board
STUDY TITLE: [967119-2] Integrating Technology to Engage Students with EBD: A Case Study of School Leader Support
IRB REFERENCE #: 17/069 N
SUBMISSION TYPE: Response/Follow-Up (New Project)
ACTION: APPROVED
REVIEW TYPE: Expedited Review
PROJECT EXPIRATION DATE: November 21, 2017
INITIAL APPROVAL DATE: November 22, 2016
DECISION DATE: November 22, 2016

Thank you for your submission of materials for this research study. The IRB has reviewed and APPROVED the submission. This approval is based on an appropriate risk/benefit ratio and a study design that has minimized risk to human subjects. All research must be conducted in accordance with this approved submission. This approval is valid until the project expiration date listed above.

This submission has received Expedited Review based on the Lehigh University Policy on the Protection of Human Subjects in Research.

Reapproval and Progress Report: The current approval will expire on November 21, 2017. If the investigator wishes to continue the study beyond that time, a Continuing Review submission must be made via IRBNet. Continuing Reviews must be submitted to the IRB at least **_60 days_** prior to the project expiration date of November 21, 2017.

Informed Consent: Please be aware that informed consent is a process, beginning with a description of the study and ensurance of subject comprehension of all study procedures and the risks and benefits involved in participation. The subjects' signing of the consent form is a part of the informed consent process. The process of informed consent must continue throughout the study via a dialogue between the researcher and the subject. The Lehigh University policy requires that each subject receive a copy of the signed consent document.

Study Changes or Amendments: If during the course of the approval period, the investigator proposes changes to the approved protocol, these changes must be submitted to the IRB via an Amendment/ Modification submission in IRBNet. Proposed changes may not be initiated without IRB approval (except when necessary to eliminate immediate hazards to subjects).

Reporting Unanticipated Problems All unanticipated problems involving risks to subjects or others must be reported to the IRB within five business days via a Reportable New Information submission in IRBNet. All events that are considered reportable to the IRB, including noncompliance, subject complaints, and subject injury, are listed in the Reporting Unanticipated Problems section of the Lehigh University Policy on the Protection of Human Subjects in Research. It is the investigator's responsibility to be aware of and follow any additional sponsor reporting requirements.

Completion of Study and Record Retention: Please notify the IRB as soon as the research has been completed. Research studies are considered to no longer involve human subjects and can be

- 1 -

closed with the IRB once investigators have finished obtaining data through interaction or intervention with subjects or obtaining identifiable private information about subjects; including using, studying, or analyzing private identifiable information. The investigator must retain all study records, including full protocols and signed consent forms (originals) for each subject, in a secure location for 3 years following the study's completion.

Please direct questions about this approval to Naomi Coll, Manager of Research Integrity, at 610-758-3021 or nac314@lehigh.edu. Please include the study title and reference number in all correspondence.

Appendix H

University of Kentucky Ceding to Lehigh University IRB Approval

IRB Authorization Agreement

Name of Institution or Organization Providing IRB Review (Institution A): Lehigh University

OHRP Federalwide Assurance (FWA) #: 00003041

IRB Registration #:   00002553

Name of Institution Relying on the Designated IRB (Institution B):
University of Kentucky

OHRP Federalwide Assurance (FWA) #: 00005295

The Officials signing below agree that University of Kentucky may rely on the designated IRB for review and continuing oversight of its human subject research described below:

This agreement is limited to the following specific protocol(s):

Name of Research Project: Integrating Technology to Engage Students with EBD: A Case Study of School Leader Support

Protocol Number:

Name of Principal Investigator: Dr. George White

Sponsor or Funding Agency: N/A   **Award Number, if any:** N/A

The review and continuing oversight performed by the designated IRB will meet the human subject protection requirements of Institution B's OHRP-approved FWA. The IRB at Institution A will follow written procedures for reporting its findings and actions to appropriate officials at Institution B. Relevant minutes of IRB meetings will be made available to Institution B upon request. Institution B remains responsible for ensuring compliance with the IRB's determinations and with the terms of its OHRP-approved Assurance. This document must be kept on file at both institutions and provided to OHRP upon request.

Signature of IRB Signatory Official (Institution A):   Date: 23-Nov-2016
Print Full Name: Naomi E. Coll, MPH, CPH, CIP
Institutional Title: Manager of Research Integrity

Signature of IRB Signatory Official (Institution B): _
Date: _11/28/16_
Print Full Name: Lisa Cassis, Ph.D

Institutional Title: Vice President for Research

Appendix I

School Culture Triage Survey

School Culture Triage Survey

SCORING: 1 = NEVER   2 = RARELY   3 = SOMETIMES   4 = OFTEN   5 = ALWAYS OR ALMOST ALWAYS

Professional Collaboration

1. Teachers and staff discuss instructional strategies and curriculum issues. — 1 2 3 4 5
2. Teachers and staff work together to develop the school schedule. — 1 2 3 4 5
3. Teachers and staff are involved in the decision-making process with regard to materials and resources. — 1 2 3 4 5
4. The student behavior code is a result of collaboration and consensus among staff. — 1 2 3 4 5
5. The planning and organizational time allotted to teachers and staff is used to plan as collective units/teams rather than as separate individuals. — 1 2 3 4 5

Affiliative Collegiality

1. Teachers and staff tell stories of celebrations that support the school's values. — 1 2 3 4 5
2. Teachers and staff visit/talk/meet outside of the school to enjoy each others' company. — 1 2 3 4 5
3. Our school reflects a true "sense" of community. — 1 2 3 4 5
4. Our school schedule reflects frequent communication opportunities for teachers and staff? — 1 2 3 4 5
5. Our school supports and appreciates the sharing of new ideas by members of our school. — 1 2 3 4 5
6. There is a rich and robust tradition of rituals and celebrations including holidays, special events and recognition of goal attainment. — 1 2 3 4 5

Self-Determination/Efficacy

1. When something is not working in our school, the faculty and staff predict and prevent rather than react and repair. — 1 2 3 4 5
2. School members are interdependent and value each other. — 1 2 3 4 5
3. Members of our school community seek alternatives to problems/issues rather than repeating what we have always done. — 1 2 3 4 5
4. Members of our school community seek to define the problem/issue rather than blame others. — 1 2 3 4 5
5. The school staff is empowered to make instructional decisions rather than waiting for supervisors to tell them what to do. — 1 2 3 4 5
6. People work here because they enjoy and choose to be here. — 1 2 3 4 5

Scoring the School Culture Triage Survey

The lowest triage score is 17 and the highest score is 85. After using the triage questions in several program evaluations, our data suggest the following:

17–40 Critical and immediate attention necessary. Conduct a full-scale assessment of your school's culture and invest all available resources in repairing and healing the culture.

41–59 Modifications and improvements are necessary. Begin with a more intense assessment of your school's culture to determine which area is in most need of improvement.

60–75 Monitor and maintain making positive adjustments.

76–85 Amazing! We have never had a score higher than 75!

Before engaging in an elaborate and extensive analysis of the school culture, this quick assessment of current status can assist in determining the wise allocation of time and resources.

School Culture Triage Survey Cognitive Testing Protocol

A. Introduction
Thank you for coming here today to assist. The reason I asked for your help is that next year I am conducting a survey on school culture and innovative practices. Next year, all Centennial School teachers and administrators will participate in a survey. Today I am going to ask you to look at the School Culture Triage Survey. Your reactions to this survey will help provide me with information that will help make the survey as easy to complete as possible. Okay?

B. Hand respondent confidentiality form
The first thing I need to do is ask you to read and sign this consent form. But first let me explain what it is about. This interview is voluntary. It is being conducted by me in preparation for my dissertation survey research. Everything you do on the survey is confidential. The only people who can see the information you provide are me and the professors assisting me with the creation of my survey. The statement I am asking you to sign indicates that you have volunteered for this interview. I will also sign it as well since I am the person conducting the interview and I want to assure you in writing of my promise to keep all of your information confidential.

C. Explain Procedure
In a couple of minutes I am going to hand you a computer with the School Culture Triage Survey pulled up in a web browser. When I do, I would like you to talk out loud about your reactions to the survey as you read questions and fill it out. I would like to know everything you think about. Talking out loud about these sorts of things may seem a little unusual, so before I give you the School Culture Triage Survey, I have a really short *practice* survey. When I give it to you, please tell me everything you are thinking as you start the survey. I would like to know any thoughts you have about whether it strikes you in a favorable or unfavorable way, whether it is clear about what to do or not do, and so forth.

D. Hand Respondent Practice Survey
Okay, please read the questions out loud and tell me everything you are thinking about while you fill it out.

(Provide positive reinforcement, e.g., "Good, that's what I need to know.")

(Encourage the respondent to provide other information, e.g., "When you read the real School Culture Triage Survey, be sure to tell me your reaction to everything, the way the whole thing looks, whether it's clear to do or not do, anything you don't understand, or anything that seems strange.")

E. Hand Laptop with School Culture Survey to Respondent
Here is the survey that teachers and administrators will take next year. Please take your time and tell me any reactions you have to everything that you see in front of you.

1. Reaction to survey:
2. Did the respondent read the initial directions?
   o Fully
   o Partially
   o Not at all
3. Did the respondent react at all to the direction to only fill out the survey based on their experiences at Centennial School?

F. Ask Respondents to Fill Out the Survey
Now, please tell out the survey and talk out loud with your impressions of it. I would like for you to read whatever you would read at school while filling it out; however, if there is anything you wouldn't read, don't read it here. I'd like for you to fill it out just like you would at home, except that you should talk out loud about it, and anything you read to yourself should be read out loud. Please go ahead.

Probes that might be used:
- What are you thinking right now?
- Remember to read aloud for me - it's up to you what you read, but whatever you decide to read, please do so aloud so I know what you are looking at.
- Can you tell me more about that?
- Could you describe that for me?
- Don't forget to tell me what you are thinking as you do that.

G. Record Relevant comments, Errors, Hesitations, and Other Indicators of Potential Problems During Completion (to be used to frame follow-up questions).
1. Did the respondent ask questions about any of the vocabulary used in the survey?
2. What reactions did the respondent volunteer, if any?

H. Debriefing Questions
1. Overall, how easy or difficult was the form to complete?
   o Very easy
   o Somewhat easy
   o Somewhat difficult
   o Very difficult
2. Was there anything unclear or confusing about how to fill out this survey?
   o Yes - (If yes) please explain:
   o No

Appendix K

Teacher Focus Group Protocol

Overall school culture questions:
- Describe Centennial School.
- How do leaders support you at Centennial School?

Professional Collaboration (Wagner, 2006)
- When do you plan your lessons?
- Is there time in the day for you to co-plan lessons?

Affiliative Collegiality (Wagner, 2006)
- When are time that you share stories of student success?
- When do you share technology ideas?

Self-determination/efficacy? (Wagner, 2006)
- Why do you want to work and continue to work here?

School Leaders Support Technology Integration
- There was a shift in the technology devices available to teachers starting eight years ago. From what you remember, how were you as teachers involved in the decision-making process?
- How do you know school leaders are furthering their technological knowledge?
- How does staff development contribute to your overall knowledge of how to integrate technology into classroom lessons?

Appendix L

Technology Integration Assessment Rubric

Technology Integration Assessment Rubric[123]

Criteria	4	3	2	1
Curriculum Goals & Technologies (Curriculum-based technology use)	Technologies selected for use in the instructional plan are <u>strongly aligned</u> with one or more curriculum goals.	Technologies selected for use in the instructional plan are <u>aligned</u> with one or more curriculum goals.	Technologies selected for use in the instructional plan are <u>partially aligned</u> with one or more curriculum goals.	Technologies selected for use in the instructional plan are <u>not aligned</u> with any curriculum goals.
Instructional Strategies & Technologies (Using technology in teaching/ learning)	Technology use <u>optimally supports</u> instructional strategies.	Technology use <u>supports</u> instructional strategies.	Technology use <u>minimally supports</u> instructional strategies.	Technology use <u>does not support</u> instructional strategies.
Technology Selection(s) (Compatibility with curriculum goals & instructional strategies)	Technology selection(s) are <u>exemplary</u>, given curriculum goal(s) and instructional strategies.	Technology selection(s) are <u>appropriate, but not exemplary</u>, given curriculum goal(s) and instructional strategies.	Technology selection(s) are <u>marginally appropriate</u>, given curriculum goal(s) and instructional strategies.	Technology selection(s) are <u>inappropriate</u>, given curriculum goal(s) and instructional strategies.
"Fit" (Content, pedagogy and technology together)	Content, instructional strategies and technology <u>fit together strongly</u> within the instructional plan.	Content, instructional strategies and technology <u>fit together</u> within the instructional plan.	Content, instructional strategies and technology <u>fit together somewhat</u> within the instructional plan.	Content, instructional strategies and technology <u>do not fit together</u> within the instructional plan.

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[1] Harris, J., Grandgenett, N., & Hofer, M. (2010). Testing a TPACK-based technology integration assessment instrument. In C. D. Maddux, D. Gibson, & B. Dodge (Eds.). *Research highlights in technology and teacher education 2010* (pp. 323-331). Chesapeake, VA: Society for Information Technology and Teacher Education (SITE).

[2] Adapted from: Britten, J. S., & Cassady, J. C. (2005). The Technology Integration Assessment Instrument: Understanding planned use of technology by classroom teachers. *Computers in the Schools, 22*(3), 49-61.

Appendix M

Technology Integration Observation Instrument

Technology Integration Observation Instrument

Observer _____ Teacher _____ Date _____

Grade Level(s) _____ Subject Area(s) _____

Primary Learning Goals _____

Directions:
We have tried to key the components of this instrument to different aspects of teachers' knowledge for technology integration. Please note, however, that the instrument is *not designed to assess this knowledge directly*. It is designed to focus upon the use of technology integration knowledge in observable teaching. Please record the *key curriculum topics addressed*, *instructional strategies/learning activities observed*, and *digital and non-digital technologies used* by the teacher and/or students in the lesson.

Curriculum Topic	Key Instructional Strategies/Learning Activities	Digital[1] & Non-Digital[2] Technologies

What, if anything, do you know about influences upon what you have observed in this lesson? Examples might include students' learning needs, preferences, and challenges; access to technologies; cultural, language and/or socioeconomic factors.

_____

[1] Computer-based (e.g., software, Web-based resources, video or audio recorder, document camera, calculator)
[2] Not computer-based (e.g., overhead projector, textbook, whiteboard, pen/pencil/marker)

Technology Integration Observation Instrument[3i]

Directions: Referring to the notes you made on the previous page, including your responses to the question about influences, please complete the following rubric, considering the lesson as a whole.

	4	3	2	1
Curriculum Goals & Technologies (Matching technology to curriculum)	Technologies used in the lesson are strongly aligned with one or more curriculum goals.	Technologies used in the lesson are aligned with one or more curriculum goals.	Technologies used in the lesson are partially aligned with one or more curriculum goals.	Technologies used in the lesson are not aligned with one or more curriculum goals.
Instructional Strategies & Technologies (Matching technology to instructional strategies)	Technology use optimally supports instructional strategies.	Technology use supports instructional strategies.	Technology use minimally supports instructional strategies.	Technology use does not support instructional strategies.
Technology Selection(s) (Matching technology to both curriculum and instructional strategies)	Technology selection(s) are exemplary, given curriculum goal(s) and instructional strategies.	Technology selection(s) are appropriate, but not exemplary, given curriculum goal(s) and instructional strategies.	Technology selection(s) are marginally appropriate, given curriculum goal(s) and instructional strategies.	Technology selection(s) are inappropriate, given curriculum goal(s) and instructional strategies.
"Fit" (Considering curriculum, pedagogy and technology all together)	Curriculum, instructional strategies and technology fit together strongly within the lesson.	Curriculum, instructional strategies and technology fit together within the lesson.	Curriculum, instructional strategies and technology fit together somewhat within the lesson.	Curriculum, instructional strategies and technology do not fit together within the lesson.

(over, please)

[3]Adapted from:
Harris, J., Grandgenett, N., & Hofer, M. (2010). Testing a TPACK-based technology integration assessment instrument. In C. D. Maddux, D. Gibson, & B. Dodge (Eds.). *Research highlights in technology and teacher education 2010* (pp. 323-331). Chesapeake, VA: Society for Information Technology and Teacher Education (SITE).

	4	3	2	1
Instructional Use (Using technologies effectively for instruction)	Instructional use of technologies is maximally effective in the observed lesson.	Instructional use of technologies is effective in the observed lesson.	Instructional use of technologies is minimally effective in the observed lesson.	Instructional use of technologies is ineffective in the observed lesson.
Technology Logistics (Operating technologies effectively)	Teachers and/or students operate technologies very well in the observed lesson.	Teachers and/or students operate technologies well in the observed lesson.	Teachers and/or students operate technologies adequately in the observed lesson.	Teachers and/or students operate technologies inadequately in the observed lesson.

Comments:

150

Appendix N

TPACK Interview Protocol

LESSON DESCRIPTION:

Describe the content and/or process topic(s) for the lesson.
Describe the student learning goals/objectives addressed in the lesson. (These will not necessarily be state or national standards. Participants should describe these in their own words.)
Describe your students (e.g. grade level, and specific learning needs/preferences). Walk me through the lesson/project as it unfolded in the classroom. What educational technologies (digital and non-digital) did you use and how did you and/or your students use them?
Describe any contextual information (e.g. access to a computer lab, materials and resources available; particular departmental/school-wide initiatives) that influenced the design or implementation of the lesson/project.

TPACK-SPECIFIC QUESTIONS:

How and why do the particular technologies used in this lesson/project "fit" the content/process goals?

How and why do the particular technologies used in this lesson/project "fit" the instructional strategies you used?

How and why do the learning goals, instructional strategies, and technologies used all fit together in this lesson/project?

*From:
Harris, J., Grandgenett, N., & Hofer, M. (2012). Testing an instrument using structured interviews to assess experienced teachers' TPACK. In C. D. Maddux, D. Gibson, & R. Rose (Eds.), *Research highlights in technology and teacher education 2012* (pp. in press). Chesapeake, VA: Society for Information Technology & Teacher Education (SITE).
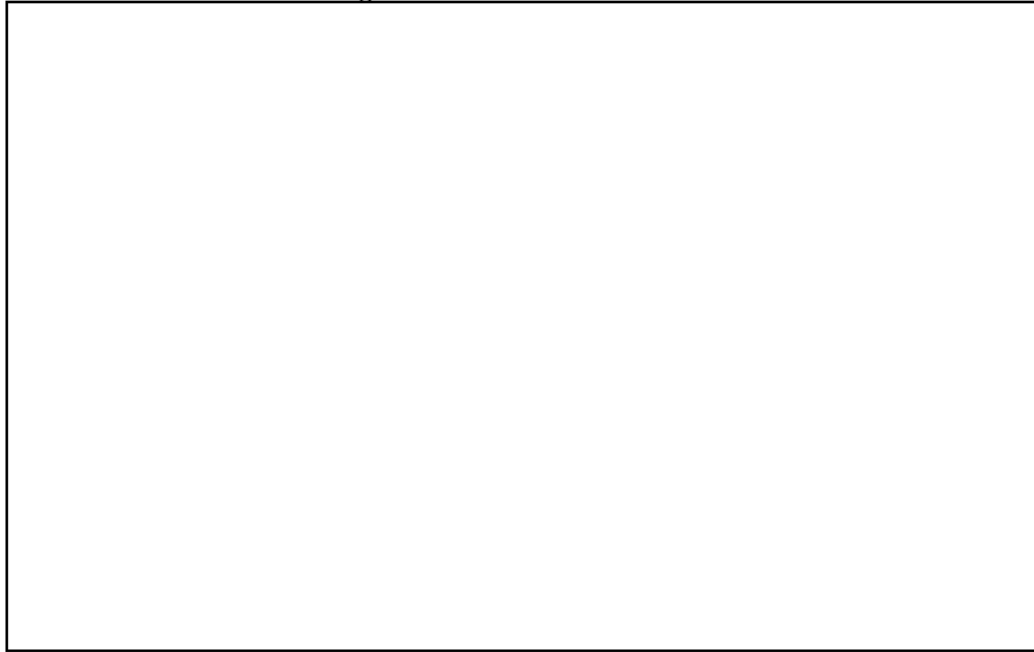
Appendix O

Observation Protocol Addendum

Technology Integration Observation Instrument Protocol Addendum

LT = Lead Teacher
T = All other support staff
S = Students

Diagram of Classroom Environment

Observations	Questions about Observations

Use reverse side of the paper for additional notes and questions.

Appendix P

Operational Definitions of TIAR

Technology Integration Assessment Rubric (lesson plan)

Criteria	4	3	2	1
Curriculum Goals & Technologies (Curriculum-based technology use) *Curriculum goal = objective*	Technologies selected for use in the instructional plan are strongly aligned with one or more curriculum goals.	Technologies selected for use in the instructional plan are aligned with one or more curriculum goals.	Technologies selected for use in the instructional plan are partially aligned with one or more curriculum goals.	Technologies selected for use in the instructional plan are not aligned with any curriculum goals
Definitions *Activity context* - age appropriate, relevant to learning *Tool narrative* - the tool matches the activity *Objective* - objective is age-appropriate and driven by the standards	Does the technology within the lesson help teachers and students meet the lesson objectives? The activity context, tool narrative and objective are all aligned. 100% of the present components are aligned and summative assessments are also aligned.	All components are aligned. Summative assessments are not aligned.	Between 50% and 67% of the present components are aligned.	No components are aligned.
Instructional Strategies & Technologies (Using technology in teaching/learning)	Technology use optimally supports instructional strategies.	Technology use supports instructional strategies.	Technology use minimally supports instructional strategies.	Technology use does not support instructional strategies.
Definitions *Technology use* - interacting with the device	Technology intentionally supports existing evidence-based practices and the user is the student or both the student and the teacher.	Technology intentionally supports existing evidence-based practices and the only user is the teacher.	Technology is unintentionally used as a choice to support evidence-based practices strategies.	Technology does not support instructional strategies.
Technology Selection(s) (Compatibility with curriculum goals & instructional strategies)	Technology selection(s) are exemplary, given curriculum goal(s) and instructional strategies.	Technology selection(s) are appropriate, but not exemplary, given curriculum goal(s) and instructional strategies.	Technology selection(s) are marginally appropriate, given curriculum goal(s) and instructional strategies.	Technology selection(s) are inappropriate, given curriculum goal(s) and instructional strategies.
Definitions *Choice* - as long as there is a choice - traditional and technology or technology and technology, the technology selection is exemplary	Teachers embed technology and traditional material choices into a) how students engage in their learning and/or b) increase participation through multiple platforms (device - iPad or Macbook) or tools (apps, software). All technology platforms and tools selected can support learning towards the lesson objective.	All technology platforms and tools selected clearly support learning towards the lesson objective. Teachers do not embed choices about how students share their learning or increase participation through multiple platforms or tools.	Some technology platforms and tools selected support learning towards the lesson objective.	No technology platforms or tools are appropriate.
"Fit" (Content, pedagogy and technology together)	Content, instructional strategies and technology fit together strongly within the instructional plan.	Content, instructional strategies and technology fit together within the instructional plan.	Content, instructional strategies and technology fit together somewhat within the instructional plan.	Content, instructional strategies and technology do not fit together within the instructional plan.
Definitions *Content* - direct instruction, subject matter *Pedagogy* - how the content is being taught *Technology* - platform and tool *Student-centered* - students are using the technology *Teacher-centered* - teachers are using the technology	100% of the content, pedagogy, and technology are aligned and student-centered or student-centered and teacher-centered.	100% of the content, pedagogy, and technology are aligned and teacher-centered.	Between 50% and 67% of the content, pedagogy, and technology are aligned and teacher or student-centered.	The content, pedagogy, and technology are not aligned.

Appendix Q

Operational Definitions of TIOI

Technology Integration Observation Instrument

Criteria	4	3	2	1
Curriculum Goals & Technologies (Curriculum-based technology use) *Curriculum goal = objective*	Technologies selected for use in the instructional plan are <u>strongly aligned</u> with one or more curriculum goals.	Technologies selected for use in the instructional plan are <u>aligned</u> with one or more curriculum goals.	Technologies selected for use in the instructional plan are <u>partially aligned</u> with one or more curriculum goals.	Technologies selected for use in the instructional plan are <u>not aligned</u> with any curriculum goals
Instructional Strategies & Technologies (Using technology in teaching/ learning)	Technology use <u>optimally</u> supports instructional strategies.	Technology use <u>supports</u> instructional strategies.	Technology use <u>minimally supports</u> instructional strategies.	Technology use <u>does not support</u> instructional strategies.
Technology Selection(s) (Compatibility with curriculum goals & instructional strategies)	Technology selection(s) are <u>exemplary</u>, given curriculum goal(s) and instructional strategies.	Technology selection(s) are <u>appropriate, but not exemplary</u>, given curriculum goal(s) and instructional strategies.	Technology selection(s) are <u>marginally appropriate</u>, given curriculum goal(s) and instructional strategies.	Technology selection(s) are <u>inappropriate</u>, given curriculum goal(s) and instructional strategies.
"Fit" (Content, pedagogy and technology together)	Content, instructional strategies and technology fit together strongly within the instructional plan.	Content, instructional strategies and technology fit together within the instructional plan.	Content, instructional strategies and technology fit together somewhat within the instructional plan.	Content, instructional strategies and technology do not fit together within the instructional plan.
Instructional Use (Using technologies effectively for instruction)	Instructional use of technologies is <u>maximally effective</u> in the observed lesson.	Instructional use of technologies is <u>effective</u> in the observed lesson.	Instructional use of technologies is <u>minimally effective</u> in the observed lesson.	Instructional use of technologies is <u>ineffective</u> in the observed lesson.
Definitions	Teachers and students or students use the technologies to meet the lesson objective.	Teachers use the technologies as a means to instruct and students meet the lesson objective.	Teachers and/or students use technology, however only some of the students meet the lesson objective.	Teachers and/or students use technology, however the lesson objective is not met.
Technology Logistics (Operating technologies effectively)	Teachers and/or student operate technologies <u>very well</u> in the observed lesson.	Teachers and/or students operate technologies <u>well</u> in the observed lesson.	Teachers and/or students operate technologies <u>adequately</u> in the observed lesson.	Teachers and/or students operate technologies <u>inadequately</u> in the observed lesson.
Definitions *Interruption* - the lesson stops for three minutes or longer *Troubleshoot* - restart the app/ device/website in an attempt to make it work as planned	The teachers and/or students move from one technology to the next without interruption to the lesson. The lesson is completed with the technologies listed in the lesson plan. If the teachers and/or students need technological assistance, they rely on one another to troubleshoot and fix the issue to continue the lesson.	The teachers and/or students move from one technology to the next without interruption to the lesson. If a technology does not work, the teacher immediately implements the back-up plan listed in the lesson plan. If the teachers and/or students need technological assistance, they rely on one another to troubleshoot and fix the issue to continue the lesson.	The teachers and/or students move from one technology to the next without interruption to the lesson. If a technology does not work, the teacher immediately substitutes a similar activity to the one listed in the lesson plan, however this is not indicated as a back-up plan listed in the lesson plan. If the teachers and/or students need technological assistance, they rely on one another to troubleshoot and fix the issue to continue the lesson.	The teacher and/or one or more students abandon the technologies in the lesson plan. When the technology does not work, the students do not complete the planned or back-up activity. When the teachers and/or students need technological assistance, they are unable to troubleshoot and fix the issue to continue the lesson. Assistance from the computing consultant may be requested.

Appendix R

School Leader Interview Protocol

Demographic questions:
1. Tell me about your leadership role here at Centennial School.
2. How long have you worked at Centennial?
3. How many years have you held your leadership position?
4. What is your highest degree earned?

Overall questions:
5. Describe Centennial School.
6. Describe the technology resources available to students and teachers.
7. What devices do you use that are provided by the school?
8. What devices do you use at school that are not provided by the school?

Afshari, Bakar, Lunan, Samah, and Fooi (2008)
9. How did you contribute to the shared vision that includes integrating technology with students with EBD?
10. How do you demonstrate effective uses of technology in the areas of teaching and learning?
11. How do you incorporate technology as you support, manage, and operate your program/school?
12. How do you involve yourself in the assessment and evaluation of technology in the school?

Richardson, Flora, and Bathon (2013)
13. How do you guide teachers to provide technology-rich environments to meet the needs of all learners?
14. How do you make teachers accountable for studying effective practices in integrating technology?

Professional Collaboration (Wagner, 2006)
15. When do teachers discuss instructional strategies and curriculum issues? Who leads these discussions? How often do they occur?
16. How are teachers and staff are involved in the decision-making process with regard to materials and resources?
17. When do you think teachers plan their lessons? Is there time allotted for collective planning? If so, when is this?

Affiliative Collegiality (Wagner, 2006)
18. How do you think teachers and staff tell stories of celebrations that support the school's values?
19. When are times that you think teachers and staff visit or meet outside of school?
20. What are some traditions of rituals and celebrations including holidays, special events, and recognition of goal attainment?

Self-Determination/Efficacy (Wagner, 2006)
21. If a procedure is not working in the school, how do staff members respond?
22. When a problem arises, how do teachers and administrators respond?
23. How do teachers make instructional decision, what do they do?
24. Why do you think people work at Centennial School?

Leadership Supports Culture
25. If defining school culture as "the way we do things around here" and a product and a process, how would you describe Centennial's school culture?
26. As a school leader, what do you do to support this culture?
27. Part of the school culture is the technology that teachers use with the students. How do you support teachers in integrating technology into classroom lessons?
28. What are some challenges or barriers you encounter when you are supporting the integration of technology with students with EBD?
29. How do you think teachers know what technology to align with the school's pedagogical choices?
30. Describe how the school culture has evolved in the last 10 years in regards to technology integration. Why did these changes take place?

Culture Supports Leadership
31. How does the school culture influence you as a school leader?
32. How does the school culture influence how you as a school leader support teachers who integrate technology?

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